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As submitted for confidential review with the Securities and Exchange Commission on February 8, 2018. This draft registration statement has not been publicly filed with the Securities and Exchange Commission and all information herein remains strictly confidential.

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

TWIST BIOSCIENCE CORPORATION
(Exact name of Registrant as specified in its charter)

Delaware	2836	46-2058888
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

455 Mission Bay Boulevard South, Suite 545
San Francisco, CA 94158
(800) 719-0671
(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

Emily M. Leproust
President and Chief Executive Officer
Twist Bioscience Corporation
455 Mission Bay Boulevard South, Suite 545
San Francisco, CA 94158
(800) 719-0671
(Name, address including zip code, and telephone number including area code, of agent for service)

COPIES TO:

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Approximate date of commencement of proposed sale to the public:
As soon as practicable after this Registration Statement becomes effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. ☐

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Securities Exchange Act of 1934 (check one):

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒ (Do not check if a smaller reporting company)	Smaller reporting company	☐
		Emerging growth company	☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided to Section 7(a)(2)(B) of the Securities Act. ☐

CALCULATION OF REGISTRATION FEE

Title of each class of securities to be registered	Amount to be registered(1)	Proposed maximum offering price per unit(2)	Proposed maximum aggregate offering price(2)	Amount of registration fee
Common Stock, par value $0.00001 per share		$	$	$

(1) Includes shares of Common Stock issuable upon exercise of the Underwriters' option to purchase additional shares, solely to cover overallotments. See "Underwriting."

(2) Estimated solely for the purpose of computing the amount of the registration fee pursuant to Rule 457(a) under the Securities Act of 1933, as amended.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to completion, dated , 2018

PRELIMINARY PROSPECTUS

shares

Common stock

This is the initial public offering of shares of common stock of Twist Bioscience Corporation. Prior to this offering, there has been no public market for our common stock. The initial public offering price is expected to be between $ and $ per share.

We intend to apply to list our common stock on The Nasdaq Global Market under the symbol “TWST.”

We are an “emerging growth company,” as defined under the federal securities laws and, as such, we have elected to comply with certain reduced public company reporting requirements for this prospectus and future filings.

	Per Share	Total
Initial public offering price	$	$
Underwriting discounts and commissions(1)	$	$
Proceeds, before expenses, to Twist Bioscience Corporation	$	$

(1) See “Underwriting” for additional disclosure regarding underwriting discounts and commissions and estimated offering expenses.

We have granted the underwriters a 30-day option to purchase up to additional shares of common stock from us at the initial public offering price less the underwriting discounts and commissions, solely to cover overallotments.

Investing in our common stock involves a high degree of risk. See the section entitled “Risk factors” beginning on page 17 to read about factors you should consider before buying shares of our common stock.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

The underwriters expect to deliver the shares of common stock to purchasers on or about , 2018.

Joint book running managers

J.P. Morgan **Cowen**

Co-managers

Allen & Company LLC **Baird**

, 2018

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NEITHER WE NOR THE UNDERWRITERS HAVE AUTHORIZED ANYONE TO PROVIDE ANY INFORMATION OR TO MAKE ANY REPRESENTATIONS OTHER THAN THOSE CONTAINED IN THIS PROSPECTUS OR IN ANY FREE WRITING PROSPECTUSES WE HAVE PREPARED. NEITHER WE NOR THE UNDERWRITERS TAKE RESPONSIBILITY FOR, AND CAN PROVIDE NO ASSURANCE AS TO THE RELIABILITY OF, ANY OTHER INFORMATION THAT OTHERS MAY GIVE YOU. THIS PROSPECTUS IS AN OFFER TO SELL ONLY THE SHARES OFFERED HEREBY, BUT ONLY UNDER CIRCUMSTANCES AND IN JURISDICTIONS WHERE IT IS LAWFUL TO DO SO. THE INFORMATION CONTAINED IN THIS PROSPECTUS IS CURRENT ONLY AS OF ITS DATE.

For investors outside of the United States: We have not, and the underwriters have not, done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than the United States. Persons outside of the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the shares of common stock and the distribution of this prospectus outside of the United States.

“Twist Bioscience,” and “Sequencespace” are registered trademarks in the U.S. and, in some cases, in certain other countries and our logo is an unregistered trademark of Twist Bioscience Corporation. All other brand names or trademarks appearing in this prospectus are the property of their respective holders. Solely for convenience, the trademarks and trade names in this prospectus are referred to without the ® and ™ symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto.

Prospectus summary

This summary highlights information contained in greater detail elsewhere in this prospectus. Before making an investment in our common stock, you should carefully read this entire prospectus, including our consolidated financial statements and the related notes thereto and the information in the sections entitled "Risk factors," "Management's discussion and analysis of financial condition and results of operations" and "Business." The last day of our fiscal year is September 30.

Overview

We are a leading and rapidly growing synthetic biology company that has developed a disruptive DNA synthesis platform. The core of our platform is a proprietary technology that pioneers a new method of manufacturing synthetic DNA by "writing" DNA on a silicon chip. We have combined this technology with proprietary software and scalable commercial infrastructure to create an integrated platform that enables us to achieve high levels of quality, precision, automation, and manufacturing throughput at a significantly lower cost than our competitors. We believe that we are the first and only company to harness the highly-scalable production and processing infrastructure of the semiconductor industry to industrialize the production of a wide range of synthetic DNA-based products.

Synthetic DNA is the fundamental building block of synthetic biology, an emerging industry that we believe represents one of the most exciting areas of growth and technological innovation in the 21st century. The ability to modify DNA and design biological systems is the foundation for a rapidly growing set of synthetic DNA-based products, applications, and markets across multiple industries.

The synthetic biology market is growing rapidly and is being fueled by increased access to affordable and innovative tools that enable new applications. We believe this is analogous to the trends seen in the next generation sequencing, or NGS, market, where declining costs of sequencing drove adoption, new applications and market expansion. Tools that combine advanced production technology with modern digital technology and software capabilities, such as our DNA synthesis platform, are driving growth and market creation. In calendar year 2016, the market for synthetic biology products was approximately $4.0 billion and is expected to grow to $11.0 billion by calendar year 2021. We believe this period of accelerated growth in the synthetic biology industry is in its early stages.

The applications of our DNA synthesis platform are broad, and have enabled us to develop and produce an array of different synthetic DNA-based products targeting multiple market opportunities. In April 2016, we launched the first application of our platform, our synthetic DNA product offering, with the goal to become the leading synthetic DNA provider, disrupt the gene synthesis market and make legacy DNA synthesis methods obsolete. We believe that the traditional DNA synthesis methods used by our competitors are inherently limited in scalability and are not optimized to satisfy the rapidly growing demand for high-quality, low-cost synthetic DNA. Our silicon-based chip technology is able to increase DNA production by a factor of 9,600 on a footprint similar to that of traditional DNA synthesis methods. Also, it significantly lowers the volume of required reagents, specifically the most expensive reagent by a factor of 1,000,000, and improves the precision of the synthesis process relative to legacy methods. This enables us to produce high-quality synthetic DNA on a much larger scale and at lower cost than competitors.

We have rapidly become a leading synthetic DNA provider. In fiscal 2017, we served 292 customers including nine of the top 20 pharmaceutical companies by revenue, Ginkgo Bioworks, Inc., or Gingko Bioworks, which we believe is the largest global purchaser of synthetic DNA, four of the largest agricultural biotechnology

companies, over 100 academic research institutions worldwide, and innovative customers using synthetic DNA for new and emerging applications, such as Microsoft Corporation and the University of Washington for use of DNA as a digital data storage medium. We are also an original equipment manufacturer, or OEM, of synthetic DNA to four synthetic DNA manufacturers that also compete with us, which we believe is a strong demonstration of the superiority of our platform.

We have also leveraged the versatility of our platform to expand our product portfolio into other markets in which we believe we have a competitive advantage. In October 2017, we launched an innovative and comprehensive sample preparation kit for next generation sequencing that simplifies the workflow, improves accuracy, and lowers the cost of NGS. We have launched a product for CRISPR gene editing that enables customers to edit an exponentially larger number of DNA regions in parallel. We have also commercialized a DNA library solution which enables more effective biologic drug discovery and development for our customers. We continue to expand our portfolio of commercial and development-stage products derived from synthetic DNA.

Our currently marketed products target the synthetic DNA market, a sub-segment of the synthetic biology market, and NGS sample preparation, a large adjacent market opportunity. We estimate that the combined market opportunity was $1.8 billion in calendar year 2016. The growing synthetic biology industry and demand for better DNA sequencing products are driving market growth. We believe that current estimates understate our market potential as they reflect a market that has historically been limited by the costly, time-consuming, and cumbersome nature of legacy DNA synthesis methods. We are seeing growth in our market opportunity as we improve access to affordable tools that encourage adoption of, and foster new applications and markets for our products.

We have built a scalable commercial platform that enables us to reach a diverse customer base that we estimate consists of over 100,000 synthetic DNA users today. In order to address this diverse customer base, we have employed a multi-channel strategy comprised of a direct sales force and an e-commerce platform. We launched our proprietary, innovative, and easy-to-use e-commerce platform in October 2017 to existing customers and expanded access to the general public in January 2018. Our platform allows customers to design, validate, and place on-demand orders of customized DNA online. This is a critical part of our strategy to address our large and diverse customer base, as well as drive commercial productivity, enhance the customer experience, and promote loyalty.

Since our formation in 2013, we have grown rapidly and achieved several key milestones that we believe position us for continued growth and success:

- In 2015, we demonstrated the benefits and validated the commercial utility of our proprietary silicon-based platform for DNA synthesis through a proof-of-concept program called the Alpha Access program, which provided initial access to our platform to select customers.
- In 2016, we (i) secured a long-term contract with Ginkgo Bioworks to provide up to 100 million base pairs of DNA, which we believe was the largest agreement for synthetic DNA at that time, (ii) launched our early commercial access program in April called the Beta Access program to select customers and expanded our existing relationship with Ginkgo Bioworks, (iii) acquired Genome Compiler Corporation to add software design capabilities for our e-commerce ordering system, (iv) laid the groundwork to pursue an opportunity in pharmaceutical drug discovery though a relationship with Distributed Bio, Inc., and (v) supplied DNA to Microsoft Corporation for its work with the University of Washington to develop DNA as a data storage medium.

- In 2017, we continued to increase penetration with existing customers and expand our customer base, by (i) serving 292 customers, up from 97 customers in 2016, (ii) agreeing to terms to supply one billion base pairs to Ginkgo Bioworks over a period of three years, (iii) extending the scope of our relationship with Microsoft Corporation and the University of Washington, (iv) entering into an agreement to supply thousands of genes for public benefit through the BioBricks Foundation, (v) successfully achieving industry-leading volumes of synthetic DNA shipped every month, (vi) becoming an OEM supplier of synthetic DNA to four synthetic DNA manufacturers that also compete with us, (vii) launching our e-commerce platform to existing customers in October 2017, and (viii) shipping over 38,000 genes compared to approximately 7,600 for the fourth quarter of fiscal 2016, which represents 400% year-over-year growth.
- In January 2018, we launched our e-commerce platform to the general public.

We generated revenue of $2.3 million in fiscal 2016 and $10.8 million in fiscal 2017 representing 375% year-over-year growth, while incurring net losses of $44.1 million in fiscal 2016 and $59.3 million in fiscal 2017.

Our headquarters and manufacturing facilities are located in San Francisco, California. As of September 30, 2017, we had 187 full-time employees across three locations in the San Francisco Bay Area and an international location in Tel Aviv, Israel. We also utilize a team of 10 dedicated commercial consultants across the European Union and the United Kingdom. As of September 30, 2017, we have raised a total of $200.3 million in gross proceeds from the sale of equity securities.

The synthetic biology industry

We operate in the field of synthetic biology, which is undergoing an era of rapid innovation and transformation, catalyzed by technological advancements in bioinformatics, genomics, computation and automation. Synthetic biology is the engineering of biology to build new biological systems or re-design existing biological systems. The ability to engineer biology is creating advances and benefits for a broad and growing range of end markets and consumers, including:

- healthcare for the discovery and production of new therapeutics and molecular diagnostics;
- agriculture for more effective and sustainable crop production;
- industrial chemicals for cost-effective and sustainable production of specialty chemicals and materials, such as nylon, rubber, fragrances and food flavors; and
- academic research for a broad range of applications.

According to BCC Research, the overall market for synthetic biology products was approximately $4.0 billion in calendar year 2016 and is expected to grow to over $11.0 billion by calendar year 2021. This industry momentum creates a significant opportunity for us to grow within our existing markets as well as expand our product offering.

Synthetic DNA is the fundamental building block of synthetic biology. DNA controls all cellular processes by coding for the production of proteins and other molecules. Users of synthetic biology can design synthetic DNA to regulate the production of these proteins and molecules to achieve a specific functional purpose. While synthetic DNA has been produced for more than 40 years, the complexities of biology and the production constraints inherent in legacy processes have historically limited the applications and market opportunities for DNA synthesis.

Limitations of existing solutions

Traditional methods of DNA synthesis consist of a two-step process that initially involves the synthesis of oligonucleotides, also referred to as oligos, which are short strands of DNA. These oligos are then combined to create longer strands of DNA. Currently, there are two primary methodologies used by others to create synthetic DNA, each having production limitations that we believe make these technologies sub-optimal to satisfy the rapidly growing demand for synthetic DNA. Today, all of our competitors use one of these two primary methods of DNA synthesis:

96-well plate method of DNA synthesis

Introduced as early as the 1950s, a 96-well plate is a flat plastic plate, roughly the size of two smartphones, with eight rows of 12 wells that are used as small test tubes. Instead of creating one sequence of DNA at a time in a single test tube, the 96-well plate allows researchers to create 96 oligos in parallel, one in each well. While this process successfully achieves DNA synthesis, it requires high volumes of phosphoramidites, an expensive raw material, as well as other ancillary reagents. It also produces excessive amounts of the final product, significantly more than is required for most subsequent processes, resulting in material that is discarded and an unnecessary expense. Additionally, this process is not scalable to produce high volumes, as approximately 100 oligos are needed to assemble one gene and therefore only one gene can be made from each 96-well plate.

Microarray method of DNA synthesis

Unlike a 96-well plate, a microarray is a flat surface made of plastic or glass on which DNA is synthesized directly in an array of discrete locations. Microarrays allow large numbers of oligos to be synthesized in parallel, increasing DNA production by up to four orders of magnitude when compared to the 96-well plate. However, while this method can make 100 genes in parallel, it remains difficult to scale, requires many steps, and results in significant waste of materials.

Because the synthesis of oligos can introduce errors in the sequence order, all DNA synthesis methods require a process called cloning.

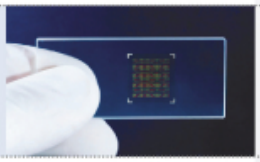
Cloning

Cloning is a tedious process to filter out errors and produce many identical copies of a strand of DNA, such as a gene. While the cloning process results in a precise sequence, it is incredibly slow and labor intensive and generally takes around 10 business days to complete. As a result, it is time consuming, expensive, and, in many cases, not an efficient use of researchers' time. In general, more accurate DNA synthesis technology results in fewer errors in the sequence order and reduces the time and costs required or allocated to the cloning process.

Our platform

We developed the Twist Bioscience DNA synthesis platform to address the limitations of throughput, scalability, and cost inherent in legacy DNA synthesis methods. Our platform stems from extensive analyses of, and improvements to, the existing gene synthesis and assembly workflows. Our core technologies combine expertise in silicon, software, fluidics, chemistry, and motion and vision control to miniaturize thousands of parallel chemical reactions on silicon and write thousands of strands of DNA in parallel. With a footprint that is similar to the size of a 96-well plate that produces one gene, we are able to produce 9,600 genes in parallel. Based on current production needs, we have intentionally designed our latest chip to make 6,144 genes in parallel, but we have the current capability to increase this to 9,600 genes as needed. We have combined our DNA synthesis technology with propriety software and scalable commercial infrastructure to create our vertically integrated DNA synthesis platform capable of delivering very large volumes of high-quality synthetic DNA at low cost.

Synthesis and Assembly Comparison

	96-Well Plate	Microarray	TWIST BIOSCIENCE
			
Amount of DNA	Too much (waste) Nano-mol	Too little (amplification) <Femto-mol	Right amount (no amplification, no waste) Pico-mol
DNA processing	Pooling required	De-pooling required	No pooling No de-pooling
Genes per 96-well	1	96	9,600*

*Full scale capacity chip shown; current chip in production has the capacity to make 6,144 genes

Based on market research, we believe that buyers of DNA are looking for a product and purchasing experience that delivers on a number of key factors, and our platform is uniquely designed to meet these customer needs and overcome the limitations of legacy DNA synthesis methods in order to support the growing demand for synthetic DNA:

	Customer desires	Twist Bioscience advantages
Quality and accuracy	• Quality and accuracy is a basic requirement for all customers. Deviations from customer specifications can render customers' downstream uses less productive or ineffective.	• Synthetic DNA providers are able to supply perfect clonal DNA to the customer. However, existing DNA synthesis technologies require significant cloning and error filtration to produce perfect clonal DNA. We are able to consistently produce high-quality oligos with what we believe is an industry-leading error rate of 1/1000 base pairs. This enables us to reduce the cloning and error filtration necessary to achieve perfect clonal DNA.
Cost	• Cost is a critical consideration for both large and small-scale customers. Large-scale commercial DNA purchasers that outsource their DNA supply are becoming increasingly price sensitive due to their growing demand for DNA. On the other hand, smaller-scale users, particularly academic users, typically have made their own DNA because of limited budgets relative to the prices charged by legacy DNA suppliers.	• Because we miniaturize the chemical reaction on a silicon chip, require lower volumes of reagents, and automate the production process, we are able to dramatically lower the production cost per base pair of DNA and offer our synthetic DNA at a lower price than competitors. As of November 2017, the publicly available pricing of our competitors for clonal DNA ranged from $0.17—$3.00 per base pair. Our standard pricing for comparable DNA is $0.09 per base pair. One of the best demonstrations of our cost advantage is that we supply synthetic DNA to four other competing synthetic DNA providers.
Throughput/scale	• As the applications for synthetic biology have expanded, customers are increasingly seeking to purchase large quantities of DNA in relatively short periods of time, which often cannot be supplied by a single synthetic DNA provider due to production capacity constraints. Ordering from multiple suppliers to fulfill large orders can be costly and administratively cumbersome for customers.	• Our silicon chip technology is able to increase DNA production by a factor of 9,600 on a footprint similar to traditional DNA synthesis methods. We currently have the capability to manufacture more than 45,000 genes per month, which we believe is the highest in the industry. We have agreed to terms to supply one billion base pairs to Ginkgo Bioworks over a period of three years, which we believe is the largest volume supply commitment in the industry.

	Customer desires	Twist Bioscience advantages
Turnaround time	• The time between placement of the order and delivery is a key consideration for customers. For example, pharmaceutical companies are focused on shortening internal R&D timelines and ready availability of high-quality, synthetic DNA to meet their internal timelines is an important factor.	• Because our platform enables the large-scale production of DNA, our turnaround time is largely independent of order size. We have enhanced our manufacturing capabilities and expect to reduce turnaround time on large commercial quantities of genes (i.e., orders of over 15,000 per month) to 10 business days.
Product offering / complexity	• Customers require a broad range of products including different gene lengths, complicated sequences and a wide range of additional configurations to fulfill a diverse set of applications and uses.	• Because we synthesize each oligonucleotide individually, we can customize orders to almost any customer's specifications. We currently offer genes of up to 3,200 base pairs in length, which we believe satisfies a vast majority of the market for synthetic DNA today. We expect to offer genes of up to 10,000 base pairs in the future. Unlike traditional DNA synthesis technologies, we can also manufacture a broad range of additional products on our same DNA synthesis platform, including antibody libraries and oligo pools, among others.
Reliability	• Customers value the reliability of a supplier to deliver on promises of quality and turnaround time to allow them to plan their downstream workflow and hit internal deadlines.	• Due to our throughput capability and proprietary integrated production and ordering process we have been able to consistently meet the specifications and turnaround time that we promise customers.
E-commerce capability	• Customers, particularly smaller-scale customers, value an intuitive, seamless e-commerce experience to simplify and automate the purchasing process. Some customers also value an application protocol interface, or an API, for electronic integration into their own procurement systems.	• While some synthetic DNA providers have an e-commerce platform for ordering DNA, we believe we offer the most comprehensive e-commerce platform consisting of customized quotes, automated feedback on the feasibility of the sequence and the ability to track orders from placement to delivery. An API is also a core component of our e-commerce system.

Our target markets

Our currently marketed product offering addresses a market opportunity that was approximately $1.8 billion in calendar year 2016. We believe our solution has the potential to materially expand our initial market by providing end-users with access to high-quality and lower cost tools, encouraging adoption, and facilitating new applications for our products.

Synthetic DNA market

We believe that our current market opportunity for synthetic DNA was approximately $1.3 billion in calendar year 2016. The market consists of those who buy DNA, or DNA Buyers, and those who make their own DNA, or DNA Makers. Driven by access to more affordable and high-quality synthetic DNA, we believe that there is a strong trend of DNA Makers converting to DNA Buyers. According to BCC Research, the size of the DNA Buyer market in 2016 was approximately $300 million and is growing at a rate of approximately 20% annually as existing DNA Buyers develop new uses for synthetic DNA and existing DNA Makers convert to DNA Buyers. We estimate our market opportunity in the DNA Maker market to be approximately $950 million. Our market estimate is based on the market sizes for products used in manual DNA synthesis including the cloning and restriction digestion enzyme market in 2016, according to a report on Molecular Biology by Markets and Markets.

NGS sample preparation market

Our NGS sample preparation kits address the demand for better sample preparation products that improve the sequencing workflow, increase sequencing accuracy and lower sequencing costs. We offer kits consisting of double-stranded DNA probes and a comprehensive target enrichment kit that are used for exome sequencing and custom targeted sequencing. Kalorama Information, a division of marketresearch.com, estimates the market for sample preparation for next generation sequencing was approximately $500 million in calendar year 2016 and growing at approximately 20% annually.

Future market opportunities

The applications of our platform are broad and we are applying our technology towards additional large market opportunities. We have identified two vertical markets as our initial strategic priorities: Pharmaceutical drug discovery and digital data storage in DNA.

Pharmaceutical drug discovery

We believe we are uniquely positioned to capture a larger portion of the drug discovery value chain given that our synthetic DNA products are already used by our pharmaceutical partners throughout the drug development process. As part of our effort in this market, we recently launched our DNA library solution which facilitates biologic drug discovery and development. We are already in agreement with a top three pharmaceutical company by revenue to supply our DNA libraries instead of them producing their own. We are also developing a proprietary DNA library with our own antibodies which we plan to license to pharmaceutical companies for further discovery and development.

Digital data storage in DNA

Due to the explosion of data across many industries, finding efficient means of storage has become more important. Through the Semiconductor Research Consortium, many leading semiconductor companies, including Microsoft Corporation, IBM Corporation, Micron Technology, Inc., Autodesk Inc., Mentor Graphics Corporation and GLOBALFOUNDRIES Inc., are exploring DNA as a data storage medium. Through our relationship with Microsoft Corporation and the University of Washington, we have demonstrated the feasibility of storing data on DNA and the unique benefits of longevity, density, and universality of this format. We expect that over time our technology will develop to allow data storage in DNA to become cost competitive with magnetic tape and enable us to target several large markets within data storage. The market for digitized data storage, including solid-state disk, magnetic disk, magnetic tape and optical disc storage and is currently estimated at over $35 billion.

Our growth strategy:

Our objective is to be the leading provider of synthetic DNA worldwide and to leverage the versatility of our platform to build a leadership position in other markets in which we have a competitive advantage. We intend to accomplish this objective by executing on the following:

- Maintain and expand our position as the provider of choice for high-quality, affordable synthetic DNA to customers across multiple industries
- Increase our penetration within existing buyers of synthetic DNA
- Further expand our addressable market by converting current “DNA Makers” into “DNA Buyers”
- Broaden our reach to the more than 100,000 estimated synthetic DNA users
- Augment our product offering within our core DNA synthesis franchise to meet the growing needs of our existing and potential new customers
- Expand into adjacent addressable markets
- Expand our global presence

Beyond these opportunities, we are working with industry partners to create new markets for our products. For example, through our relationship with Microsoft Corporation and the University of Washington we have demonstrated the advantages of DNA as a long-term medium for digital data storage, and are developing technology to address this potential market opportunity. Furthermore, given that synthetic DNA is the foundation for a broad range of products, we are in a strong position to evaluate acquisition opportunities in existing and adjacent markets and address other new markets as they emerge.

Risks related to our business

Investing in our common stock involves substantial risk. You should carefully consider all of the information in this prospectus prior to investing in our common stock. There are several risks related to our business that are described under “Risk factors” elsewhere in this prospectus. Among these important risks are the following:

- We are an early stage company with limited operating history, which may make it difficult to evaluate our current business and predict our future performance;
- We have incurred net losses in every period to date, and we expect to continue to incur significant losses as we develop our business and may never achieve profitability;
- Our consolidated financial statements contain a going concern qualification and we will require additional financing to achieve our goals;
- If we are unable to attract new customers and retain and grow sales from our existing customers, our business will be materially and adversely affected;
- Rapidly changing technology and extensive competition in synthetic biology could make the products we are developing obsolete or non-competitive unless we continue to develop new and improved products and pursue new market opportunities;

- We and our chief executive officer are currently involved in litigation with Agilent Technologies, Inc., in which Agilent has alleged a claim of trade secret misappropriation against Twist Bioscience and trade secret misappropriation and other related claims against our chief executive officer, and an adverse result could harm our business and results of operations;
- Our revenue, results of operations, cash flows and reputation in the marketplace may suffer upon the loss of a significant customer;
- The continued success of our business relies heavily on our disruptive technologies and products and our position in the market as a leading provider of synthetic DNA using a silicon chip; and
- If we are unable to obtain, maintain and enforce intellectual property protection, others may be able to make, use, or sell products and technologies substantially the same as ours, which could adversely affect our ability to compete in the market.

Corporate information

We were incorporated in Delaware on February 4, 2013. Our principal executive offices are located at 455 Mission Bay Boulevard South, Suite 545, San Francisco, CA 94158. Our telephone number at that location is (800) 719-0671. References in the prospectus to “we,” “our,” “us,” “Twist Bioscience” and the “Company” refer to Twist Bioscience Corporation and, where appropriate, its wholly-owned subsidiaries unless the context requires otherwise. Our corporate website address is www.twistbioscience.com. The information contained on our website is not incorporated by reference into this prospectus, and you should not consider any information contained on, or that can be accessed through, our website to be part of this prospectus. We have included our website address only as an inactive textual reference and do not intend it to be an active link to our website.

Implications of being an emerging growth company

We qualify as an “emerging growth company,” as defined in Section 2(a) of the Securities Act of 1933, as amended, or the Securities Act, as modified by the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. As such, we are eligible to take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not “emerging growth companies” including, but not limited to:

- an exemption from complying with the auditor attestation requirements of Section 404 of the Sarbanes Oxley Act of 2002, as amended, or Section 404;
- a requirement to have only two years of audited financial statements and only two years of related selected financial data and management’s discussion and analysis of financial condition and results of operations disclosure;
- reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements; and
- an exemption from the requirement to seek non-binding advisory votes on executive compensation and stockholder approval of any golden parachute payments not previously approved.

We have not made a decision regarding whether to take advantage of these exemptions. If we do take advantage of any of these exemptions, we do not know if some investors will find our common stock less

attractive as a result. The result may be a less active trading market for our common stock and our stock price may be more volatile.

In addition, Section 107 of the JOBS Act provides that an “emerging growth company” can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act for complying with new or revised accounting standards. In other words, an “emerging growth company” can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably opted out of the extended transition period for complying with new or revised accounting standards pursuant to Section 107(b) of the JOBS Act.

We could remain an “emerging growth company” for up to five years, or until the earliest of (a) the last day of the first fiscal year in which our annual gross revenues exceed $1.07 billion, (b) the date that we become a “large accelerated filer” as defined in Rule 12b-2 under the Securities Exchange Act of 1934, as amended, or the Exchange Act, which would occur if the market value of our common stock that is held by non-affiliates exceeds $700 million as of the last business day of our most recently completed second fiscal quarter and (c) the date on which we have issued more than $1 billion in non-convertible debt during the preceding three-year period.

The offering

The following information assumes that the underwriters do not exercise their option to purchase additional shares in the offering. See "Underwriting."

Common stock offered by us	shares
Common stock to be outstanding after the offering	shares
Option to purchase additional shares of common stock	The underwriters have an option to purchase a maximum of additional shares of common stock from us, solely to cover overallotments. The underwriters can exercise this option at any time within 30 days from the date of this prospectus.
Use of proceeds	We intend to use the net proceeds from this offering primarily to improve and update our platform and core technologies, to expand our sales and marketing capabilities, to further expand into other geographies, to continue to expand into new business verticals, and for working capital and other general corporate purposes. We may also use a portion of the net proceeds to acquire other businesses, products or technologies. However, we do not have agreements or commitments for any specific acquisitions at this time. See "Use of proceeds" for more information.
Listing	We intend to apply to list our common stock on The Nasdaq Global Market under the symbol "TWST."
Directed share program	At our request, the underwriters have reserved % of the shares of common stock offered hereby, at the initial public offering price, to directors, officers, employees, business associates and related persons of Twist Bioscience Corporation. The number of shares of common stock available for sale to the general public will be reduced to the extent these individuals purchase such reserved shares. Any reserved shares that are not so purchased will be offered by the underwriters to the general public on the same basis as the other shares offered by this prospectus. See section captioned "Underwriting."
Material U.S. federal income tax considerations for non-U.S. holders	For a discussion of the material U.S. federal income tax considerations that may be relevant to prospective investors who are non-U.S. holders, please see "Material U.S. federal income tax considerations for non-U.S. holders."
Risk factors	Investing in our common stock involves a high degree of risk. You should carefully read and consider the information set forth under "Risk factors" and all other information in this prospectus before investing in our common stock.

We refer to our Series A redeemable convertible preferred stock, Series B redeemable convertible preferred stock, Series C redeemable convertible preferred stock and Series D redeemable convertible preferred stock as our "convertible preferred stock" in this prospectus, as well as for financial reporting-term purposes and in the financial tables included in this prospectus, as more fully explained in Note 13 to our audited consolidated financial statements. In this prospectus (as well as, for financial reporting-term purposes and in the financial tables included in this prospectus as more fully described in Note 12), we refer to our outstanding warrants as either warrants to purchase shares of redeemable convertible preferred stock or warrants to purchase shares of common stock.

Except as otherwise indicated, all information in this prospectus is based upon 176,612,969 shares of our common stock (including 2,047,292 unvested shares of restricted common stock subject to our repurchase right) outstanding as of September 30, 2017, and excludes:

- 18,017,311 shares of our common stock issuable upon exercise of stock options outstanding as of September 30, 2017, having a weighted-average exercise price of $0.67 per share;
- shares of our common stock issuable upon exercise of stock options granted after September 30, 2017, having a weighted-average exercise price of $ per share;
- shares of common stock reserved for future grant or issuance under our 2018 Equity Incentive Plan, or 2018 Plan (which includes 6,805,339 shares of our common stock as of September 30, 2017 reserved for future grant under our 2013 Stock Plan, or 2013 Plan, that will be added to the shares reserved for future issuance under our 2018 Plan upon effectiveness of that plan if the shares are not issued or subject to outstanding grants under the 2013 Plan at that time), which will become effective in connection with this offering and contains provisions that automatically increase its share reserve each year, as more fully described in "Executive compensation—Equity incentive plans;"
- shares of common stock reserved for future grant or issuance under our 2018 Employee Stock Purchase Plan, or 2018 ESPP, which will become effective in connection with this offering and contains provisions that automatically increase its share reserve each year, as more fully described in "Executive Compensation—Equity incentive plans;"
- 634,921 shares of our common stock issuable upon the exercise of outstanding warrants to purchase our common stock outstanding as of September 30, 2017, having an exercise price of $0.63 per share, and an additional 634,920 shares of our common stock issuable upon the exercise of outstanding warrants to purchase our common stock, having an exercise price of $0.63 per share that would be exercisable upon the drawing down of additional loans under our amended and restated loan and security agreement with Silicon Valley Bank dated September 6, 2017, or credit facility;
- 364,742 shares of our common stock issuable upon the exercise of outstanding warrants to purchase Series A convertible preferred stock outstanding as of September 30, 2017, having an exercise price of $0.329 per share;
- 160,606 shares of our common stock issuable upon the exercise of outstanding warrants to purchase Series B convertible preferred stock outstanding as of September 30, 2017, having an exercise price of $0.792 per share;
- 186,679 shares of our common stock, issuable upon the exercise of outstanding warrants to purchase Series C convertible preferred stock outstanding as of September 30, 2017, having an exercise price of $1.4999 per share; and

- 74,567 shares of our common stock issuable upon the exercise of outstanding warrants to purchase Series D convertible preferred stock outstanding as of September 30, 2017, having an exercise price of $2.1457 per share.

Except as otherwise indicated, all information in this prospectus reflects and assumes:

- the conversion immediately prior to the completion of this offering of all of our outstanding shares of convertible preferred stock into an aggregate of 145,138,924 shares of common stock;
- the automatic conversion of warrants to purchase an aggregate of 786,594 shares of redeemable convertible preferred stock into warrants to purchase an aggregate of 786,594 shares of common stock immediately prior to the closing of this offering;
- no exercise or termination of outstanding stock options or warrants after September 30, 2017;
- the filing and effectiveness of our amended and restated certificate of incorporation and the adoption of our amended and restated bylaws immediately prior to the closing of this offering; and
- no exercise by the underwriters of their overallotment option to purchase additional shares of common stock from us.

Summary consolidated financial information

The following table summarizes our historical consolidated financial data and should be read together with our consolidated financial statements, the notes to our consolidated financial statements and the sections titled “Selected consolidated financial data” and “Management’s discussion and analysis of financial condition and results of operations” contained elsewhere in this prospectus.

We derived the summary consolidated statements of operations data and consolidated balance sheet data for the fiscal years ended September 30, 2016 and 2017 from our audited consolidated financial statements included elsewhere in this prospectus. The summary financial data included in this section are not intended to replace the financial statements and related notes included elsewhere in this prospectus. Our historical results are not necessarily indicative of our future performance.

	Years ended September 30,	
(in thousands, except share and per share data)	**2016**	**2017**
Consolidated statements of operations data:		
Revenues	$ 2,269	$ 10,767
Operating expenses:		
Cost of revenues	9,421	24,020
Research and development	18,230	19,169
Selling, general and administrative	18,274	26,060
Total operating expenses	45,925	69,249
Loss from operations	(43,656)	(58,482)
Interest income	241	412
Interest expense	(746)	(905)
Other income (expense), net	73	(55)
Loss before income taxes	(44,088)	(59,030)
Provision for income taxes	—	(280)
Net loss attributable to common stockholders	$ (44,088)	$ (59,310)
Other comprehensive loss		
Change in unrealized gain (loss) on investments	9	(9)
Foreign currency translation adjustment	—	33
Comprehensive loss	$ (44,079)	$ (59,286)
Net loss per share attributable to common stockholders—basic and diluted(1)	$ (2.38)	$ (2.47)
Weighted average shares used in computing net loss per share attributable to common stockholders—basic and diluted(1)	18,511,202	23,982,605
Pro forma net loss per share—basic and diluted(1)		$ (0.39)
Pro forma weighted-average shares used in computing pro forma net loss per share—basic and diluted(1)		152,397,059

(1) See Note 16 of the notes to our consolidated financial statements included elsewhere in this prospectus for a description of the method used to compute basic and diluted net loss per share attributable to common stockholders and pro forma basic and diluted net loss per share.

(In thousands)	As of September 30, 2017 Actual	Pro forma(2)	Pro forma as adjusted(3)
Consolidated balance sheet data:			
Cash, cash equivalents, and short-term investments	$ 62,204	$ 62,204	
Working capital	58,392	58,392	
Total assets	85,657	85,657	
Total liabilities	19,382	18,738	
Convertible preferred stock	199,633	—	
Additional paid-in capital	6,228	206,503	
Accumulated deficit	(139,619)	(139,619)	
Total stockholders' equity (deficit)	(133,358)	66,919	

(2) The pro forma column reflects, effective immediately prior to the closing of this offering, the conversion of all outstanding shares of our convertible preferred stock into an aggregate of 145,138,924 shares of common stock.

(3) The pro forma as adjusted column gives effect to the pro forma adjustments set forth in footnote 2 above and further reflects the sale by us of shares of common stock in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, our pro forma as adjusted cash, cash equivalents and short-term investments, working capital, total assets and total stockholders' equity by approximately $ million, assuming that the number of shares of our common stock offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each increase or decrease of 1.0 million shares in the number of shares offered by us would increase or decrease the amount of our cash, cash equivalents and short-term investments, working capital, total assets and total stockholders' equity by approximately $ million, assuming an initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

Risk factors

Investing in our common stock involves a high degree of risk. You should consider carefully the risks and uncertainties described below, together with all of the other information in this prospectus, including our consolidated financial statements and related notes, before deciding whether to purchase shares of our common stock. If any of the following risks is realized, our business, financial condition, results of operations and prospects could be materially and adversely affected. In that event, the price of our common stock could decline, and you could lose part or all of your investment.

Risks related to our business

We are an early stage company with limited operating history, which may make it difficult to evaluate our current business and predict our future performance.

We are an early stage company and have a limited operating history. We were incorporated in February 2013 and began commercial operations in April 2016. Prior to engaging in commercial operations, we focused on research and development of DNA synthesis. Our revenue for the fiscal years ended September 30, 2016 and 2017 was $2.3 million and $10.8 million, respectively. We may never achieve commercial success and we have limited historical financial data upon which we may base our projected revenue. We also have limited historical financial data upon which we may base our planned operating expense or upon which you may evaluate our business and our prospects. Based on our limited experience in developing and marketing new products, we may not be able to effectively:

- drive adoption of our products;
- attract and retain customers for our products;
- anticipate and adapt to changes in our the existing and emerging markets in which we operate;
- focus our research and development efforts in areas that generate returns on these efforts;
- maintain and develop strategic relationships with suppliers to acquire necessary materials and equipment for the production of our products on appropriate timelines, or at all;
- implement an effective marketing strategy to promote awareness of our products with potential customers;
- scale our manufacturing activities to meet potential demand at a reasonable costs;
- avoid infringement and misappropriation of third-party intellectual property;
- obtain licenses on commercially reasonable terms to third-party intellectual property, as needed;
- obtain valid and enforceable patents that give us a competitive advantage;
- protect our proprietary technology;
- provide appropriate levels of customer training and support for our products; and
- attract, retain and motivate qualified personnel.

In addition, a high percentage of our expenses have been and will continue to be fixed. Accordingly, if we do not generate revenue as and when anticipated, our losses may be greater than expected and our operating results will suffer. You should consider the risks and difficulties frequently encountered by companies like ours in new and rapidly evolving markets when making a decision to invest in our common stock.

We have incurred net losses in every period to date, and we expect to continue to incur significant losses as we develop our business and may never achieve profitability.

We have incurred net losses in each year since inception and have generated limited revenue from product sales to date. We expect to incur increasing costs as we grow our business. We cannot be certain if or when we will produce sufficient revenue from our operations to support our costs. Even if profitability is achieved, we may not be able to sustain profitability. We incurred net losses of $44.1 million and $59.3 million for the years ended September 30, 2016 and 2017, respectively. As of September 30, 2017, we had an accumulated deficit of $139.6 million. We expect to incur substantial losses and negative cash flow for the foreseeable future. In addition, as a public company, we will incur significant legal, accounting, and other expenses that we did not incur as a private company. These increased expenses will make it harder for us to achieve and sustain future profitability. We may incur significant losses in the future for a number of reasons, many of which are beyond our control, including the other risks described in this prospectus, the market acceptance of our products, future product development and our market penetration and margins.

Our consolidated financial statements contain a going concern qualification.

Our annual audited consolidated financial statements contain a going concern qualification. We have incurred net losses and used significant cash in operating activities since inception and have an accumulated deficit of $139.6 million and working capital of $58.4 million as of September 30, 2017. These factors raise substantial doubt about our ability to continue as a going concern. Our ability to continue as a going concern is dependent on our ability to raise adequate capital to fund operating losses until we are able to engage in profitable business operations. To the extent financing is not available, we may not be able to develop, or may be delayed in developing, our products and meeting our obligations. There can be no assurance that we will be able to obtain additional debt or equity capital required in order to continue our operations on terms acceptable to us or at all.

We will require additional financing to achieve our goals, and a failure to obtain this necessary capital when needed on acceptable terms, or at all, could force us to delay, limit, reduce or terminate our product manufacturing and development and other operations.

Since our inception, substantially all of our resources have been dedicated to the development of our DNA synthesis platform. Net cash used in operating activities was $38.6 million and $51.3 million for the years ended September 30, 2016 and 2017, respectively. As of September 30, 2017, we had working capital of $58.4 million and capital resources consisting of cash, cash equivalents and short-term investments of $62.2 million. We believe that we will continue to expend substantial resources for the foreseeable future as we expand into additional markets we may choose to pursue. These expenditures are expected to include costs associated with research and development, manufacturing and supply as well as marketing and selling existing and new products. In addition, other unanticipated costs may arise.

After giving effect to the anticipated net proceeds from this offering, we expect that our existing cash, cash equivalents and short-term investments will be sufficient to fund our planned operating expenses, capital expenditure requirements and debt service payments through at least the next 12 months. However, our operating plan may change as a result of factors currently unknown to us, and we may need to seek additional funds sooner than planned, through public or private equity or debt financings or other sources, such as strategic collaborations. Such financing may result in dilution to stockholders, imposition of debt covenants and repayment obligations, or other restrictions that may adversely affect our business. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans.

Our future capital requirements depend on many factors, including:

- the number and characteristics of any additional products or manufacturing processes we develop or acquire to serve new or existing markets;
- the scope, progress, results and costs of researching and developing future products or improvements to existing products or manufacturing processes;
- the cost of manufacturing our DNA synthesis equipment and tools and any future products we successfully commercialize;
- our ability to establish and maintain strategic collaborations, licensing or other arrangements and the financial terms of such agreements;
- any lawsuits related to our products or commenced against us, including the costs associated with our current litigation with Agilent;
- the expenses needed to attract and retain skilled personnel;
- the costs associated with being a public company;
- the costs involved in preparing, filing, prosecuting, maintaining, defending and enforcing patent claims, including litigation costs and the outcome of such litigation; and
- the timing, receipt and amount of sales of, or royalties on, any future approved products, if any.

Additional funds may not be available when we need them, on terms that are acceptable to us, or at all. If adequate funds are not available to us on a timely basis, we may be required to:

- delay, limit, reduce or terminate our manufacturing, research and development activities; or
- delay, limit, reduce or terminate our establishment of sales and marketing capabilities or other activities that may be necessary to generate revenue and achieve profitability.

If we are unable to maintain adequate revenue growth or do not successfully manage such growth, our business and growth prospects will be harmed.

We have experienced significant revenue growth in a short period of time. We may not achieve similar growth rates in future periods. Investors should not rely on our operating results for any prior periods as an indication of our future operating performance. To effectively manage our anticipated future growth, we must continue to maintain and enhance our manufacturing, sales, financial and customer support administration systems, processes and controls. Failure to effectively manage our anticipated growth could lead us to over-invest or under-invest in development, operational, and administrative infrastructure; result in weaknesses in our infrastructure, systems, or controls; give rise to operational mistakes, losses, loss of customers, productivity or business opportunities; and result in loss of employees and reduced productivity of remaining employees.

Our continued growth could require significant capital expenditures and might divert financial resources from other projects such as the development of new products and services. As additional products are commercialized, we may need to incorporate new equipment, implement new technology systems, or hire new personnel with different qualifications. Failure to manage this growth or transition could result in turnaround time delays, higher manufacturing costs, declining product quality, deteriorating customer service, and slower responses to competitive challenges. A failure in any one of these areas could make it difficult for us to meet market expectations for our products, and could damage our reputation and the prospects for our business.

If our management is unable to effectively manage our anticipated growth, our expenses may increase more than expected, our revenue could decline or grow more slowly than expected and we may be unable to implement our business strategy. The quality of our products may suffer, which could negatively affect our reputation and harm our ability to retain and attract customers.

The estimates of market opportunity and forecasts of market growth included in this prospectus may prove to be inaccurate, and even if the market in which we compete achieves the forecasted growth, our business could fail to grow at similar rates, if at all.

Market opportunity estimates and growth forecasts are subject to significant uncertainty and are based on assumptions and estimates that may not prove to be accurate. For example, several of the reports rely on discussions with industry thought leaders, employ projections of future applications of synthetic biology and next generation sequencing technology in major end-user market segments and by technology type, and incorporate data from secondary sources such as company websites as well as industry, trade and government publications. The estimates and forecasts in this prospectus relating to the size and expected growth of our market may prove to be inaccurate. Even if the market in which we compete meets the size estimates and growth forecasted in this prospectus, our business could fail to grow at the rate we anticipate, if at all.

Our quarterly and annual operating results and cash flows have fluctuated in the past and might continue to fluctuate, causing the value of our common stock to decline substantially.

Numerous factors, many of which are outside our control, may cause or contribute to significant fluctuations in our quarterly and annual operating results. These fluctuations may make financial planning and forecasting difficult. In addition, these fluctuations may result in unanticipated decreases in our available cash, which could negatively affect our business and prospects. In addition, one or more of such factors may cause our revenue or operating expenses in one period to be disproportionately higher or lower relative to the others. As a result, comparing our operating results on a period-to-period basis might not be meaningful. You should not rely on our past results as indicative of our future performance. Moreover, our stock price might be based on expectations of future performance that are unrealistic or that we might not meet and, if our revenue or operating results fall below the expectations of investors or securities analysts, the price of our common stock could decline substantially.

Our operating results have varied in the past. As a result, our operating results could be unpredictable, particularly on a quarterly basis. In addition to other risk factors listed in this section, some of the important factors that may cause fluctuations in our quarterly and annual operating results are further described in “Risk factors—Risks relating to owning our stock and this offering.”

In addition, a significant portion of our operating expense is relatively fixed in nature, and planned expenditures are based in part on expectations regarding future revenue. Accordingly, unexpected revenue shortfalls might decrease our gross margins and could cause significant changes in our operating results from quarter to quarter. If this occurs, the trading price of our common stock could fall substantially.

If we are unable to attract new customers and retain and grow sales from our existing customers, our business will be materially and adversely affected.

In order to grow our business, we must continue to attract new customers and retain and grow sales from our existing customers on a cost-effective basis. To do this, we aim to attract new and existing buyers of synthetic DNA, convert makers of synthetic DNA into buyers of synthetic DNA, and achieve widespread market acceptance by delivering both our current product offerings and new products and technologies at low-cost, with high-quality, reliable turn-around times and throughput, superior e-commerce services and effective technical support. For additional information on our growth strategy, see the section of this prospectus

captioned “Business—Business strategy.” We cannot guarantee that our efforts to provide these key requirements will be consistently acceptable to, and meet the performance expectations of, our customers and potential customers. If we are unable to successfully attract and retain customers, our business, financial position and results of operations would be negatively impacted.

Internet security poses a risk to our e-commerce sales.

We currently generate a small portion of our revenue through sales on our e-commerce platform. However, as part of our growth strategy, we intend to increase the level of customer traffic and volume of customer purchases through our e-commerce platform which we formally launched to the general public in January 2018. We manage our website and e-commerce platform internally and as a result any compromise of our security or misappropriation of proprietary information could have a material adverse effect on our business, financial condition and results of operations. We rely on encryption and authentication technology licensed from third parties to provide the security and authentication necessary to effect secure Internet transmission of confidential information, such as credit and other proprietary information. Advances in computer capabilities, new discoveries in the field of cryptography or other events or developments may result in a compromise or breach of the technology used by us to protect customer transaction data. Anyone who is able to circumvent our security measures could misappropriate proprietary information or cause material interruptions in our operations. We may be required to expend significant capital and other resources to protect against security breaches or to minimize problems caused by security breaches. To the extent that our activities or the activities of others involve the storage and transmission of proprietary information, security breaches could damage our reputation and expose us to a risk of loss and/or litigation. Our security measures may not prevent security breaches. Our failure to prevent these security breaches may result in consumer distrust and may adversely affect our business, results of operations and financial condition.

Our actual operating results may differ significantly from our guidance.

From time to time, we plan to release guidance in our quarterly earnings conference calls, quarterly earnings releases, or otherwise, regarding our future performance that represents our management’s estimates as of the date of release. This guidance, which will include forward-looking statements, will be based on projections prepared by our management. These projections will not be prepared with a view toward compliance with published guidelines of the American Institute of Certified Public Accountants, and neither our registered public accountants nor any other independent expert or outside party compiles or examines the projections. Accordingly, no such person will express any opinion or any other form of assurance with respect to the projections.

Projections are based upon a number of assumptions and estimates that, while presented with numerical specificity, are inherently subject to significant business, economic and competitive uncertainties and contingencies, many of which are beyond our control and are based upon specific assumptions with respect to future business decisions, some of which will change. We intend to state possible outcomes as high and low ranges which are intended to provide a sensitivity analysis as variables are changed but are not intended to imply that actual results could not fall outside of the suggested ranges. The principal reason that we release guidance is to provide a basis for our management to discuss our business outlook with analysts and investors. We do not accept any responsibility for any projections or reports published by any such third parties.

Guidance is necessarily speculative in nature, and it can be expected that some or all of the assumptions underlying the guidance furnished by us will not materialize or will vary significantly from actual results. Accordingly, our guidance is only an estimate of what management believes is realizable as of the date of release. Actual results may vary from our guidance and the variations may be material. In light of the foregoing, investors are urged not to rely upon our guidance in making an investment decision regarding our common stock.

Any failure to successfully implement our operating strategy or the occurrence of any of the events or circumstances set forth in this "Risk factors" section in this prospectus could result in the actual operating results being different from our guidance, and the differences may be adverse and material.

Rapidly changing technology and extensive competition in synthetic biology could make the products we are developing and producing obsolete or non-competitive unless we continue to develop and manufacture new and improved products and pursue new market opportunities.

The synthetic biology industry is characterized by rapid and significant technological changes, frequent new product introductions and enhancements and evolving industry demands and standards. Our future success will depend on our ability to continually improve the products we are developing and producing, to develop and introduce new products that address the evolving needs of our customers on a timely and cost-effective basis and to pursue new market opportunities that develop as a result of technological and scientific advances. These new market opportunities may be outside the scope of our proven expertise or in areas which have unproven market demand, and the utility and value of new products and services developed by us may not be accepted in the markets served by the new products. Our inability to gain market acceptance of existing products in new markets or market acceptance of new products could harm our future operating results. Our future success also depends on our ability to manufacture these new and improved products to meet customer demand in a timely and cost-effective manner, including our ability to resolve manufacturing issues that may arise as we commence production of any new products we develop. Unanticipated difficulties or delays in replacing existing products with new products we introduce or in manufacturing improved or new products in sufficient quantities to meet customer demand could diminish future demand for our products and harm our future operating results.

In addition, there is extensive competition in the synthetic biology industry, and our future success will depend on our ability to maintain a competitive position with respect to technological advances. Technological development by others may result in our technologies, as well as products developed using our technologies, becoming obsolete. Our ability to compete successfully will depend on our ability to develop proprietary technologies and products that are technologically superior to and/or are less expensive than our competitors' technologies and products. Our competitors may be able to develop competing and/or superior technologies and processes, and compete more aggressively and sustain that competition over a longer period of time.

The continued success of our business relies heavily on our disruptive technologies and products and our position in the market as a leading provider or synthetic DNA using a silicon chip.

Our future profitability will depend on our ability to successfully execute and maintain a sustainable business model and generate continuous streams of revenue. Our business model is premised on the fact that we are the only DNA synthesis provider to synthesize DNA on a silicon chip and the competitive advantages this creates. Our DNA synthesis methods, among other things, reduce the amount of raw materials required, speed up the synthesis process and deliver large volumes of high-quality synthetic DNA at low unit cost. However, if other competitors develop and commercialize a manufacturing process using a silicon chip or other similar technologies providing for the development of competitive synthetic DNA products at scale, this could be disruptive to our business model and could adversely affect our business prospects, financial condition and results of operations. If we are unable to convert sufficient number of current manufacturers of synthetic DNA to buyers of our synthetic DNA, surpass our competitors regarding certain industry-related data points, and effectively implement our e-commerce platform which facilitates efficient order entry and fulfillment for our customers, our business, prospects, financial condition and results of operation will be adversely affected.

A significant portion of our sales depends on customers' capital spending budgets that may be subject to significant and unexpected variation, including seasonality.

Our customers' spending on research and development impacts our sales and profitability. Our customers and potential customers include healthcare, agriculture, industrial chemicals and academic research sectors, and their capital spending budgets can have a significant effect on the demand for our products. Their research and development budgets are based on a wide variety of factors, including factors beyond our control, such as:

- the allocation of available resources to make purchases;
- funding from government sources;
- changes in government programs that provide funding to research institutions and companies;
- the spending priorities among various types of research equipment;
- policies regarding capital expenditures during recessionary periods;
- macroeconomic conditions and the political climate;
- changes in the regulatory environment;
- differences in budgetary cycles; and
- market acceptance of relatively new technologies, such as ours.

Any decrease in capital spending or change in spending priorities of our customers and potential customers could significantly reduce the demand for our products. As we expand into new geographic markets, our revenue may be impacted by seasonal trends in the different regions, the seasonality of customer capital budgets in those regions and the mix of domestic versus international sales. Moreover, we have no control over the timing and amount of purchases by these customers and potential customers, and as a result, revenue from these sources may vary significantly due to factors that can be difficult to forecast. Any delay or reduction in purchases by customers and potential customers or our inability to forecast fluctuations in demand could harm our future operating results.

We generally do not enter into long-term contracts with our customers.

Our customers generally do not have long-term contracts with us and without such contracts our customers are not obligated to order or reorder our products. As a result, we cannot accurately predict our customers' decisions to reduce or cease purchasing our products. Additionally, even where we enter into contracts with our customers, there is no guarantee that such agreements will be negotiated on terms that are commercially favorable to us in the long term. Therefore, if many of our customers were to substantially reduce their transaction volume or cease ordering products from us, this could materially and adversely affect our financial performance.

We have limited experience in sales and marketing of our products and, as a result, may be unable to successfully increase our market share and expand our customer base.

We have limited experience in sales and marketing of our products. Our ability to achieve profitability depends on our being able to increase our market share and expand our customer base. Although members of our sales and marketing teams have considerable industry experience and have engaged in marketing activities for our products, in the future we must expand our sales, marketing, distribution and customer support capabilities

with the appropriate technical expertise to effectively market our products. To perform sales, marketing, distribution and customer support successfully, we will face a number of risks, including:

- we may not be able to attract, retain and manage the sales, marketing and service force necessary to publicize and gain broader market acceptance for our technology;
- the time and cost of establishing a specialized sales, marketing and service force for a particular product or service, which may be difficult to justify in light of the revenue generated; and
- our sales, marketing and service force may be unable to initiate and execute successful commercialization activities with respect to new products or markets we may seek to enter.

If our sales and marketing efforts, or those of any third-party sales and distribution partners, are not successful, our new technologies and products may not gain market acceptance, which could materially impact our business operations.

We have limited experience in manufacturing our DNA synthesis equipment and tools. If we are unable to expand our DNA synthesis manufacturing capacity, this would result in lost revenue and harm our business.

In order to expand our manufacturing capacity of new and existing products, we need to either build additional internal manufacturing capacity, contract with one or more partners, or both. Our technology and the production process for our DNA synthesis equipment and tools are complex, involving specialized parts, and we may encounter unexpected difficulties in manufacturing our DNA synthesis equipment and tools. There is no assurance that we will be able to continue to build manufacturing capacity internally or find one or more suitable partners, or both, to meet the volume and quality requirements necessary to be successful in our existing and potential markets. Manufacturing and product quality issues may arise as we increase the scale of our production. If our DNA synthesis equipment and tools do not consistently produce DNA products that meet our customers' performance expectations, our reputation may be harmed, and we may be unable to generate sufficient revenue to become profitable. Any delay or inability in establishing or expanding our manufacturing capacity could diminish our ability to develop or sell our products, which could result in lost revenue and materially harm our business, financial condition and results of operations.

We are substantially dependent on the success of our core DNA synthesis business.

To date, we have invested nearly all of our efforts and financial resources in the research and development of our DNA synthesis business. The DNA synthesis business is very capital intensive, particularly for early stage companies that do not have significant off-setting revenues.

Our financial results are dependent on strengthening our core business while diversifying into other developing sectors such as data storage and industrial chemicals. Substantially all of our revenue generated to date is from our core DNA synthesis business.

Our near-term prospects, including our ability to finance our Company and enter into strategic collaborations, will depend heavily on the successful development and commercialization of our core DNA synthesis business. These initiatives will be substantially dependent on our ability to generate revenue from our core DNA synthesis business and obtain other funding necessary to support these initiatives. Our inability to continue these initiatives and initiate new research and development efforts could result in a failure to develop new products, improve upon existing products such that sectors like data storage may never be fully developed, and expand our addressable market which could have a material and adverse impact on our sales, business, financial position and results of operations.

We and our chief executive officer are currently involved in litigation with Agilent Technologies, Inc., in which Agilent has alleged a claim of trade secret misappropriation against Twist Bioscience and trade secret misappropriation and other related claims against our chief executive officer, and an adverse result could harm our business and results of operations.

We and our chief executive officer are currently involved in litigation with Agilent Technologies, Inc., or Agilent, in which Agilent has alleged a claim of trade secret misappropriation against our Company and trade secret misappropriation and other related claims against our chief executive officer. This litigation with Agilent could result in significant expense. Some of our competitors, including Agilent have considerable resources available to them. We, on the other hand, are an early-stage commercial company with comparatively few resources available to us to engage in costly and protracted litigation. Intellectual property infringement claims asserted against us, whether with or without merit, could be costly to defend and could limit our ability to use some technologies in the future. They will be time consuming, will divert our chief executive officer's, management's and scientific personnel's attention and may result in liability for substantial damages. For example, we have incurred and anticipate that we will continue to incur significant expense and substantial time in defending against our current intellectual property infringement dispute with Agilent.

An adverse judgment in the Agilent proceeding could require us to pay damages, attorneys' fees, costs and expenses, or result in injunctive relief, any of which could materially adversely affect our business, financial condition, results of operations and prospects. For more information on our current legal and regulatory proceedings, see the section of this prospectus captioned "Business — Legal proceedings." And for other risks related to our intellectual property, see the section of this prospectus captioned "Risks related to our intellectual property." We may also in the future be involved with other litigation. We expect that the number of such claims may increase as our scale and the level of competition in our industry segments grows.

We depend on single-source suppliers for two critical components for our synthesis process. The loss of these suppliers, or their failure to supply us with the necessary components on a timely basis, could cause delays in the future capacity of our synthesis process and adversely affect our business.

We depend on single-source suppliers for two critical components for our synthesis process. We do not currently have the infrastructure or capability internally to manufacture these components. Although we have a substantial stockpile of supplies and although alternative suppliers exist for each of these critical components of our synthesis process, our existing DNA synthesis manufacturing process has been designed based on the functions, limitations, features and specifications of the components that we currently utilize. We have supply agreements in place with these component suppliers. However, there can be no assurance that our supply of these components will not be limited, interrupted, or of satisfactory quality or continue to be available at acceptable prices. Additionally, we do not have any control over the process or timing of the acquisition or manufacture of materials by our manufacturers, and cannot ensure that they will deliver to us the components we order on time, or at all.

The loss of either of the components provided by these suppliers could require us to change the design of our manufacturing process based on the functions, limitations, features and specifications of the replacement components.

In addition, the lead time needed to establish a relationship with a new supplier can be lengthy, and we may experience delays in meeting demand in the event we must switch to a new supplier. The time and effort to qualify a new supplier could result in additional costs, diversion of resources or reduced manufacturing yields, any of which would negatively impact our operating results. Further, we may be unable to enter into agreements with a new supplier on commercially reasonable terms, which could have a material adverse

impact on our business. Our dependence on these two single-source suppliers exposes us to certain risks, including the following:

- our suppliers may cease or reduce production or deliveries, raise prices or renegotiate terms;
- we may be unable to locate a suitable replacement on acceptable terms or on a timely basis, if at all;
- if there is a disruption to one or both of our single-source suppliers' operations, and if we are unable to enter into arrangements with alternative suppliers, we will have no other means of completing our synthesis process until they restore the affected facilities or we or they procure alternative manufacturing facilities or sources of supply;
- delays caused by supply issues may harm our reputation, frustrate our customers and cause them to turn to our competitors for future projects; and
- our ability to progress our core DNA synthesis business could be materially and adversely impacted if any of our single-source suppliers upon which we rely were to experience a significant business challenge, disruption or failure due to issues such as financial difficulties or bankruptcy, issues relating to other customers such as regulatory or quality compliance issues, or other financial, legal, regulatory or reputational issues.

Moreover, to meet anticipated market demand, our single-source suppliers may need to increase manufacturing capacity, which could involve significant challenges. This may require us and our suppliers to invest substantial additional funds and hire and retain the technical personnel who have the necessary experience. Neither we nor our suppliers may successfully complete any required increase to existing manufacturing capacity in a timely manner, or at all. For additional information on our single-source and other suppliers, see the section of this prospectus captioned "Business — Suppliers."

We must continue to secure and maintain sufficient and stable supplies of raw materials.

Although historically we have not experienced price increases due to unexpected raw material shortages and other unanticipated events, there is no assurance that our supply of raw materials will not be significantly adversely affected in the future, adversely affecting our business, prospects, financial condition and results of operation.

In addition, as we grow, our existing suppliers may not be able to meet our increasing demand, and we may need to find additional suppliers. There is no assurance that we will always be able to secure suppliers who provide raw materials at the specification, quantity and quality levels that we demand (or at all) or be able to negotiate acceptable fees and terms of services with any such suppliers. Identifying a suitable supplier is an involved process that requires us to become satisfied with their quality control, responsiveness and service, financial stability and labor and other ethical practices. Even if we are able to expand existing sources, we may encounter delays in production and added costs as a result of the time it takes to train suppliers in our methods, products and quality control standards.

We typically do not enter into agreements with our suppliers but secure our raw materials on a purchase order basis. Our suppliers may reduce or cease their supply of raw materials and outsourced services and products to us at any time in the future. If the supply of raw materials and the outsourced services and products is interrupted, our production processes may be delayed. If any such event occurs, our operation and financial position may be adversely affected.

A deterioration of our relationship with any of our suppliers, or problems experienced by these suppliers, could lead to shortages in our production capacity for some or all of our products. In such case, we may not be able to

fulfill the demand of existing customers or supply new customers. A raw material shortage or an increase in the cost of the raw materials we use could result in decreased revenue or could impair our ability to maintain or expand our business.

For the years ended September 30, 2016 and 2017, our cost of raw materials accounted for approximately 27%, and 30%, respectively, of our total cost of revenues. In the event of significant price increases for raw materials, we may have to pass the increased raw materials costs to our customers. However, we cannot assure you that we will be able to raise the prices of our products sufficiently to cover increased costs resulting from increases in the cost of our raw materials or overcome the interruption of a sufficient supply of qualified raw materials for our products. As a result, a price increase for our raw materials may negatively impact our business, financial position and results of operations.

We may encounter difficulties in managing our growth, and these difficulties could impair our profitability.

Currently, we are working simultaneously on multiple projects targeting several market sectors, including activities in the healthcare, agriculture, industrial chemicals and academic sectors. These diversified operations place significant demands on our limited resources and require us to substantially expand the capabilities of our technical, administrative and operational resources.

If we are unable to manage this growth effectively, our business and operating results could suffer. Our ability to manage our operations and costs, including research and development, costs of components, manufacturing, sales and marketing, requires us to continue to enhance our operational, financial and management controls, reporting systems and procedures and to attract and retain sufficient numbers of talented employees. Failure to attract and retain sufficient numbers of talented employees will further strain our human resources and could impede our growth.

Our revenue, results of operations, cash flows and reputation in the marketplace may suffer upon the loss of a significant customer.

We have derived, and believe we may continue to derive, a significant portion of our revenues from one large customer or a limited number of large customers. Our largest customer, Ginkgo Bioworks, Inc., or Ginkgo Bioworks, accounted for 30% and 40% of our revenue for the years ended September 30, 2016 and 2017. Our customers may buy less of our products depending on their own technological developments, end-user demand for our products and internal budget cycles. In addition, existing customers may choose to produce some or all of their synthetic DNA requirements internally by using or developing manufacturing capabilities organically or by using capabilities from acquisitions of assets or entities from third parties with such capabilities. For example, in January 2017, Ginkgo Bioworks announced the acquisition of Gen9, Inc., which is a competing DNA synthesis manufacturer. If Ginkgo Bioworks reduces the amount of products it purchases from us and increases the amount of synthetic DNA products it manufactures internally using the capabilities acquired in the Gen9 acquisition or otherwise, it could have a material adverse impact on our revenue, results of operations, cash flows and reputation in the marketplace. The loss of Ginkgo Bioworks as a customer, or the loss of any other significant customer or a significant reduction in the amount of product ordered by Ginkgo Bioworks or any other significant customer would adversely affect our revenue, results of operations, cash flows and reputation in the marketplace.

Our credit facility contains restrictions that limit our flexibility in operating our business.

In September 2017, we entered into an amended and restated loan and security agreement with Silicon Valley Bank, which we refer to as our credit facility. Our credit facility contains various covenants that limit our ability to engage in specified types of transactions. These covenants limit our ability to, among other things:

- sell, transfer, lease or otherwise dispose of our assets;

- create, incur or assume additional indebtedness;
- engage in certain changes in business, management, control, or business location;
- encumber or permit liens on certain of our assets;
- make restricted payments, including paying dividends on, repurchasing or making distributions with respect to our common stock;
- make specified investments (including loans and advances);
- consolidate, merge, sell or otherwise dispose of all or substantially all of our assets or acquire other entities;
- make or permit any payment on any subordinated debt; and
- enter into certain transactions with our affiliates.

Our incurrence of this debt, and any future increases in our aggregate level of debt, may adversely affect our operating results and financial condition by, among other things:

- increasing our vulnerability to downturns in our business, to competitive pressures and to adverse economic and industry conditions;
- requiring the dedication of an increased portion of our expected cash flows from operations to service our indebtedness, thereby reducing the amount of expected cash flows available for other purposes, including capital expenditures, acquisitions and dividends; and
- limiting our flexibility in planning for, or reacting to, changes in our business and our industry.

A breach of any of these covenants could result in a default under our credit facility. Upon the occurrence of an event of default under our credit facility, Silicon Valley Bank could elect to declare all amounts outstanding under our credit facility to be immediately due and payable and terminate all commitments to extend further credit. If we were unable to repay those amounts, the lenders under our credit facility could proceed against the collateral granted to them to secure such indebtedness. We have pledged substantially all of our assets, other than our intellectual property, as collateral under our credit facility.

We depend on the continuing efforts of our senior management team and other key personnel. If we lose members of our senior management team or other key personnel or are unable to successfully retain, recruit and train qualified researchers, engineering and other personnel, our ability to develop our products could be harmed, and we may be unable to achieve our goals.

Our future success depends upon the continuing services of members of our senior management team and scientific and engineering personnel. We are highly dependent on Emily Leproust, our President and Chief Executive Officer, who is employed “at will,” meaning we or she may terminate the employment relationship at any time. In particular, our researchers and engineers are critical to our future technological and product innovations, and we will need to hire additional qualified personnel. We may not be able to attract and retain qualified personnel on acceptable terms, or at all. In addition, to the extent we hire personnel from competitors, we may be subject to allegations that they have been improperly solicited or that they have divulged proprietary or other confidential information, or that their former employers own their research output. Our industry, particularly in the San Francisco Bay Area, is characterized by high demand and intense competition for talent, and the turnover rate can be high. We compete for qualified management and scientific personnel with other life science companies, academic institutions and research institutions, particularly those focusing on genomics. Many of these employees could leave our company with little or no prior notice and

would be free to work for a competitor. If one or more of our senior executives or other key personnel were unable or unwilling to continue in their present positions, we may not be able to replace them easily or at all, and other senior management may be required to divert attention from other aspects of the business. In addition, we do not have “key person” life insurance policies covering members of our management team or other key personnel except Emily Leproust. The loss of any of these individuals or our inability to attract or retain qualified personnel, including researchers, engineers and others, could prevent us from pursuing collaborations and adversely affect our product development and introductions, business growth prospects, results of operations and financial condition.

We may engage in strategic transactions, including acquisitions that could disrupt our business, cause dilution to our stockholders, reduce our financial resources, or prove not to be successful.

In the future, we may enter into transactions to acquire other businesses, products or technologies and our ability to do so successfully cannot be ensured. In April 2016, we acquired Genome Compiler Corporation, which became a wholly owned subsidiary. This acquisition allowed us to add software design capabilities for our e-commerce ordering system. However, to date, we have not successfully concluded other acquisitions, and we are pursuing opportunities in the life sciences industry that complement and expand our core DNA synthesis business, products and markets both locally and internationally. If we identify suitable opportunities, we may not be able to make such acquisitions on favorable terms or at all. Any acquisitions we make may not strengthen our competitive position, and these transactions may be viewed negatively by customers or investors. We may decide to incur debt in connection with an acquisition or issue our common stock or other equity securities to the stockholders of the acquired company, which would reduce the percentage ownership of our existing stockholders. We could incur losses resulting from undiscovered liabilities of the acquired business that are not covered by any indemnification we may obtain from the seller. In addition, we may not be able to successfully integrate the acquired personnel, technologies and operations into our existing business in an effective, timely and non-disruptive manner. Acquisitions may also divert management attention from day-to-day responsibilities, increase our expenses and reduce our cash available for operations and other uses. In addition, we cannot guarantee that we will be able to fully recover the costs of such acquisitions or that we will be successful in leveraging any such strategic transactions into increased business, revenue or profitability. We also cannot predict the number, timing or size of any future acquisitions or the effect that any such transactions might have on our operating results.

From time to time, we may consider other strategic transactions, including collaborations. The competition for collaborators is intense, and the negotiation process is time-consuming and complex. Any new collaboration may be on terms that are not optimal for us, and we may not be able to maintain any new collaboration. Any such collaboration may require us to incur non-recurring or other charges, increase our near- and long-term expenditures and pose significant integration or implementation challenges or disrupt our management or business. These transactions would entail numerous operational and financial risks, including exposure to unknown liabilities, disruption of our business and diversion of our management’s time and attention to manage a collaboration, incurrence of substantial debt or dilutive issuances of equity securities to pay transaction consideration or costs, higher than expected collaboration, acquisition or integration costs, write-downs of assets or goodwill or impairment charges, increased amortization expenses, difficulty and cost in facilitating the collaboration or combining the operations and personnel of any acquired business, impairment of relationships with key suppliers, manufacturers or customers of any acquired business due to changes in management and ownership and the inability to retain key employees of any acquired business. Accordingly, although there can be no assurance that we will undertake or successfully complete any collaborations, any transactions that we do complete may be subject to the foregoing or other risks and have a material and adverse effect on our business, financial condition, results of operations and prospects. Conversely, any failure

to enter any collaboration or other strategic transaction that would be beneficial to us could delay the development and potential commercialization of our products and technologies.

As we expand our development and commercialization activities outside of the United States, we will be subject to an increased risk of inadvertently conducting activities in a manner that violates the U.S. Foreign Corrupt Practices Act and similar laws. If that occurs, we may be subject to civil or criminal penalties which could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

We are subject to the U.S. Foreign Corrupt Practices Act, or the FCPA, which prohibits corporations and individuals from paying, offering to pay, or authorizing the payment of anything of value to any foreign government official, government staff member, political party, or political candidate in an attempt to obtain or retain business or to otherwise influence a person working in an official capacity. We are also subject to the UK Anti-Bribery Act, which prohibits both domestic and international bribery, as well as bribery across both public and private sectors.

In the course of establishing and expanding our commercial operations and complying with non-U.S. regulatory requirements, we will need to establish and expand business relationships with various third parties and we will interact more frequently with foreign officials, including regulatory authorities. Expanded programs to maintain compliance with such laws will be costly and may not be effective. Any interactions with any such parties or individuals where compensation is provided that are found to be in violation of such laws could result in substantial fines and penalties and could materially harm our business. Furthermore, any finding of a violation under one country's laws may increase the likelihood that we will be prosecuted and be found to have violated another country's laws. If our business practices outside the United States are found to be in violation of the FCPA, UK Anti-Bribery Act or other similar laws, we may be subject to significant civil and criminal penalties which could have a material adverse effect on our financial condition and results of operations.

We could engage in exporting or related activity that contravenes international trade restraints, or regulatory authorities could promulgate more far reaching international trade restraints, which could give rise to one or more of substantial legal liability, impediments to our business and reputational damage.

Our international business activities must comport with U.S. export controls and other international trade restraints, including the U.S. Department of Commerce's Export Administration Regulations and economic sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls.

We have established an international trade compliance program that encompasses best practices for preventing, detecting and addressing noncompliance with international trade restraints. Furthermore, to date our exports have not been licensable under export controls; however, we could fail to observe the compliance program requirements in a manner that leaves us in noncompliance with export controls or other international trade restraints. In addition, authorities could promulgate international trade restraints that impinge on our ability to prosecute our business as planned. One or more of resulting legal penalties, restraints on our business or reputational damage could have material adverse effects on our business and financial condition.

Adverse conditions in the global economy and disruption of financial markets may significantly harm our revenue, profitability and results of operations.

The global economy has a significant impact on our business and volatility and disruption of financial markets could limit our customers' ability to obtain adequate financing or credit to purchase and pay for our products in a timely manner or to maintain operations, which could result in a decrease in sales volume that could harm our results of operations. General concerns about the fundamental soundness of domestic and international economies may also cause our customers to reduce their purchases. Changes in banking, monetary and fiscal policies to address liquidity and increase credit availability may not be effective. Significant government

investment and allocation of resources to assist the economic recovery of sectors which do not include our customers may reduce the resources available for government grants and related funding for life sciences research and development. Continuation or further deterioration of these financial and macroeconomic conditions could significantly harm our sales, profitability and results of operations.

We operate in a highly competitive industry and if we are not able to compete effectively, our business and operating results will likely be harmed.

We face competition from a broad range of providers of core synthetic biology products and providers in the life sciences tools and diagnostics industries such as GenScript Biotech Corporation, GENEWIZ, Integrated DNA Technologies, Inc., or IDT, ATUM, GeneArt (owned by Thermo Fisher Scientific Inc.), Eurofins Genomics, Sigma-Aldrich Corporation (an indirect wholly owned subsidiary of Merck), Promega Corporation and others. Additionally, we compete with both large and emerging providers in the life sciences tools and diagnostics industries focused on sample preparation for next generation sequencing such as Thermo Fisher Scientific Inc., Illumina, Inc., IDT, Agilent and Roche NimbleGen, Inc. We may not be successful in maintaining our competitive position for a number of reasons. Some of our current competitors, as well as many of our potential competitors, have significant name recognition, substantial intellectual property portfolios, longer operating histories, greater resources to invest in new technologies, substantial experience in new product development and manufacturing capabilities and more established distribution channels to deliver products to customers than we do. These competitors may be able to respond more quickly and effectively than we can to new or changing opportunities, technologies, standards or customer requirements. Our competitors may develop disruptive technologies or products that are comparable or superior to our technologies and products. In light of these advantages, even though we believe our technology is superior to the products offerings of our competitors, current or potential customers might accept competitive products in lieu of purchasing our products. Increased competition is likely to result in continued pricing pressures, which could harm our sales, profitability or market share. Our failure to continue competing effectively or wining additional business with our existing customers could materially and adversely affect our business, financial condition or results of operations.

We may be subject to significant pricing pressures.

Over time, increasing customer demand for lower prices could force us to discount our products and result in lower margins. The impact may be further exacerbated if we are unable to successfully control production costs. Alternatively, if due to rising market prices, our suppliers increase prices or reduce discounts on their supplies, we may be unable to pass on any cost increase to our customers, thereby resulting in reduced margins and profits. Furthermore, changes in our product mix may negatively affect our gross margins. Overall, these pricing pressures may adversely affect our business, financial position and results of operations.

Ethical, legal and social concerns surrounding the use of genetic information could reduce demand for our technology.

Our products may be used to create DNA sequences of humans, agricultural crops and other living organisms. Our products could be used in a variety of applications, which may have underlying ethical, legal and social concerns. Governmental authorities could, for safety, social or other purposes, impose limits on or implement regulation of the use of gene synthesis. Such concerns or governmental restrictions could limit the use of our DNA synthesis products, which could have a material adverse effect on our business, financial condition and results of operations. In addition, public perception about the safety and environmental hazards of, and ethical concerns over, genetically engineered products and processes could influence public acceptance of our technologies, products and processes. These concerns could result in increased expenses, regulatory scrutiny, delays or other impediments to our programs.

We use biological and hazardous materials that require considerable expertise and expense for handling, storage and disposal and may result in claims against us.

We work with materials, including chemicals, biological agents, and compounds and DNA samples that could be hazardous to human health and safety or the environment. Our operations also produce hazardous and biological waste products. Federal, state and local laws and regulations govern the use, generation, manufacture, storage, handling and disposal of these materials and wastes. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental laws and regulations may restrict our operations. If we do not comply with applicable regulations, we may be subject to fines and penalties.

In addition, we cannot eliminate the risk of accidental injury or contamination from these materials or wastes, which could cause an interruption of our commercialization efforts, research and development programs and business operations, as well as environmental damage resulting in costly clean-up and liabilities under applicable laws and regulations. Furthermore, environmental laws and regulations are complex, change frequently and have tended to become more stringent. We cannot predict the impact of such changes and cannot be certain of our future compliance. While our property insurance policy provides limited coverage in the event of contamination from hazardous and biological products and the resulting cleanup costs, we do not currently have any additional insurance coverage for legal liability for claims arising from the handling, storage or disposal of hazardous materials. Accordingly, in the event of contamination or injury, we could be liable for damages or penalized with fines in an amount exceeding our resources and our operations could be suspended or otherwise adversely affected.

We could develop DNA sequences or engage in other activity that contravenes biosecurity requirements, or regulatory authorities could promulgate more far reaching biosecurity requirements that our standard business practices cannot accommodate, which could give rise to substantial legal liability, impediments to our business and reputational damage.

The Federal Select Agent Program, or the FSAP, involves rules administered by the Centers for Disease Control and Prevention and Toxins and the Animal and Plant Health Inspection Service that regulate possession, use and transfer of biological select agents and toxins that have the potential to pose a severe threat to public, animal or plant health or to animal or plant products.

We have established a biosecurity program under which we follow biosafety and biosecurity best practices and avoid DNA synthesis activities that implicate FSAP rules; however, we could err in our observance of compliance program requirements in a manner that leaves us in noncompliance with FSAP or other biosecurity rules. In addition, authorities could promulgate new biosecurity requirements that restrictions our operations. One or more resulting legal penalties, restraints on our business or reputational damage could have material adverse effects on our business and financial condition.

Third parties may use our products in ways that could damage our reputation.

After our customers have received our products, we do not have any control over their use and our customers may use them in ways that are harmful to our reputation as a supplier of synthetic DNA products. In addition, while we have established a biosecurity program designed to comply with biosafety and biosecurity requirements and perform export control screening in an effort to ensure that third parties do not obtain our products for malevolent purposes, we cannot guarantee that these preventative measures will eliminate or reduce the risk of the domestic and global opportunities for the misuse of our products. Accordingly, in the event of such misuse, our reputation, future revenue and operating results may suffer.

Any damage to our reputation or brand may materially and adversely affect our business, financial condition and results of operations.

We believe that developing and maintaining our brand is important to our success and that our financial success is influenced by the perception of our brand by our customers. Furthermore, the importance of our brand recognition may become even greater to the extent that competitors offer more products similar to ours. Many factors, some of which are beyond our control, are important to maintaining our reputation and brand. These factors include our ability to comply with ethical, social, product, labor and environmental standards. Any actual or perceived failure in compliance with such standards could damage our reputation and brand.

Because we are subject to existing and potential additional governmental regulation, the markets for our products may be narrowed.

We are subject, both directly and indirectly, to the adverse impact of existing and potential future government regulation of our operations and markets. For example, export of our products is subject to strict regulatory control in a number of jurisdictions. The failure to satisfy export control criteria or obtain necessary clearances could delay or prevent shipment of products, which could adversely affect our revenues and profitability. Moreover, the life sciences industry, which is currently the primary market for our technology, has historically been heavily regulated. There are, for example, laws in several jurisdictions restricting research in genetic engineering, which can operate to narrow our markets. Given the evolving nature of this industry, legislative bodies or regulatory authorities may adopt additional regulation that adversely affects our market opportunities. Our business is also directly affected by a wide variety of government regulations applicable to business enterprises generally and to companies operating in the life science industry in particular. Failure to comply with these regulations or obtain or maintain necessary permits and licenses could result in a variety of fines or other censures or an interruption in our business operations which may have a negative impact on our ability to generate revenues and could increase the cost of operating our business.

Our products could in the future be subject to additional regulation by the U.S. Food and Drug Administration or other domestic and international regulatory agencies, which could increase our costs and delay our commercialization efforts, thereby materially and adversely affecting our business and results of operations.

The U.S. Food and Drug Administration, or FDA, regulates medical devices, including in vitro diagnostics, or IVDs. IVDs include reagents, instruments, and systems intended for use in diagnosis of disease or other conditions, including a determination of the state of health, in order to cure, mitigate, treat, or prevent disease or its sequelae. IVDs are intended for use in the collection, preparation, and examination of specimens taken from the human body. A research use only, or RUO, IVD product is an IVD product that is in the laboratory research phase of development and is being shipped or delivered for an investigation that is not subject to FDA's investigational device exemption requirements. As such, an RUO IVD is not intended for use in clinical investigations or in clinical practice. Such RUO products do not require premarket clearance or approval from the FDA, provided that they be labeled "For Research Use Only. Not for use in diagnostic procedures" pursuant to FDA regulations. Our IVD products are not intended for clinical or diagnostic use, and we market and label them as RUO. Accordingly, we have not sought clearance or approval from the FDA to market our products. However, the FDA may disagree with our assessment that our products are properly marketed as RUO, and may determine that our products are subject to pre-market clearance, approval, or other regulatory requirements. If the FDA determines that our products are subject to such requirements, we could be subject to enforcement action, including administrative and judicial sanctions, and additional regulatory controls and submissions for our tests, all of which could be burdensome.

Further, in the future, certain of our products or related applications could be subject to additional FDA regulation. Even where a product is not subject to FDA clearance or approval requirements, the FDA may

impose restrictions as to the types of customers to which we can market and sell our products. Such regulation and restrictions may materially and adversely affect our business, financial condition and results of operations. Other regulatory regimes that do not currently present material challenges but that could in the future present material challenges include export controls and biosecurity.

Similarly, even though our products and services are not currently covered and reimbursed by third-party payors, including government healthcare programs such as Medicare and Medicaid, to the extent our products or related applications become eligible for coverage and reimbursement by such payors, we could be subject to healthcare fraud and abuse laws of both the federal government and the states in which we conduct our business. Because of the breadth of these laws and the narrowness of available statutory and regulatory exceptions, it is possible that some of our business activities could be subject to challenge under one or more of such laws. If we or our operations are found to be in violation of any of the laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including civil and criminal penalties, damages, fines, imprisonment, and the curtailment or restructuring of our operations, any of which could materially adversely affect our ability to operate our business and our financial results.

Many countries have laws and regulations that could affect our products. The number and scope of these requirements are increasing. Unlike many of our competitors, this is an area where we do not have expertise. We may not be able to obtain regulatory approvals in such countries or may incur significant costs in obtaining or maintaining foreign regulatory approvals.

Certain of our potential customers may require that we become certified under the Clinical Laboratory Improvement Amendments of 1988.

Although we are not currently subject to the Clinical Laboratory Improvement Amendment of 1988, or CLIA, we may in the future be required by certain customers to obtain a CLIA certification. CLIA, which extends federal oversight over clinical laboratories by requiring that they be certified by the federal government or by a federally approved accreditation agency, is designed to ensure the quality and reliability of clinical laboratories by mandating specific standards in the areas of personnel qualifications, administration and participation in proficiency testing, patient test management, quality control, quality assurance and inspections. If our customers require a CLIA certification, we will have to continually expend time, money and effort to ensure that we meet the applicable quality and safety requirements, which may divert the attention of management and disrupt our core business operations.

If we experience a significant disruption in, or breach in security of, our information technology systems, or if we fail to implement new systems and software successfully, our business could be adversely affected.

We rely on several centralized information technology systems throughout our company to provide products, keep financial records, process orders, manage inventory, process shipments to customers and operate other critical functions. Our information technology systems may be susceptible to damage, disruptions or shutdowns due to power outages, hardware failures, computer viruses, attacks by computer hackers, telecommunication failures, user errors, catastrophes or other unforeseen events. Our information technology systems also may experience interruptions, delays or cessations of service or produce errors in connection with system integration, software upgrades or system migration work that takes place from time to time. If we were to experience a prolonged system disruption in the information technology systems that involve our interactions with customers or suppliers, including negatively impacting our order fulfilment and order entry on our e-commerce platform, it could result in the loss of sales and customers and significant incremental costs, which could adversely affect our business. In addition, security breaches of our information technology systems could result in the misappropriation or unauthorized disclosure of confidential information belonging to us or to our employees, partners, customers or suppliers, which could result in our suffering significant financial or

reputational damage. Further, such a breach may require notification to governmental agencies, the media or individuals pursuant to various federal and state privacy and security laws. We would also be exposed to a risk of litigation and potential liability, which could materially adversely affect our business, results of operations and financial condition.

Our facilities in California are located near known earthquake faults, and the occurrence of an earthquake or other catastrophic disaster could cause damage to our facilities and equipment, which could require us to cease or curtail operations.

Our facilities in the San Francisco Bay Area are located near known earthquake fault zones and are vulnerable to damage from earthquakes. We are also vulnerable to damage from other types of disasters, including fire, floods, power loss, communications failures and similar events. If any disaster were to occur, our ability to operate our business at our facilities would be seriously, or potentially completely, impaired. In addition, the nature of our activities could cause significant delays in our research programs and commercial activities and make it difficult for us to recover from a disaster. The insurance we maintain may not be adequate to cover our losses resulting from disasters or other business interruptions. Accordingly, an earthquake or other disaster could materially and adversely harm our ability to conduct business.

Delivery of our products could be delayed or disrupted by factors beyond our control, and we could lose customers as a result.

We rely on third-party carriers for the timely delivery of our products. As a result, we are subject to carrier disruptions and increased costs that are beyond our control, including employee strikes, inclement weather and increased fuel costs. Any failure to deliver products to our customers in a timely and accurate manner may damage our reputation and brand and could cause us to lose customers. If our relationship with any of these third-party carriers is terminated or impaired or if any of these third parties is unable to deliver our products, the delivery and acceptance of our products by our customers may be delayed which could harm our business and financial results. The failure to deliver our products in a timely manner may harm our relationship with our customers, increase our costs and otherwise disrupt our operations.

Doing business internationally creates operational and financial risks for our business.

During our fiscal years ended September 30, 2016 and 2017, approximately 22% and 23%, respectively, of our revenue was generated from customers located outside of the United States. In connection with our growth strategy, we intend to further expand in international markets. Conducting and launching operations on an international scale requires close coordination of activities across multiple jurisdictions and time zones and consumes significant management resources. If we fail to coordinate and manage these activities effectively, our business, financial condition or results of operations could be adversely affected. International sales entail a variety of risks, including longer payment cycles and difficulties in collecting accounts receivable outside of the United States, currency exchange fluctuations, challenges in staffing and managing foreign operations, tariffs and other trade barriers, unexpected changes in legislative or regulatory requirements of foreign countries into which we sell our products, difficulties in obtaining export licenses or in overcoming other trade barriers, laws and business practices favoring local companies, political and economic instability, difficulties protecting or procuring intellectual property rights, and restrictions resulting in delivery delays and significant taxes or other burdens of complying with a variety of foreign laws.

Changes in the value of the relevant currencies may affect the cost of certain items required in our operations. Changes in currency exchange rates may also affect the relative prices at which we are able to sell products in the same market. Our revenue from international customers may be negatively impacted as increases in the U.S. dollar relative to our international customers' local currency could make our products more expensive, impacting our ability to compete. Our costs of materials from international suppliers may increase if in order to

continue doing business with us they raise their prices as the value of the U.S. dollar decreases relative to their local currency. Foreign policies and actions regarding currency valuation could result in actions by the United States and other countries to offset the effects of such fluctuations. The recent global financial downturn has led to a high level of volatility in foreign currency exchange rates and that level of volatility may continue, which could adversely affect our business, financial condition or results of operations.

Our ability to use our net operating loss carryforwards to offset future taxable income may be subject to certain limitations.

In general, under Section 382 of the Internal Revenue Code of 1986, as amended, or the Code, a corporation that undergoes an "ownership change" is subject to limitations on its ability to use its pre-change net operating loss carryforwards, or NOLs, to offset future taxable income. If the Internal Revenue Service challenges our analysis that our existing NOLs will not expire before utilization due to previous ownership changes, our ability to use our NOLs could be limited by Section 382 of the Code. Future changes in our stock ownership, some of which are outside of our control, could result in an ownership change under Section 382 of the Code. Furthermore, our ability to use NOLs of companies that we may acquire in the future may be subject to limitations. For these reasons, we may not be able to use a material portion of the NOLs reflected on our balance sheet, even if we attain profitability.

The enactment of legislation implementing changes in taxation of international business activities, the adoption of other corporate tax reform policies, or changes in tax legislation or policies could impact our future financial position and results of operations.

Corporate tax reform, base-erosion efforts and tax transparency continue to be high priorities in many tax jurisdictions where we intend to have business operations. As a result, policies regarding corporate income and other taxes in numerous jurisdictions are under heightened scrutiny and tax reform legislation is being proposed or enacted in a number of jurisdictions. For example, the Tax Cuts and Jobs Act of 2017 signed into law on December 22, 2017, adopting broad U.S. corporate income tax reform will, among other things, reduce the U.S. corporate income tax rate, but will impose base-erosion prevention measures on non-U.S. earnings of U.S. entities as well as a one-time mandatory deemed repatriation tax on accumulated non-U.S. earnings of U.S. entities.

In addition, many countries are beginning to implement legislation and other guidance to align their international tax rules with the Organisation for Economic Co-operation's Base Erosion and Profit Shifting recommendations and action plan that aim to standardize and modernize global corporate tax policy, including changes to cross-border tax, transfer-pricing documentation rules, and nexus-based tax incentive practices.

Such legislative initiatives may materially and adversely affect our plans to expand internationally and may negatively impact our financial condition and results of operations generally.

Our inability to collect on our accounts receivable by a significant number of customers may have an adverse effect on our business, financial condition and results of operations.

Sales to our customers are generally made on open credit terms. Management maintains an allowance for potential credit losses. The average days sales outstanding of our trade receivables as of September 30, 2016 and 2017 were 57 and 78 days outstanding, respectively. If our customers' cash flow, working capital, financial conditions or results of operations deteriorate, they may be unable or even unwilling to pay trade receivables owed to us promptly or at all. As a result, we could be exposed to a certain level of credit risk. If a major customer experiences, or a significant number of customers experience, financial difficulties, the effect on us could be material and have an adverse effect on our business, financial condition and results of operations.

Risks related to being a public company

If we fail to maintain proper and effective internal controls, our ability to produce accurate financial statements on a timely basis could be impaired, which would adversely affect our business.

Ensuring that we have adequate internal financial and accounting controls and procedures in place to produce accurate financial statements on a timely basis is a costly and time-consuming effort that needs to be re-evaluated frequently. The rapid growth of our operations and the planned initial public offering has created a need for additional resources within the accounting and finance functions due to the increasing need to produce timely financial information and to ensure the level of segregation of duties customary for a U.S. public company. We have hired additional resources in the accounting and finance function and continue to reassess the sufficiency of finance personnel in response to these increasing demands and expectations.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Our management does not expect that our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within our company will have been detected.

Commencing with our fiscal year ending September 30, 2019, we must perform system and process evaluation and testing of our internal control over financial reporting to allow management to report on the effectiveness of our internal control over financial reporting in our Form 10-K filing for that year, as required by Section 404 of the Sarbanes Oxley Act. We expect to expend significant resources in developing the necessary documentation and testing procedures required by Section 404. We cannot be certain that the actions we will be taking to improve our internal controls over financial reporting will be sufficient, or that we will be able to implement our planned processes and procedures in a timely manner. In addition, if we are unable to produce accurate financial statements on a timely basis, investors could lose confidence in the reliability of our financial statements, which could cause the market price of our common stock to decline and make it more difficult for us to finance our operations and growth.

We are an emerging growth company and we cannot be certain if the reduced disclosure requirements applicable to emerging growth companies will make our common stock less attractive to investors.

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have irrevocably elected not to avail ourselves of this exemption from new or revised accounting standards and, therefore, we will be subject to the same new or revised accounting standards as other public companies that are not "emerging growth companies."

For as long as we continue to be an emerging growth company, we also intend to take advantage of certain other exemptions from various reporting requirements that are applicable to other public companies including, but not limited to, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. We cannot predict if investors will find our common stock less attractive because we will rely on these exemptions. If some

investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

We will remain an emerging growth company until the earliest of (i) the last day of the fiscal year in which we have total annual gross revenue of $1.07 billion or more; (ii) the last day of our fiscal year following the fifth anniversary of the date of the closing of this offering; (iii) the date on which we have issued more than $1.0 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the SEC.

The requirements of being a public company may strain our resources, divert management's attention and affect our ability to attract and retain qualified board members.

As a public company, we will be subject to the reporting requirements of the Securities Exchange Act of 1934, as amended, or the Exchange Act, the Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, or the Dodd-Frank Act, the listing requirements of the stock exchange on which our common stock is traded and other applicable securities rules and regulations. The SEC and other regulators have continued to adopt new rules and regulations and make additional changes to existing regulations that require our compliance. Stockholder activism, the current political environment, and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact, in ways we cannot currently anticipate, the manner in which we operate our business. Compliance with these rules and regulations may cause us to incur additional accounting, legal and other expenses that we did not incur as a private company. We also anticipate that we will incur costs associated with corporate governance requirements, including requirements under securities laws, as well as rules and regulations implemented by the SEC and The Nasdaq Global Market, particularly after we are no longer an "emerging growth company." We expect these rules and regulations to increase our legal and financial compliance costs and to make some activities more time-consuming and costly. Furthermore, these rules and regulations could make it more difficult or more costly for us to obtain certain types of insurance, including director and officer liability insurance, and we may be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. The impact of these requirements could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, our board committees or as executive officers. We are currently evaluating and monitoring developments with respect to these rules and regulations, and we cannot predict or estimate the amount of additional costs we may incur or the timing of such costs.

Risks related to our intellectual property

Our ability to protect our intellectual property and proprietary technology through patents and other means is uncertain.

Our commercial success depends in part on our ability to protect our intellectual property and proprietary technologies. We rely on patent protection, where appropriate and available, as well as a combination of copyright, trade secret and trademark laws, and nondisclosure, confidentiality and other contractual restrictions to protect our proprietary technology. However, these legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep any competitive advantage. As of September 30, 2017, we own four issued U.S. patents and two issued international patents in China. There are 58 pending patent applications, including 34 in the United States, 15 international applications and nine applications filed under the Patent Cooperation Treaty.

Several patent applications covering our technologies have been filed recently. We cannot offer any assurances about which, if any, patents will issue, the breadth of any such patent, or whether any issued patents will be

found invalid and unenforceable or will be threatened by third parties. Any successful opposition to these patents or any other patents owned by or, if applicable in the future, licensed to us could deprive us of rights necessary for the practice of our technologies or the successful commercialization of products that we may develop. Since patent applications in the U.S. and most other countries are confidential for a period of time after filing, we cannot be certain that we were the first to file any patent application related to our technologies or products. Furthermore, an interference proceeding can be provoked by a third party or instituted by the U.S. Patent and Trademark Office to determine who was the first to invent any of the subject matter covered by the patent claims of our applications.

Patent law can be highly uncertain and involve complex legal and factual questions for which important principles remain unresolved. In the United States and in many international jurisdictions, policy regarding the breadth of claims allowed in patents can be inconsistent. The U.S. Supreme Court and the Court of Appeals for the Federal Circuit have made, and will likely continue to make, changes in how the patent laws of the United States are interpreted. Similarly, international courts have made, and will continue to make, changes in how the patent laws in their respective jurisdictions are interpreted. We cannot predict future changes in the interpretation of patent laws or changes to patent laws that might be enacted into law by U.S. and international legislative bodies.

Moreover, the United States Leahy-Smith American Invents Act, enacted in September 2011, brought significant changes to the U.S. patent system, including a change from a “first to invent” system to a “first to file” system. Under a “first to file” system, assuming the other requirements for patentability are met, the first inventor to file a patent application generally will be entitled to the patent on an invention regardless of whether another inventor had made the invention earlier. Other changes affect the way the patent applications are prosecuted, redefine prior art, and may affect patent litigation. The United States Patent and Trademark Office developed new regulations and procedures to govern administration of the Leahy-Smith Act, and many of the substantive changes to patent law associated with the Leahy-Smith Act became effective on March 16, 2013. The Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, which could have a material adverse effect on our business and financial condition.

If we are unable to obtain, maintain and enforce intellectual property protection, others may be able to make, use, or sell products and technologies substantially the same as ours, which could adversely affect our ability to compete in the market.

We may not pursue or maintain patent protection for our products in every country or territory in which we sell our products and technologies. In addition, our pending U.S. and foreign patent applications may not issue as patents or may not issue in a form that will be sufficient to protect our proprietary technology and gain or keep our competitive advantage. Any patents we have obtained or do obtain may be subject to re-examination, reissue, opposition or other administrative proceeding, or may be challenged in litigation, and such challenges could result in a determination that the patent is invalid or unenforceable.

Patents have a limited lifespan. Patent terms may be shortened or lengthened by, for example, terminal disclaimers, patent term adjustments, supplemental protection certificates, and patent term extensions. Although extensions may be available, the life of a patent, and the protection it affords, is limited. Patent term extensions and supplemental protection certificates, and the like, may be impacted by the regulatory process and may not significantly lengthen patent term. Non-payment or delay in payment of patent fees or annuities, delay in patent filings or delay in extension filing, whether intentional or unintentional, may also result in the loss of patent rights important to our business. In such an event, competitors might be able to enter the market earlier than would otherwise have been the case. In addition, certain countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to other parties. Furthermore, many countries

limit the enforceability of patents against other parties, including government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of any patents.

We cannot be certain that the steps we have taken will prevent unauthorized use or unauthorized reverse engineering of our technology. In addition, competitors may be able to design alternative methods or devices that avoid infringement of our patents. To the extent our intellectual property, including licensed intellectual property, offers inadequate protection, or is found to be invalid or unenforceable, we are exposed to a greater risk of direct competition. If our intellectual property does not provide adequate protection against our competitors' products, our competitive position could be adversely affected, as could our business. Both the patent application process and the process of managing patent disputes can be time consuming and expensive.

Monitoring unauthorized use of our intellectual property is difficult and costly. From time to time, we review our competitors' products, and may in the future seek to enforce our patents or other rights against potential infringement. However, the steps we have taken to protect our proprietary rights may not be adequate to prevent misappropriation of our intellectual property. We may not be able to detect unauthorized use of, or take appropriate steps to enforce, our intellectual property rights. We cannot guarantee that any of our patent searches or analyses, including but not limited to the identification of relevant patents, the scope of patent claims or the expiration of relevant patents, are complete or thorough, nor can we be certain that we have identified each and every third party patent and pending application in the United States and abroad that is relevant to or necessary for the commercialization of our products in any jurisdiction. For example, U.S. applications filed before November 29, 2000 and certain U.S. applications filed after that date that will not be filed outside the United States remain confidential until patents issue. Patent applications in the United States and elsewhere are published approximately 18 months after the earliest filing for which priority is claimed. Therefore, patent applications covering our product candidates or technologies could have been filed by others without our knowledge. Additionally, pending patent applications that have been published can, subject to certain limitations, be later amended in a manner that could cover our platform technologies, our products or the use of our products or technologies. The scope of a patent claim is determined by an interpretation of the law, the written disclosure in a patent and the patent's prosecution history. Our interpretation of the relevance or the scope of a patent or a pending application may be incorrect, which may negatively impact our ability to market our products. We may incorrectly determine that our products are not covered by a third party patent or may incorrectly predict whether a third party's pending application will issue with claims of relevant scope. Our determination of the expiration date of any patent in the United States or abroad that we consider relevant may be incorrect, which may negatively impact our ability to develop and market our product candidates.

Any inability to meaningfully protect our intellectual property could result in competitors offering products or technologies that incorporate our products or technologies, which could reduce demand for our products or technologies. A court or other judicial body may decide that the patent we seek to enforce is invalid or unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that the patent in question does not cover the technology in question. An adverse result in any litigation could put one or more of our patents at risk of being invalidated or interpreted narrowly. Some of our competitors may be able to devote significantly more resources to intellectual property litigation, and may have significantly broader patent portfolios to assert against us if we assert our rights against them.

We cannot predict the breadth of claims that may be allowed or enforced in our patents or in third-party patents. For example:

- we might not have been the first to make the inventions covered by each of our pending patent applications;
- we might not have been the first to file patent applications for these inventions;

- others may independently develop similar or alternative products and technologies or duplicate any of our products and technologies;
- it is possible that none of our pending patent applications will result in issued patents, and even if they issue as patents, they may not provide a basis for commercially viable products, or may not provide us with any competitive advantages, or may be challenged and invalidated by third parties;
- we may not develop additional proprietary products and technologies that are patentable;
- the patents of others may have an adverse effect on our business; and
- we apply for patents covering our products and technologies and uses thereof, as we deem appropriate. However, we may fail to apply for patents on important products and technologies in a timely fashion or at all.

We may not be able to protect our intellectual property rights throughout the world.

Filing, prosecuting and defending patents on our technologies and products in all countries throughout the world would be prohibitively expensive. In addition, the laws of some non-U.S. countries do not protect intellectual property rights to the same extent as the laws of the United States, and many companies have encountered significant problems in protecting and defending such rights in foreign jurisdictions. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own technologies and products and further, may export otherwise infringing products to territories where we have patent protection, but enforcement is not as strong as that in the United States. These products may compete with our products, and our patents or other intellectual property rights may not be effective or sufficient enough to prevent them from competing.

The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to biotechnology, which could make it difficult for us to stop the infringement of our patents. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial cost and divert our efforts and attention from other aspects of our business, could put our own patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop.

If we are unable to protect the confidentiality of our proprietary information and know-how, the value of our technology and products could be adversely affected.

In addition to pursuing patents on our technology, we take steps to protect our intellectual property and proprietary technology by entering into confidentiality agreements and intellectual property assignment agreements with our employees, consultants, corporate partners and, when needed, our advisors. Such agreements may not be enforceable or may not provide meaningful protection for our trade secrets or other proprietary information in the event of unauthorized use or disclosure or other breaches of the agreements, and we may not be able to prevent such unauthorized disclosure. Monitoring unauthorized disclosure is difficult, and we do not know whether the steps we have taken to prevent such disclosure are, or will be, adequate. If we were to enforce a claim that a third party had illegally obtained and was using our trade

secrets, it would be expensive and time consuming, and the outcome would be unpredictable. In addition, courts outside the United States may be less willing to protect trade secrets.

Trade secrets and know-how can be difficult to protect as trade secrets, and know-how will over time be disseminated within the industry through independent development, the publication of journal articles, and the movement of personnel skilled in the art from company to company. In addition, because we may rely on third parties in the development of our products, we may, at times, share trade secrets with them. We seek to protect our proprietary technology in part by entering into confidentiality agreements and, if applicable, material transfer agreements, consulting agreements or other similar agreements with third parties prior to beginning research or disclosing proprietary information. These agreements typically limit the rights of the third parties to use or disclose our confidential information, including our trade secrets. Despite the contractual provisions employed when working with third parties, the need to share trade secrets and other confidential information increases the risk that such trade secrets become known by our competitors, are inadvertently incorporated into the technology of others, or are disclosed or used in violation of these agreements. If we are unable to prevent material disclosure of the intellectual property related to our technologies to third parties, we will not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, results of operations and financial condition.

Despite our efforts to protect our trade secrets, our competitors may discover our trade secrets, either lawfully or through breach of our agreements with third parties, independent development or publication of information by any of our third-party collaborators. Competitors could willfully infringe our intellectual property rights, design around our protected technology or develop their own competitive technologies that fall outside of our intellectual property rights. In addition, if any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent such competitor from using that technology or information to compete with us, which could harm our competitive position. Given that our proprietary position is based, in part, on our know-how and trade secrets, a competitor's discovery of our trade secrets or other unauthorized use or disclosure would impair our competitive position and may have an adverse effect on our business and results of operations.

We may also be subject to claims that former employees, collaborators or other third parties have an ownership interest in our patents or other intellectual property. Other than the currently pending litigation filed by Agilent, described under the captions "Business – Legal proceedings" and "Risk factors – We and our chief executive officer are currently involved in litigation with Agilent Technologies, Inc., in which Agilent has alleged a claim of trade secret misappropriation against Twist Bioscience and trade secret misappropriation and other related claims against our chief executive officer, and an adverse result could harm our business and results of operations," no legal claims against us are currently pending. Some of our employees were previously employed at universities or biotechnology or biopharmaceutical companies, including our competitors or potential competitors. We may be subject to claims that these employees or we have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of their former employers. Litigation may be necessary to defend against these and other claims challenging inventorship or ownership. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights. A loss of key research personnel or their work product could hamper our ability to commercialize, or prevent us from commercializing, our products and technologies. Such an outcome could have a material adverse effect on our business. Even if we are successful in defending against such claims, litigation could result in substantial costs and distraction to management and other employees.

We may be involved in lawsuits to protect or enforce our patents and proprietary rights, to determine the scope, coverage and validity of others' proprietary rights, or to defend against third party claims of intellectual property infringement that could require us to spend significant time and money and could prevent us from selling our products or impact our stock price.

Litigation may be necessary for us to enforce our patent and proprietary rights and/or to determine the scope, coverage and validity of others' proprietary rights. Litigation on these matters has been prevalent in our industry and we expect that this will continue. As the biotechnology and synthetic biology industries expand and more patents are issued, the risk increases that there may be patents issued to third parties that relate to our technologies and products of which we are not aware or that we may need to challenge to continue our operations as currently contemplated. In addition, our competitors and others may have patents or may in the future obtain patents and claim that the use of our products or processes infringes these patents. As we move into new markets and applications for our products and processes, incumbent participants in such markets may assert their patents and other proprietary rights against us as a means of slowing our entry into such markets or as a means to extract substantial license and royalty payments from us.

To determine the priority of inventions, we may have to initiate and participate in interference proceedings declared by the U.S. Patent and Trademark Office that could result in substantial legal fees and could substantially affect the scope of our patent protection. Also, our intellectual property may be subject to significant administrative and litigation proceedings such as invalidity, unenforceability, re-examination and opposition proceedings against our patents. Whether merited or not, we may additionally face allegations that we have infringed the trademarks, copyrights, patents and other intellectual property rights of third parties, including patents held by our competitors or by non-practicing entities. If we fail to identify and correctly interpret relevant patents, we may be subject to infringement claims. We may also face allegations that our employees have misappropriated the intellectual property rights of their former employers or other third parties. The outcome of any litigation or other proceeding is inherently uncertain and the results might not be favorable to us. For more information on our current legal and regulatory proceedings, see the section of this prospectus captioned "Business — Legal proceedings."

In patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, for example, lack of novelty, obviousness or non-enablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the U.S. Patent and Trademark Office, or made a misleading statement during prosecution. The outcome following legal assertions of invalidity and unenforceability during patent litigation is unpredictable. If a defendant were to prevail on a legal assertion of invalidity or unenforceability, we would lose at least part, and perhaps all, of the patent protection on certain aspects of our platform technology. Such a loss of patent protection could have a material and adverse effect on our business, financial condition, results of operations and prospects.

Patent infringement suits can be expensive, lengthy and disruptive to business operations. We could incur substantial costs and divert the attention of our management and technical personnel in prosecuting or defending against any claims, and may harm our reputation. Some of our competitors may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. There can be no assurance that we will prevail in any suit initiated against us by third parties, successfully settle or otherwise resolve patent infringement claims. If we are unable to successfully settle claims on terms acceptable to us, we may be required to engage in or continue costly, unpredictable and time-consuming litigation and may be prevented from or experience substantial delays in marketing our technologies and products. Furthermore, parties making claims against us may be able to obtain injunctive or other relief, which could block our ability to develop, commercialize and sell products, and could result in the

award of substantial damages against us, including treble damages and attorneys' fees and costs in the event that we are found to be a willful infringer of third party patents.

In the event of a successful claim of infringement against us, we may be required to obtain one or more licenses from third parties, which we may not be able to obtain at a reasonable cost, if at all. We could therefore incur substantial costs related to royalty payments for licenses obtained from third parties, which could negatively affect our gross margins. In addition, we could encounter delays in product introductions while we attempt to develop alternative methods or products to avoid infringing third-party patents or proprietary rights. Defense of any lawsuit or failure to obtain any required licenses on favorable terms could prevent us from commercializing our products, and the risk of a prohibition on the sale of any of our products could adversely affect our ability to grow and gain market acceptance for our products.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, during the course of this kind of litigation, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing or distribution activities. Finally, any uncertainties resulting from the initiation and continuation of any litigation could have a material adverse effect on our ability to raise the funds necessary to continue our operations.

In addition, our agreements with some of our suppliers, distributors, customers and other entities with whom we do business may require us to defend or indemnify these parties to the extent they become involved in infringement claims against us, including the claims described above. We could also voluntarily agree to defend or indemnify third parties in instances where we are not obligated to do so if we determine it would be important to our business relationships. If we are required or agree to defend or indemnify any of these third parties in connection with any infringement claims, we could incur significant costs and expenses that could adversely affect our business, operating results, or financial condition.

We may not be successful in obtaining or maintaining necessary rights to our products and technologies through acquisitions and in-licenses, and our intellectual property agreements with third parties may involve unfavorable terms or be subject to disagreements over contract interpretation.

We may find that our programs require the use of proprietary rights held by third parties, and the growth of our business may depend in part on our ability to acquire, in-license or use these proprietary rights. We may be unable to acquire or in-license compositions, methods of use, processes or other third party intellectual property rights from third parties that we identify as necessary for our products and technologies. The licensing and acquisition of third-party intellectual property rights is a competitive area, and other companies may also be pursuing strategies to license or acquire third-party intellectual property rights that we may consider attractive. These companies may have a competitive advantage over us due to their size, financial resources and greater commercialization capabilities. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us. Moreover, collaboration arrangements are complex and time-consuming to negotiate, document, implement and maintain. We may not be successful in our efforts to establish and implement collaborations or other alternative arrangements should we so choose to enter into such arrangements. We also may be unable to license or acquire third-party intellectual property rights on terms that that would be favorable to us or would allow us to make an appropriate return on our investment.

We engage in discussions regarding other possible commercial and cross-licensing agreements with third parties from time to time. There can be no assurance that these discussions will lead to the execution of

commercial license or cross-license agreements or that such agreements will be on terms that are favorable to us. Even if we are able to obtain a license to intellectual property of interest, we may not be able to secure exclusive rights, in which case others could use the same rights and compete with us. In addition, if we enter into cross-licensing agreements, there is no assurance that we will be able to effectively compete against others who are licensed under our patents.

In addition, provisions in our licensing and other intellectual property agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could affect the scope of our rights to the relevant intellectual property or technology, or affect financial or other obligations under the relevant agreement, either of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

We have not yet registered some of our trademarks in all of our potential markets, and failure to secure those registrations could adversely affect our business.

Some of our trademark applications may not be allowed for registration, and our registered trademarks may not be maintained or enforced. In addition, in the U.S. Patent and Trademark Office and in comparable agencies in many foreign jurisdictions, third parties are given an opportunity to oppose pending trademark applications and to seek to cancel registered trademarks. Opposition or cancellation proceedings may be filed against our trademarks, and our trademarks may not survive such proceedings.

In addition, third parties may file first for our trademarks in certain countries. If they succeed in registering such trademarks, and if we are not successful in challenging such third party rights, we may not be able to use these trademarks to market our products and technologies in those countries. Over the long term, if we are unable to establish name recognition based on our trademarks, then our marketing abilities may be materially adversely impacted.

We depend on certain technologies that are licensed to us. We do not control these technologies and any loss of our rights to them could prevent us from selling our products.

We rely on, or may in the future rely on, licenses in order to be able to use various proprietary technologies that are material to our business. We do not or will not own the patents that underlie these licenses. Our rights to use the technology we license are subject to the negotiation of, continuation of and compliance with the terms of those licenses. In some cases, we do not or will not control the prosecution, maintenance, or filing of the patents to which we hold licenses, or the enforcement of these patents against third parties. Some of our patents and patent applications were either acquired from another company who acquired those patents and patent applications from yet another company, or are licensed from a third party. For example, Twist Bioscience acquired Genome Compiler Corporation in 2016, and Genome Compiler had a non-exclusive license to U.S. Patent No. 7,805,252 owned by DNA Twopointo. Thus, these patents and patent applications are not written by us or our attorneys, and we did not have control over the drafting and prosecution. The former patent owners and our licensors might not have given the same attention to the drafting and prosecution of these patents and applications as we would have if we had been the owners of the patents and applications and had control over the drafting and prosecution. We cannot be certain that drafting and/or prosecution of the licensed patents and patent applications by the licensors have been or will be conducted in compliance with applicable laws and regulations or will result in valid and enforceable patents and other intellectual property rights.

Our rights to use the technology we license is subject to the validity of the owner’s intellectual property rights. Enforcement of our licensed patents or defense or any claims asserting the invalidity of these patents is often subject to the control or cooperation of our licensors. Legal action could be initiated against the owners of the intellectual property that we license. Even if we are not a party to these legal actions, an adverse outcome could

harm our business because it might prevent these other companies or institutions from continuing to license intellectual property that we may need to operate our business.

Our licenses contain or will contain provisions that allow the licensor to terminate the license upon specific conditions. Our rights under the licenses are subject to or will be subject to our continued compliance with the terms of the license, including the payment of royalties due under the license. Termination of these licenses could prevent us from marketing some or all of our products. Because of the complexity of our products and the patents we have licensed, determining the scope of the license and related royalty obligation can be difficult and can lead to disputes between us and the licensor. An unfavorable resolution of such a dispute could lead to an increase in the royalties payable pursuant to the license. If a licensor believed we were not paying the royalties due under the license or were otherwise not in compliance with the terms of the license, the licensor might attempt to revoke the license. If such an attempt were successful, we might be barred from producing and selling some or all of our products.

Risks relating to owning our common stock and this offering

Our share price may be volatile, and you may be unable to sell your shares at or above the offering price.

The market price of our common stock is likely to be volatile and could be subject to wide fluctuations in response to many risk factors listed in this section, and others beyond our control, including:

- actual or anticipated fluctuations in our financial condition and operating results, including fluctuations in our quarterly and annual results;
- announcements of technological innovations by us or our competitors;
- overall conditions in our industry and the markets in which we operate;
- addition or loss of significant customers, or other developments with respect to significant customers;
- changes in laws or regulations applicable to our products;
- actual or anticipated changes in our growth rate relative to our competitors;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures or capital commitments;
- additions or departures of key personnel;
- competition from existing products or new products that may emerge;
- issuance of new or updated research or reports by securities analysts;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- disputes or other developments related to proprietary rights, including patents, litigation matters including the Agilent litigation, and our ability to obtain intellectual property protection for our technologies;
- announcement or expectation of additional financing efforts;
- sales of our common stock by us or our stockholders;
- share price and volume fluctuations attributable to inconsistent trading volume levels of our shares;
- the expiration of contractual lock-up agreements with our executive officers, directors and stockholders; and
- general economic and market conditions.

Furthermore, the stock markets have experienced price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market and industry fluctuations, as well as general economic, political and market conditions such as recessions, interest rate changes or international currency fluctuations, may negatively impact the market price of our common stock. If the market price of our common stock after this offering does not exceed the initial public offering price, you may not realize any return on your investment in us and may lose some or all of your investment. In the past, companies that have experienced volatility in the market price of their stock have been subject to securities class action litigation. We may be the target of this type of litigation in the future. Securities litigation against us could result in substantial costs and divert our management's attention from other business concerns, which could seriously harm our business.

No public market for our common stock currently exists, and an active trading market may not develop or be sustained following this offering.

Prior to this offering, there has been no public market for our common stock. Although we will apply to have our common stock listed on The Nasdaq Global Market, an active trading market may not develop following the closing of this offering or, if developed, may not be sustained. The lack of an active market may impair your ability to sell your shares at the time you wish to sell them or at a price that you consider reasonable. The lack of an active market may also reduce the fair market value of your shares. An inactive market may also impair our ability to raise capital to continue to fund operations by selling shares and may impair our ability to acquire other companies or technologies by using our shares as consideration. The initial public offering price was determined by negotiations between us and the underwriters and may not be indicative of the future prices of our common stock.

If securities or industry analysts do not publish research or reports about our business or publish negative reports about our business, our share price and trading volume could decline.

The trading market for our common stock will depend on the research and reports that securities or industry analysts publish about us or our business. Currently, we do not have any analyst coverage and we may not obtain analyst coverage in the future. In the event we obtain analyst coverage, we will not have any control over such analysts. If one or more of the analysts who cover us downgrade our shares or change their opinion of our shares, our share price would likely decline. If one or more of these analysts cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our share price or trading volume to decline.

Future sales and issuances of our common stock or rights to purchase common stock, including pursuant to our equity incentive plans, could result in additional dilution of the percentage ownership of our stockholders and could cause the stock price of our common stock to decline.

We may issue additional securities following the completion of this offering. In the future, we may sell common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time. We also expect to issue common stock to employees and directors pursuant to our equity incentive plans. If we sell common stock, convertible securities or other equity securities in subsequent transactions, or common stock is issued pursuant to equity incentive plans, investors may be materially diluted. New investors in such subsequent transactions could gain rights, preferences and privileges senior to those of holders of our common stock.

Future sales of our common stock in the public market could cause our share price to fall.

Sales of a substantial number of shares of our common stock in the public market after this offering, or the perception that these sales might occur, could depress the market price of our common stock and could impair

our ability to raise capital through the sale of additional equity securities. Based on the number of shares of common stock outstanding as of , upon the closing of this offering, we will have shares of common stock outstanding, assuming no exercise of our outstanding options.

All of the common stock sold in this offering will be freely tradable without restrictions or further registration under the Securities Act of 1933, as amended, or the Securities Act, except for any shares held by our affiliates as defined in Rule 144 under the Securities Act. The remaining shares of common stock outstanding after this offering, based on shares outstanding as of , will be restricted as a result of securities laws, lock-up agreements or other contractual restrictions that restrict transfers for at least 180 days after the date of this prospectus, subject to certain extensions.

The underwriters may, in their sole discretion, release all or some portion of the shares subject to lock-up agreements with the underwriters prior to expiration of the lock-up period. See also the section of this prospectus captioned “Shares eligible for future sale.” For more information regarding the lock-up agreements with the underwriters see the section of this prospectus captioned “Underwriting.”

The holders of 166,514,825 shares of common stock, or 94.28% based on shares outstanding as of September 30, 2017, will be entitled to rights with respect to registration of such shares under the Securities Act pursuant to a registration rights agreement between such holders and us. See “Certain relationships and related party transactions—Registration rights agreement” below. If such holders, by exercising their registration rights, sell a large number of shares, they could adversely affect the market price for our common stock. If we file a registration statement for the purpose of selling additional shares to raise capital and are required to include shares held by these holders pursuant to the exercise of their registration rights, our ability to raise capital may be impaired. We intend to file a registration statement on Form S-8 under the Securities Act to register shares of common stock for issuance under our 2018 Equity Incentive Plan, 2013 Stock Plan and 2018 Employee Stock Purchase Plan. Both our 2018 Equity Incentive Plan and 2018 Employee Stock Purchase Plan provide for automatic increases in the shares reserved for issuance under the plans which could result in additional dilution to our stockholders. Once we register the shares under these plans, they can be freely sold in the public market upon issuance and vesting, subject to a 180-day lock-up period and other restrictions provided under the terms of the applicable plan and/or the option agreements entered into with option holders.

Our management team may invest or spend the proceeds of this offering in ways with which you may not agree or in ways which may not yield a return.

Our management will have broad discretion in the application of the net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. Accordingly, investors will need to rely on our judgment with respect to the use of these proceeds. We currently intend to use the proceeds from this offering primarily to improve and update our platform and core technologies, to expand our sales and marketing capabilities, to further expand into other geographies, to continue to expand into new business verticals, and for working capital and other general corporate purposes. For more information see, “Use of proceeds.” The failure by our management to apply these funds effectively could adversely affect our ability to continue maintaining and expanding our business. Until the net proceeds are used, they may be placed in investments that do not produce significant income or that may lose value.

We have never paid dividends on our capital stock and we do not intend to pay dividends for the foreseeable future. Consequently, any gains from an investment in our common stock will likely depend on whether the price of our common stock increases.

We have never declared or paid any dividends on our common stock and do not intend to pay any dividends in the foreseeable future. We anticipate that we will retain all of our future earnings for use in the operation of

our business and for general corporate purposes. Any determination to pay dividends in the future will be at the discretion of our board of directors. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investments. Furthermore, we are party to a credit agreement with Silicon Valley Bank which contains negative covenants that limit our ability to pay dividends. For more information, see the section of this prospectus captioned "Management's discussion and analysis of financial condition and results of operation – Liquidity and capital resources." For more information regarding the negative covenants in our loan and security agreement with Silicon Valley Bank, see "Risk factors—Our credit facility contains restrictions that limit our flexibility in operating our business."

Our charter documents and Delaware law could prevent a takeover that stockholders consider favorable and could also reduce the market price of our stock.

Our amended and restated certificate of incorporation and our amended and restated bylaws will contain provisions that could delay or prevent a change in control of our company. These provisions could also make it more difficult for stockholders to elect directors and take other corporate actions. These provisions include:

- providing for a classified board of directors with staggered, three year terms;
- authorizing the issuance of "blank check" preferred stock that our board of directors could issue to increase the number of outstanding shares to discourage a takeover attempt;
- prohibiting cumulative voting in the election of directors;
- providing that vacancies on our board of directors may be filled only by a majority of directors then in office, even though less than a quorum;
- prohibiting the adoption, amendment or repeal of our amended and restated bylaws or the repeal of the provisions of our amended and restated certificate of incorporation regarding the election and removal of directors without the required approval of at least 66.67% of the shares entitled to vote at an election of directors;
- prohibiting stockholder action by written consent;
- limiting the persons who may call special meetings of stockholders; and
- requiring advance notification of stockholder nominations and proposals.

These provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, which is responsible for appointing the members of our management. In addition, the provisions of Section 203 of the Delaware General Corporate Law govern us. These provisions may prohibit large stockholders, in particular those owning 15% or more of our outstanding voting stock, from merging or combining with us for a certain period of time without the consent of our board of directors.

These and other provisions in our amended and restated certificate of incorporation and our amended and restated bylaws and under Delaware law could discourage potential takeover attempts, reduce the price investors might be willing to pay in the future for shares of our common stock and result in the market price of our common stock being lower than it would be without these provisions. For more information, see the section of this prospectus captioned "Description of capital stock—Anti-takeover effects of Delaware law and our amended and restated certificate of incorporation and amended and restated bylaws."

Insiders have substantial control over us and will be able to influence corporate matters.

As of December 31, 2017, our directors and executive officers and their affiliates will beneficially own, in the aggregate, approximately 53.95% of our outstanding capital stock upon the completion of this offering. As a result, these stockholders will be able to exercise significant influence over all matters requiring stockholder approval, including the election of directors and approval of significant corporate transactions, such as a merger or other sale of our company or its assets. This concentration of ownership could limit stockholders' ability to influence corporate matters and may have the effect of delaying or preventing a third party from acquiring control over us.

Claims for indemnification by our directors and officers may reduce our available funds to satisfy successful third-party claims against us and may reduce the amount of money available to us.

Our amended and restated certificate of incorporation and amended and restated bylaws provide that we will indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law.

In addition, as permitted by Section 145 of the Delaware General Corporation Law, our amended and restated bylaws and our indemnification agreements that we have entered into with our directors and officers provide that:

- We will indemnify our directors and officers for serving us in those capacities or for serving other business enterprises at our request, to the fullest extent permitted by Delaware law. Delaware law provides that a corporation may indemnify such person if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the registrant and, with respect to any criminal proceeding, had no reasonable cause to believe such person's conduct was unlawful;
- We may, in our discretion, indemnify employees and agents in those circumstances where indemnification is permitted by applicable law;
- We are required to advance expenses, as incurred, to our directors and officers in connection with defending a proceeding, except that such directors or officers shall undertake to repay such advances if it is ultimately determined that such person is not entitled to indemnification;
- We will not be obligated pursuant to our amended and restated bylaws to indemnify a person with respect to proceedings initiated by that person against us or our other indemnitees, except with respect to proceedings authorized by our board of directors or brought to enforce a right to indemnification;
- The rights conferred in our amended and restated bylaws are not exclusive, and we are authorized to enter into indemnification agreements with our directors, officers, employees and agents and to obtain insurance to indemnify such persons; and
- We may not retroactively amend our amended and restated bylaw provisions to reduce our indemnification obligations to directors, officers, employees and agents.

Our amended and restated certificate of incorporation to be in effect upon completion of this offering will provide that the Court of Chancery of the State of Delaware will be the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or other employees.

Our amended and restated certificate of incorporation to be in effect upon completion of this offering provides that the Court of Chancery of the State of Delaware is the sole and exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a breach of fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, any action asserting a claim against us arising pursuant

to any provisions of the General Corporation Law of the State of Delaware, our amended and restated certificate of incorporation or our amended and restated bylaws to be in effect upon completion of this offering, or any action asserting a claim against us that is governed by the internal affairs doctrine. The choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees. If a court were to find the choice of forum provision contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions.

Because the public offering price of our common stock will be substantially higher than the net tangible book value per share of our outstanding common stock following this offering, new investors will experience immediate and substantial dilution.

The public offering price of our common stock is substantially higher than the net tangible book value per share of our common stock immediately following this offering based on the total value of our tangible assets less our total liabilities. Therefore, if you purchase shares of our common stock in this offering, you will experience immediate dilution of approximately $ per share, the difference between the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, and the net tangible book value per share of our common stock as of , after giving effect to the issuance of shares of our common stock in this offering. Furthermore, if the underwriters exercise their overallotment option, or outstanding options and warrants are exercised, you could experience further dilution. For a further description of the dilution that you will experience immediately after the offering, see the section of this prospectus captioned "Dilution."

Special note regarding forward-looking statements

This prospectus includes forward-looking statements within the meaning of the federal securities laws. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends affecting the operating results and financial condition of our business. Forward-looking statements should not be read as a guarantee of future performance or results, and will not necessarily be accurate indications of the times at, or by, which such performance or results will be achieved. Forward-looking statements are based on information available at the time those statements are made and/or management's good faith belief as of that time with respect to future events, and are subject to risks and uncertainties that could cause actual performance or results to differ materially from those expressed in or suggested by the forward-looking statements. Important factors that could cause such differences include, but are not limited to, statements about:

- our ability to increase our revenue and our revenue growth rate;
- estimates of our expenses, future revenues, capital requirements and our needs for additional financing;
- our estimates of the size of our market opportunity;
- our expectations regarding our ability to increase gene production, reduce turnaround times and drive cost reductions for our customers;
- our ability to effectively manage our growth;
- our ability to successfully enter new markets and manage our international expansion;
- our ability to protect our intellectual property, including our proprietary DNA synthesis platform;
- costs associated with defending intellectual property infringement and other claims;
- the effects of increased competition in our business;
- our ability to keep pace with changes in technology and our competitors;
- our ability to successfully identify, evaluate and manage any future acquisitions of businesses, solutions or technologies;
- the success of our marketing efforts;
- significant disruption in, or breach in security of our information technology systems and resultant interruptions in service and any related impact on our reputation;
- the attraction and retention of qualified employees and key personnel;
- the effects of natural or man-made catastrophic events;
- the effectiveness of our internal controls;
- changes in government regulation affecting our business;
- the impact of adverse economic conditions;
- our use of the net proceeds from this offering; and
- other risk factors included under "Risk factors" in this prospectus.

In addition, in this prospectus, the words “believe,” “may,” “will,” “estimate,” “continue,” “anticipate,” “intend,” “expect,” “predict,” “potential” and similar expressions, as they relate to our company, our business and our management, are intended to identify forward-looking statements. In light of these risks and uncertainties, the forward-looking events and circumstances discussed in this prospectus may not occur and actual results could differ materially from those anticipated or implied in the forward-looking statements.

Forward-looking statements speak only as of the date of this prospectus. You should not put undue reliance on any forward-looking statements. We assume no obligation to update forward-looking statements to reflect actual results, changes in assumptions or changes in other factors affecting forward-looking information, except to the extent required by applicable laws. If we update one or more forward-looking statements, no inference should be drawn that we will make additional updates with respect to those or other forward-looking statements.

You should read this prospectus and the documents that we reference in this prospectus and have filed with the Securities and Exchange Commission as exhibits to the registration statement of which this prospectus is a part with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect.

Industry and market data

This prospectus contains estimates, projections and other information concerning our industry, our business, and the markets for our products, including data regarding our current manufacturing capacity, product features and benefits, product quality, turnaround time, reliability and cost, as well as data regarding market research, estimates and forecasts prepared by our management. Information that is based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances that are assumed in this information. Unless otherwise expressly stated, we obtained this industry, business, market and other data from reports, research surveys, studies and similar data prepared by market research firms and other third parties, industry, medical and general publications, government data and similar sources. In some cases, we do not expressly refer to the sources from which this data is derived. In that regard, when we refer to one or more sources of this type of data in any paragraph, you should assume that other data of this type appearing in the same paragraph is derived from the same sources, unless otherwise expressly stated or the context otherwise requires.

Use of proceeds

We estimate that the net proceeds from our issuance and sale of shares of our common stock in this offering will be approximately $ million, assuming an initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses that the net proceeds from this offering will be approximately $ million.

A $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, would increase or decrease our net proceeds from this offering by approximately $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. An increase or decrease of 1,000,000 shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase or decrease our net proceeds from this offering by approximately $ million, assuming no change in the assumed initial public offering price per share and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We do not expect that a change in the offering price or the number of shares by these amounts would have a material effect on our intended uses of the net proceeds from this offering, although it may impact the amount of time prior to which we may need to seek additional capital.

As of September 30, 2017, we had cash, cash equivalents and short-term investments of $62.2 million. We currently estimate that we will use the net proceeds from this offering, together with our existing cash, cash equivalents and short-term investments: (1) to improve and update our platform and core technologies, (2) to expand our sales and marketing capabilities, (3) to further expand into other geographies, (4) to continue to expand into new business verticals, and (5) for working capital and other general corporate purposes.

We believe opportunities may exist from time to time to expand our current business through acquisitions or in-licenses of complementary companies or technologies. While we have no current agreements, commitments or understandings for any specific acquisitions or in-licenses at this time, we may use a portion of the net proceeds for these purposes.

This expected use of the net proceeds from this offering and our existing cash, cash equivalents and short-term investments represents our intentions based upon our current plans and business conditions, which could change in the future as our plans and business conditions evolve. As a result, our management will retain broad discretion over the allocation of the net proceeds from this offering.

After giving effect to the anticipated net proceeds from this offering, we expect that our existing cash, cash equivalents and short-term investments will be sufficient to fund our planned operating expenses, capital expenditure requirements and debt service payments through at least the next 12 months. We have based this estimate on assumptions that may prove to be wrong, and we could use our available capital resources sooner than we currently expect. For additional information regarding our potential capital requirements, see “We will require additional financing to achieve our goals, and a failure to obtain this necessary capital when needed on acceptable terms, or at all, could force us to delay, limit, reduce or terminate our product manufacturing and development and other operations” under the heading “Risk factors.”

Pending our use of the net proceeds from this offering, we intend to invest the net proceeds in a variety of capital preservation investments, including short-term, investment-grade, interest-bearing instruments and U.S. government securities.

Dividend policy

We have never declared or paid cash dividends on our capital stock. We currently intend to retain all available funds and any future earnings for use in the operation of our business and do not anticipate paying any cash dividends in the foreseeable future.

Any decision to declare and pay dividends in the future will be made at the discretion of our board of directors and will depend on, among other things, our results of operations, cash requirements, financial condition, contractual restrictions including compliance with covenants under our credit facilities and other factors that our board of directors may deem relevant. In addition, under the terms of our current credit facilities, we are prohibited from paying cash dividends without the prior consent of Silicon Valley Bank.

Capitalization

The following table sets forth our cash, cash equivalents and short-term investments and capitalization as of September 30, 2017 on:

- An actual basis;
- A pro forma basis, to give effect to (i) the conversion of the outstanding shares of our convertible preferred stock as of September 30, 2017 into 145,138,924 shares of our common stock immediately prior to the closing of this offering, (ii) the automatic conversion of warrants to purchase 786,594 shares of our convertible preferred stock into warrants to purchase 786,594 shares of common stock immediately prior to the closing of this offering; and (iii) the effectiveness of our amended and restated certificate of incorporation, as if such conversions, and effectiveness had occurred immediately prior to the closing of this offering; and
- A pro forma as adjusted basis, giving effect to (i) the pro forma adjustments set forth above and (ii) the sale and issuance of shares of our common stock by us in this offering, based upon the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

You should read this table together with the section of this prospectus entitled “Management’s discussion and analysis of financial condition and results of operations” and our consolidated financial statements and related notes included elsewhere in this prospectus.

	As of September 30, 2017		
(In thousands, except share and per share data)	**Actual**	**Pro forma**	**Pro forma as adjusted(1)**
Cash, cash equivalents and short-term investments	$ 62,204	$ 62,204	$
Long-term debt	$ 9,154	$ 9,154	$
Convertible preferred stock warrant liabilities	644	—	
Convertible preferred stock, $0.00001 par value: 150,231,568 shares authorized, 145,138,924 shares issued and outstanding, actual; no shares authorized, no shares issued and outstanding, pro forma and pro forma as adjusted	199,633	—	
Stockholders’ equity (deficit):			
Common stock, $0.00001 par value: 210,000,000 shares authorized, 31,474,045 shares issued and outstanding, actual; shares authorized, shares issued and outstanding, pro forma; shares authorized, shares issued and outstanding, pro forma as adjusted	—	2	
Additional paid-in capital	6,228	206,503	
Accumulated other comprehensive income	33	33	
Accumulated deficit	(139,619)	(139,619)	
Total stockholders’ equity (deficit)	(133,358)	(66,919)	
Total capitalization	$ 76,073	$ 76,073	$

(1) Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, our cash, cash equivalents and short-term investments, working capital, total assets and total stockholders’ equity and total capitalization by approximately $ million, assuming that

the number of shares of our common stock offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each increase or decrease of 1.0 million shares in the number of shares offered by us would increase or decrease the amount of our cash, cash equivalents, and short-term investments working capital, total assets and total stockholders' equity by approximately $ million, assuming an initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The total number of shares of our common stock reflected in the discussion and table above is based upon 176,612,969 shares of our common stock outstanding on a pro forma basis as of September 30, 2017, and excludes:

- 2,047,292 unvested shares of restricted common stock subject to our repurchase right;
- 18,017,311 shares of our common stock issuable upon the exercise of options to purchase shares of our common stock outstanding as of September 30, 2017, with a weighted-average exercise price of $0.67 per share;
- shares of our common stock issuable upon the exercise of options to purchase shares of our common stock granted after September 30, 2017, with a weighted-average exercise price of $ per share;
- 634,921 shares of our common stock issuable upon the exercise of outstanding warrants to purchase our common stock outstanding as of September 30, 2017, having an exercise price of $0.63 per share and an additional 634,920 shares of our common stock issuable upon the exercise of outstanding warrants to purchase our common, having an exercise price of $0.63 per share that would be exercisable upon the drawing down of additional loans under our credit facility;
- 364,742 shares of our common stock issuable upon the exercise of outstanding warrants to purchase Series A convertible preferred stock outstanding as of September 30, 2017, having an exercise price of $0.329 per share;
- 160,606 shares of our common stock issuable upon the exercise of outstanding warrants to purchase Series B convertible preferred stock outstanding as of September 30, 2017, having an exercise price of $0.792 per share;
- 186,679 shares of our common stock, issuable upon the exercise of outstanding warrants to purchase Series C convertible preferred stock outstanding as of September 30, 2017, having an exercise price of $1.4999 per share;
- 74,567 shares of our common stock issuable upon the exercise of outstanding warrants to purchase Series D convertible preferred stock outstanding as of September 30, 2017, having an exercise price of $2.1457 per share; and
- shares of common stock reserved for future grants under our stock-based compensation plans, consisting of:
  - 6,805,339 shares of common stock reserved for future grants under our 2013 Stock Plan as of September 30, 2017, which shares will be added to the shares to be reserved under our 2018 Plan, which will become effective upon completion of this offering and contains provisions that automatically increase its share reserve each year, as more fully described in "Executive compensation—Equity incentive plans";
  - shares of common stock reserved for future grants under our 2018 Plan, which will become effective upon completion of this offering; and
  - shares of common stock reserved for future issuance under our 2018 ESPP, which will become effective upon completion of this offering.

Dilution

If you invest in our common stock, your interest will be diluted to the extent of the difference between the public offering price per share of our common stock and the pro forma as adjusted net tangible book value per share of our common stock after this offering. Our historical net tangible book value as of September 30, 2017 was $(135.4) million, or $(4.30) per share of common stock. Our net tangible book value per share represents total tangible assets less total liabilities and convertible preferred stock, divided by the number of shares of common stock outstanding as of September 30, 2017. Our pro forma net tangible book value at September 30, 2017, before giving effect to this offering, was $64.9 million, or $0.36 per share of our common stock. Our pro forma net tangible book value before the issuance of shares in this offering gives effect to the conversion of our outstanding convertible preferred stock into our common stock immediately prior to the completion of this offering and the related reclassification of the redeemable convertible preferred stock warrant liability into additional paid-in capital immediately prior to the closing of this offering.

After giving effect to our sale of shares of our common stock in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of September 30, 2017 would have been $, or $ per share. This represents an immediate increase in net tangible book value of $ per share to our existing stockholders and an immediate dilution of $ per share to new investors purchasing shares of common stock in this offering. The following table illustrates this dilution on a per share basis:

Assumed initial public offering price per share		$
Historical net tangible book value per share as of September 30, 2017	$(4.30)	
Pro forma increase in net tangible book value per share	4.66	
Pro forma net tangible book value per share as of September 30, 2017	0.36	
Increase in net tangible book value per share attributable to new investors purchasing shares in this offering	$	
Pro forma as adjusted net tangible book value per share after giving effect to this offering		
Dilution in pro forma net tangible book value per share to new investors in this offering		$

Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, our pro forma as adjusted net tangible book value by approximately $ million, or approximately $ per share, and would increase or decrease, as applicable, dilution per share to new investors in this offering by $, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. An increase or decrease of 1,000,000 shares in the number of shares offered by us would increase or decrease, as applicable, our pro forma as adjusted net tangible book value by approximately $ million, or approximately $ per share, and would increase or decrease, as applicable, dilution per share to new investors in this offering by approximately $ per share, assuming an initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. The pro forma as adjusted information discussed above is illustrative only and will be adjusted based on the actual public offering price and other terms of this offering determined at pricing. If the underwriters exercise their overallotment option to purchase additional

shares in full, the pro forma as adjusted net tangible book value per share would be $ per share, and the dilution per share to new investors in this offering would be $ per share.

The following table summarizes the pro forma on an as adjusted basis as described above, as of September 30, 2017, the differences between the existing stockholders and new investors with respect to the number of shares of common stock purchased from us, the total consideration paid to us and the average price per share paid or to be paid to us at an assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, before deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us:

	Shares purchased		Total consideration		Average price per share
	Number	Percent	Amount	Percent	
Existing stockholders		%	$	%	$
New investors		%	$	%	$
Total		100.0%		$100.0%	

Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, the total consideration paid to us by new investors and total consideration paid to us by all stockholders by $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. An increase or decrease of 1,000,000 shares in the number of shares offered by us would increase or decrease the total consideration paid to us by new investors and total consideration paid to us by all stockholders by $ million, assuming an initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The total number of shares of our common stock reflected in the discussion and table above is based upon 176,612,969 shares of our common stock outstanding on a pro forma basis as of September 30, 2017 and excludes:

- 2,047,292 unvested shares of restricted common stock subject to our repurchase rights;
- 18,017,311 shares of our common stock issuable upon exercise of stock options outstanding as of September 30, 2017, having a weighted-average exercise price of $0.67 per share;
- shares of our common stock issuable upon exercise of stock options granted after September 30, 2017, having a weighted-average exercise price of $ per share;
- 634,921 shares of our common stock issuable upon the exercise of outstanding warrants to purchase our common stock outstanding as of September 30, 2017, having an exercise price of $0.63 per share and an additional 634,920 shares of our common stock issuable upon the exercise of outstanding warrants to purchase our common, having an exercise price of $0.63 per share that would be exercisable upon the drawing down of additional loans under our credit facility
- 364,742 shares of our common stock issuable upon the exercise of outstanding warrants to purchase our Series A convertible preferred stock outstanding as of September 30, 2017, having an exercise price of $0.329 per share;
- 160,606 shares of our common stock issuable upon the exercise of outstanding warrants to purchase Series B convertible preferred stock outstanding as of September 30, 2017, having an exercise price of $0.792 per share;

- 186,679 shares of our common stock issuable upon the exercise of outstanding warrants to purchase Series C convertible preferred stock outstanding as of September 30, 2017, having an exercise price of $1.4999 per share; and
- 74,567 shares of our common stock, issuable upon the exercise of outstanding warrants to purchase Series D convertible preferred stock outstanding as of September 30, 2017, having an exercise price of $2.1457 per share.
- shares of common stock reserved for future grants under our stock-based compensation plans, consisting of:
- 6,805,339 shares of common stock reserved for future grants under our 2013 Stock Plan as of September 30, 2017, which shares will be added to the shares to be reserved under our 2018 Plan, which will become effective upon completion of this offering and contains provisions that automatically increase its share reserve each year, as more fully described in “Executive compensation – Equity incentive plans”;
- shares of common stock reserved for future grants under our 2018 Plan, which will become effective upon completion of this offering; and
- shares of common stock reserved for future issuance under our 2018 ESPP, which will become effective upon completion of this offering.

To the extent that any outstanding options are exercised, new options are issued under our stock-based compensation plans or we issue additional shares of common stock in the future, there will be further dilution to investors participating in this offering.

Selected consolidated financial data

You should read the selected consolidated financial data set forth below in conjunction with our consolidated financial statements, the notes to our consolidated financial statements and “Management’s discussion and analysis of financial condition and results of operations” contained elsewhere in this prospectus.

We derived the selected consolidated statements of operations data and consolidated balance sheet data for the fiscal years ended September 30, 2016 and 2017 from our audited consolidated financial statements included elsewhere in this prospectus. The summary financial data included in this section are not intended to replace the financial statements and related notes included elsewhere in this prospectus. Our historical results are not necessarily indicative of our future performance.

	Years ended September 30,	
(in thousands, except share and per share data)	**2016**	**2017**
Consolidated statements of operations data:		
Revenues	$ 2,269	$ 10,767
Operating expenses:		
Cost of revenues	9,421	24,020
Research and development	18,230	19,169
Selling, general and administrative	18,274	26,060
Total operating expenses	45,925	69,249
Loss from operations	(43,656)	(58,482)
Interest income	241	412
Interest expense	(746)	(905)
Other income (expense), net	73	(55)
Loss before income taxes	(44,088)	(59,030)
Provision for income taxes	—	(280)
Net loss attributable to common stockholders	$ (44,088)	$ (59,310)
Other comprehensive loss:		
Change in unrealized gain (loss) on investments	9	(9)
Foreign currency translation adjustment	—	33
Comprehensive loss	$ (44,079)	$ (59,286)
Net loss per share attributable to common stockholders—basic and diluted(1)	$ (2.38)	$ (2.47)
Weighted average shares used in computing net loss per share attributable to common stockholders—basic and diluted(1)	18,511,202	23,982,605
Pro forma net loss per share—basic and diluted(1)		$ (0.39)
Pro forma weighted-average shares used in computing pro forma net loss per share—basic and diluted(1)		152,397,059

(1) See Note 16 of the notes to our consolidated financial statements included elsewhere in this prospectus for a description of the method used to compute basic and diluted net loss per share attributable to common stockholders and pro forma basic and diluted net loss per share.

(in thousands)	As of September 30, 2016	2017
Consolidated balance sheet data		
Cash, cash equivalents, and short-term investments	$ 55,920	$ 62,204
Working capital	50,361	58,392
Total assets	76,463	85,657
Total liabilities	19,037	19,382
Convertible preferred stock	134,037	199,633
Additional paid-in capital	3,689	6,228
Accumulated deficit	(80,309)	(139,619)
Total stockholders' deficit	(76,611)	(133,358)

Management's discussion and analysis of financial condition and results of operations

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and the related notes to those statements included elsewhere in this prospectus. In addition to historical financial information, the following discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions. Our actual results and timing of selected events may differ materially from those anticipated in these forward-looking statements as a result of many factors, including those discussed under "Risk factors" and elsewhere in this prospectus. The last day of our fiscal year is September 30, and we refer to our fiscal year ended September 30, 2016 as fiscal 2016 or 2016 and our fiscal year ended September 30, 2017 as fiscal 2017 or 2017.

Overview

We are a leading and rapidly growing synthetic biology company that has developed a disruptive DNA synthesis platform. The core of our platform is a proprietary technology that pioneers a new method of manufacturing synthetic DNA by "writing" DNA on a silicon chip. We have combined this technology with proprietary software and scalable commercial infrastructure to create an integrated platform that enables us to achieve high levels of quality, precision, automation, and manufacturing throughput at a significantly lower cost than our competitors. We believe that we are the first and only company to harness the highly-scalable production and processing infrastructure of the semiconductor industry to industrialize the production of a wide range of synthetic DNA-based products.

We launched the first application of our platform, our synthetic DNA product offering, in April 2016 with the goal to become the leading synthetic DNA provider, disrupt the gene synthesis market and make legacy DNA synthesis methods obsolete.

In April 2016, we have rapidly become a leading synthetic DNA provider. In 2017, we served 292 customers including nine of the top 20 pharmaceutical companies by revenue; Ginkgo Bioworks, Inc., or Ginkgo Bioworks, which we believe is the largest global purchaser of synthetic DNA, four of the largest agricultural biotechnology companies that use synthetic biology, over 100 academic research institutions worldwide, and innovative customers using synthetic DNA for new and emerging applications, such as Microsoft Corporation and the University of Washington for use of DNA as a digital data storage medium.

We have also leveraged the versatility of our platform to expand our product portfolio into other markets in which we believe we have a competitive advantage. In October 2017, we launched an innovative and comprehensive preparation kit for next generation sequencing that simplifies the workflow, improves accuracy and lowers the cost of next generation sequencing.

We have built a scalable commercial platform that enables us to reach a diverse customer base that we believe includes over 100,000 synthetic DNA users today. We launched our proprietary, innovative, and easy-to-use e-commerce platform in October 2017 to existing customers, which enables customers to design, validate, and place on-demand orders of customized DNA online. We also employ a direct sales force that is focused on customer acquisition, support and management, and is highly trained on both the technical aspects of our platform and DNA.

We generated revenues of $2.3 million in fiscal 2016, and $10.8 million in fiscal 2017, while incurring net losses of $44.1 million in fiscal 2016, and $59.3 million in fiscal 2017.

Since our inception, we have incurred significant operating losses. Our ability to generate product revenue sufficient to achieve profitability will depend heavily on the success of our existing products and development

and commercialization of additional products in the synthetic biology industry. Our net loss was $44.1 million and $59.3 million for fiscal 2017 and fiscal 2016, respectively. As of September 30, 2017, we had an accumulated deficit of $139.6 million. We expect to continue to incur significant expenses for at least the next several years. Furthermore, upon the closing of this offering, we expect to continue to incur additional costs associated with operating as a public company including accounting, investor relations, legal and other expenses that we did not incur as a private company.

As a result, we will need substantial additional funding to support our continuing operations and pursue our growth strategy. Until such time as we can generate significant revenue from product sales, we expect to finance our operations from revenue from our commercial operations, the sale of equity, debt financings or other capital sources, including collaborations with other companies or other strategic transactions. We may be unable to grow our revenue, raise additional funds or enter into such other agreements or arrangements when needed on favorable terms, or at all. If we fail to raise capital or enter into such agreements as, and when, needed, we may have to significantly delay, scale back or discontinue the development and commercialization of one or more of our product opportunities or delay our pursuit of potential in-licenses or acquisitions.

As of September 30, 2017, we had $62.2 million in cash, cash equivalents and short-term investments and during 2017, we received net cash proceeds of $65.6 million from the sale of shares of Series D convertible preferred stock. We have based these estimates on assumptions that may prove to be wrong, and we could exhaust our available capital resources sooner than we expect. See “Liquidity and capital resources.”

After giving effect to the anticipated net proceeds from this offering, we expect that our existing cash, cash equivalents and short-term investments will be sufficient to fund our planned operating expenses, capital expenditure requirements and debt service payments through at least the next 12 months.

In the future, we expect we will need to raise additional capital to finance our operations which cannot be assured. As of September 30, 2017, without giving effect to the anticipated net proceeds from this offering, we have concluded that this circumstance raises substantial doubt about our ability to continue as a going concern within one year after the issuance date of our consolidated financial statements for the year ended September 30, 2017. See Note 1 to our consolidated financial statements appearing in this prospectus for additional information.

Similarly, in its report on our financial statements for fiscal 2017, our independent registered public accounting firm included an explanatory paragraph stating that our recurring losses from operations since inception and required additional funding to finance our operations raise substantial doubt about our ability to continue as a going concern.

Key factors affecting our performance

We believe that our financial performance has been and in the foreseeable future will continue to be primarily driven by the following factors:

Adoption of our products and solutions by existing and new customers. A key factor to our future success is and will be our ability to increase orders from and sell new solutions to existing customers, and to acquire new customers. To do so, we must offer these customers synthetic DNA-based products with a superior combination of quality, cost, throughput, and scalability, and develop affordable tools for existing and prospective customers that expand the applications of our products and drive higher volume purchases. We must also convince potential customers who currently synthesize their own DNA that our products and solutions are superior and offer greater value to their organizations.

Expansion into new geographic markets. Our revenue is currently generated from customers primarily in the United States. As we begin to expand our global sales efforts, we must be successful in marketing our products

and solutions in geographies where we have limited experience. Our revenue may be affected by seasonal trends in some geographies during the calendar year as we expand into new geographic markets.

Expansion into adjacent addressable markets. Our revenue growth and market potential depends on our ability to meet customer needs in adjacent markets, such as in pharmaceutical development, data storage and in other industrial markets. By combining our affordable and high-quality synthetic DNA with our proprietary, innovative, and easy-to-use e-commerce platform that allows customers to design, validate, and place on-demand orders of customized DNA online, we believe we will continue to convert those who make DNA, or DNA Makers, into those who buy their own DNA, or DNA Buyers.

Leverage our manufacturing capacity and commercial infrastructure. We have, and will continue to invest significantly in our manufacturing capabilities and commercial infrastructure. With our current operating model and infrastructure, we have the capacity to significantly increase our manufacturing production and commercialize additional products. By doing so, we expect to grow revenue and spread our costs over a larger volume of products, which we believe will further reduce our manufacturing costs on a per-unit basis and improve our operating margins. Our ability to achieve and enhance profitability is dependent upon growing our revenue and further increasing our manufacturing efficiency, among other factors.

Key business metrics

We regularly review the following key business metrics to evaluate our business, measure our performance, identify trends affecting our business, formulate financial projections and make strategic decisions. We believe that the following metrics are representative of our current business; however, we anticipate these will change or may be substituted for additional or different metrics as our business grows.

Value of orders received

We believe that the value of orders we receive is a leading indicator of our ability to generate revenue. We define an order as a contract with a customer or purchase order from a customer, which outlines the promised good at an agreed upon price. We regularly assess trends relating to the value of orders we receive, including with respect to our customer concentration. For example, we have experienced continuous quarterly growth in the value of orders received from customers other than Ginkgo Bioworks, which has increased by approximately seven times from the quarter ended June 30, 2016 to the quarter ended September 30, 2017. Orders may never convert into actual revenue and the timing of delivery of our orders and recognition of revenue, if any, may vary based on the nature of the order, and there can be no assurance that orders will result in recognized revenue. The following table lists the value of orders received (inclusive of Ginkgo Bioworks) during the periods indicated:

	Years ended September 30,	
(in thousands)	**2016**	**2017**
Order value	$ 3,059	$ 17,557

Number of customers

We believe that the number of customers purchasing from us is representative of our ability to drive adoption of our product and convert DNA Makers into DNA Buyers. We define a customer as a separate person or legal entity who has purchased any products from us in the past, regardless of the time since the last purchase.

	Years ended September 30,	
(in thousands)	**2016**	**2017**
Customers	97	292

Percentage of revenue from new vs. repeat customers

We believe that the percentage of revenue that we generate from both new and repeat customers is a leading indicator of our ability to drive adoption of our products amongst existing customers while also generating a robust pipeline of new customers. We define a new customer as a customer who, as a separate legal entity, has not previously purchased any products or services from us. We define a repeat customer as any customer who, as a separate legal entity, has previously purchased any products or services from us. Because our first commercial shipment was in April 2016, 100% of our revenue for fiscal 2016 was from new customers, therefore we had no revenue from repeat customers in fiscal 2016.

	Years ended September 30,	
	2016	**2017**
Percentage of revenue from repeat customers	0%	78%
Percentage of revenue from new customers	100%	22%

Financial overview

The following table summarizes certain selected historical financial results:

	Years ended September 30,	
(in thousands)	**2016**	**2017**
Revenues	$ 2,269	$ 10,767
Loss from operations	(43,656)	(58,482)
Net loss attributable to common stockholders	(44,088)	(59,310)

Components of the results of operations

Revenues

We generate revenue from sales of synthetic genes, oligo pools, genes, next generation sequencing tools and DNA libraries. We recognize revenue upon delivery to our customers and bill them directly for the shipments. Our ability to increase our revenues will depend on our ability to further penetrate the domestic and international markets, generate sales through our direct sales force, and over time from our e-commerce platform.

Revenues by geography

We have one reportable segment from the sale of synthetic DNA products. The following table shows our revenues by geography, based on our customers' shipping addresses. North America consists of Canada and Mexico; EMEA consists of Europe, Middle East, and Africa; and APAC consists of Japan, China, South Korea, Singapore, Malaysia and Australia.

	Years ended September 30,			
(in thousands, except percentages)	**2016**	**Percentage**	**2017**	**Percentage**
United States	$1,769	78%	$ 8,243	77%
EMEA	459	20%	2,023	19%
APAC	41	2%	274	2%
North America	—	0%	227	2%
Total revenues	$2,269	100%	$10,767	100%

Revenues by industry

Revenues by industry were as follows:

	Years ended September 30,			
(in thousands, except percentages)	2016	Percentage	2017	Percentage
Industrial chemicals	$ 960	42%	$ 6,702	62%
Academic research	830	37%	2,709	25%
Healthcare	461	20%	1,226	12%
Agriculture	18	1%	130	1%
Total revenues	$2,269	100%	$10,767	100%

Revenues and accounts receivable concentration

Customer revenues equal to or greater than 10% of total revenues was as follows:

	Years ended September 30,	
	2016	2017
Customer A	30%	40%
Customer B	11%	0%

One customer accounted for greater than 10% of net accounts receivable as follows:

	September 30,	
	2016	2017
Customer A	41%	35%

Cost of revenues

Cost of revenues reflect the aggregate cost incurred in the production and delivery of our products and consists of: production materials, personnel costs (salaries, benefits, bonuses and stock-based compensation), cost of expensed equipment and consumables, laboratory supplies, depreciation of capitalized equipment, production overhead costs and allocations of IT and facility costs. We expect that our cost of revenues will increase as we increase our revenues with new product developments.

Other operating expenses

Our operating expenses are classified in the following categories: Research and development, and selling, general and administrative. For each category, the largest component is personnel costs, which includes salaries, employee benefit costs, bonuses, and stock-based compensation expenses.

Research and development

Research and development expenses consist primarily of costs incurred for the development of our products, which include personnel costs, laboratory supplies, consulting costs and allocated overhead, including IT and facility costs. We expense our research and development expenses in the period in which they are incurred. We expect to increase our research and development expenses as we continue to develop new products.

Selling, general and administrative

Selling expenses consist of personnel cost, customer service expenses, direct marketing expenses, educational and promotional expense, market research and analysis. General and administrative expenses include

executive, finance and accounting, legal and human resources. These expenses consist of personnel costs, audit and legal expenses, consulting costs and allocated IT and facility costs. We expense all selling, general and administrative expenses as incurred. We expect our selling and marketing cost will continue to increase in absolute dollars, primarily driven by our efforts to expand our commercial capability, with an increased presence both within and outside the United States, and to expand our brand awareness and customer base through targeted marketing initiatives. We expect general and administrative expenses will increase as well as we scale our operations. In addition, we expect to incur additional accounting, legal and other expenses that we did not incur as a private company.

Interest expense

Interest expense is attributable to borrowing under our senior secured term loan and our equipment financing facility.

Interest income

Interest income consists primarily of interest earned on our cash, cash equivalents, and short-term investments.

Other income (expense), net

Other income (expense), net consists of realized gains and losses on sales of short-term investments and stock warrant expense.

Results of operations

	Years ended September 30,	
(in thousands)	**2016**	**2017**
Revenues	$ 2,269	$ 10,767
Operating expenses:		
Cost of revenues	9,421	24,020
Research and development	18,230	19,169
Selling, general and administrative	18,274	26,060
Total operating expenses	45,925	69,249
Loss from operations	(43,656)	(58,482)
Interest income	241	412
Interest expense	(746)	(905)
Other income (expense), net	73	(55)
Provision for income taxes	—	(280)
Net loss attributable to common stockholders	$ (44,088)	$ (59,310)

Revenues

	Years ended September 30,		Change	
(in thousands, except percentages)	**2016**	**2017**	**$**	**%**
Revenues	$2,269	$10,767	$8,498	375%

We commenced selling our products in April 2016. In 2016, we generated revenue of $2.3 million primarily related to shipments of our synthetic DNA products, primarily oligonucleotides, clonal and non-clonal synthetic genes, and DNA libraries. Revenue from customers in the United States was 78% and 22% outside the United States.

Revenue increased to $10.8 million in 2017, as we continued to ramp up production capacity and sales of our synthetic DNA products, primarily oligonucleotides, clonal and non-clonal synthetic genes, DNA libraries and oligo pools. In 2017, revenues from customers in the United States accounted for 77% and 23% from customers outside the United States.

Cost of revenues

	Years ended September 30,		Change	
(in thousands)	**2016**	**2017**	**$**	**%**
Cost of revenues	$9,421	$24,020	$14,599	155%

Cost of revenues increased by $14.6 million or 155% from $9.4 million in 2016 to $24.0 million in 2017 due to the increase in revenues. Cost of revenues was $9.4 million in 2016, driven by our initial ramp up of production capacity. Cost of revenues was primarily related to payroll of $3.5 million, production and lab supplies of $3.2 million, information technology and facilities costs of $1.8 million, consulting and outside services of $0.5 million, and maintenance costs of $0.3 million.

In 2017, total cost of revenues increased to $24.0 million, primarily from $8.2 million of payroll expenses due to an increase in headcount, consumption of reagents and production material of $7.4 million, information technology and facilities costs of $3.8 million, consulting and outside services of $1.1 million, $1.9 million of depreciation expense related to additional equipment for increased production capacity, maintenance costs of $0.7 million, and stock-based compensation expenses of $0.2 million.

Research and development expenses

	Years ended September 30,		Change	
(in thousands)	**2016**	**2017**	**$**	**%**
Research and development	$ 18,230	$ 19,169	$939	5%

Research and development expenses increased by $0.9 million or 5% from $18.2 million in fiscal 2016 to $19.2 million in fiscal 2017 due to increased development activities, materials and fiscal lab costs, and information technology and facilities costs.

Research and development expenses for 2016 were $18.2 million, primarily consisting of payroll expenses of $10.6 million, depreciation expense of $2.7 million, production and lab supplies of $2.7 million, information technology and facilities costs of $2.1 million, consulting and outside services of $1.0 million and other expenses of $1.7 million, partially offset by government funding of $2.6 million.

Research and development expenses were $19.2 million for 2017, primarily consisting of payroll expenses of $8.6 million, $3.2 million of production materials and lab supplies, information and facilities costs of $3.0 million, consulting and outside services of $1.4 million, $1.2 million of depreciation, $0.6 million of stock based compensation and other expenses of $1.2 million.

Selling, general and administrative expenses

(in thousands, except percentages)	Years ended September 30, 2016	2017	Change $	Change %
Selling, general and administrative	$ 18,274	$ 26,060	$7,786	43%

Selling, general and administrative expenses increased by $7.8 million, or 43%, from $18.3 million in 2016 to $26.1 million in 2017 primarily due to increases in payroll related to increased headcount, commercialization of products, professional and legal expenses, IT and facilities.

Selling, general and administrative expenses in 2016 were $18.3 million, which primarily consisted of payroll costs of $6.5 million, legal expenses of $4.1 million, rent and building maintenance of $2.3 million, consulting and outside services of $2.5 million including accounting and administrative costs, depreciation expense of $1.3 million, travel expenses of $1.2 million, advertising and tradeshows of $0.9 million, online services of $0.6 million, non-income taxes of $0.5 million, stock-based compensation expense of $0.5 million and other expenses of $1.8 million partially offset by shared information technology and facilities costs of $3.9 million.

Selling, general and administrative expenses were $26.1 million in 2017, which primarily consisted of $8.4 million payroll expenses, consulting and outside services of $5.5 million including accounting and professional services, legal expenses of $6.3 million, rent and building maintenance of $3.4 million, depreciation of $1.6 million, stock compensation expense of $1.1 million, $1.0 million of online services, advertising expenses of $0.5 million and other expenses of $5.2 million, partially offset by shared information technology and facility costs of $6.9 million. We believe that selling, general and administrative costs will continue to increase as we continue to increase revenue and penetrate new markets.

Interest, and other income (expense), net

(in thousands, except percentages)	Years ended September 30, 2016	2017	Change $	Change %
Interest income	$ 241	$ 412	$ (171)	(71)%
Interest expense	(746)	(905)	159	(21)%
Other income (expense)	73	(55)	128	175 %
Total interest, and other income (expense), net	$ (432)	$ (548)	$ 116	(27)%

Interest income was $0.2 million in 2016 and $0.4 million in 2017 resulting from our short-term investments. Other income and expenses were primarily due to the disposal of property and equipment. Interest expense was $0.7 million in 2016 and $0.9 million in 2017 related to our debt. Stock warrant expense was $(0.1) million in 2016 and $0.3 million in 2017.

Provision for income taxes

(in thousands, except percentages)	Years ended September 30, 2016	2017	Change $	Change %
Provision for income taxes	$ —	$ (280)	$280	100%

We recorded an immaterial provision for income taxes in 2016 and $0.3 million in 2017.

Liquidity and capital resources

Sources of liquidity

To date, we have financed our operations principally through private placements of our convertible preferred stock, borrowings from credit facilities and revenue from our commercial operations.

Since our inception on February 4, 2013 and through September 30, 2017, we have received an aggregate of $200.3 million in gross proceeds from the issuance of equity securities and an aggregate of $10.0 million from debt. As of September 30, 2017, we had a balance of $31.2 million of cash and cash equivalents and $31.0 million of short-term investments.

Preferred stock financings

As of September 30, 2017, we had raised $200.3 million in gross proceeds from the sale of our equity securities, including the sale of 59,743,942 shares of our Series D convertible preferred stock from January 2016 through September 2017 at a purchase price of $2.146 per share for gross proceeds of $128.2 million.

See Note 13 to our consolidated financial statements for a discussion of the terms and provisions of our Series D convertible preferred stock issued in 2016 and 2017.

Debt financings

We have entered into various credit facilities to obtain debt financing from time to time beginning in October 2013.

More recently, in December 2015, we entered into a Second Amended and Restated Loan and Security Agreement, or the Third Loan, for amounts aggregating up to $15.0 million in a series of three advances. The Third A&R Loan contains an acceleration clause under which the loan can become due and payable to Silicon Valley Bank, or SVB, in certain events of default, including in the event of a material adverse change in our business. The term of the loan was 41 months with an interest rate equal to the greater of (i) the prime rate or (ii) 3.25%, and there was a final payment fee of 6% of the amount loaned. In addition, we obtained a revolving facility from SVB of $5.0 million for which the principal amount outstanding under the revolving line would accrue interest at a floating per annum rate equal to one percentage point (1.00%) above the Prime Rate, which interest shall be payable monthly.

The first advance, totaling $7.0 million, was drawn in December 2015 and comprised $3.3 million to refinance our prior loan with SVB and a new advance of $3.7 million. The debt provides interest only payments through December 31, 2016 at which time monthly principal payments become due. In connection with this advance, we issued warrants to purchase a total of 186,679 shares of Series C convertible preferred stock at an exercise price of $1.4999 per share. We accounted for this transaction as a debt modification and did not incur any gains or losses relating to the modification. The second advance, totaling $4.0 million, was drawn in March 2016. In connection with this advance, we issued warrants to purchase a total of 74,567 shares of Series D convertible preferred stock at an exercise price of $2.1457 per share.

In September 2017, we entered into a Fourth Amended and Restated Loan and Security Agreement, or the Fourth Loan, with SVB, for amounts aggregating up to $20.0 million in a series of three advances. The first advance provides a principal amount of $10.0 million, the second advance provides a principal amount of $5.0 million and the third advance provides a principal amount of $5.0 million during their respective draw down periods. In connection with the first advance, we issued warrants to purchase 634,921 shares of common stock at an exercise price of $0.63 per share. If we draw down the second and third advances, the warrants

would become exercisable for an additional 634,920 shares of common stock at an exercise price of $0.63 per share. The Fourth Loan contains a subjective acceleration clause under which the Fourth Loan could become due and payable to SVB in the event of a material adverse change in our business. The term of the loan was 51 months with an interest rate of prime plus 3.00% and a final payment fee of $0.7 million.

Our credit facilities contain customary representations and warranties and customary affirmative and negative covenants applicable to us and our subsidiaries, including, among other things, restrictions on changes in business, management, ownership or business locations, indebtedness, encumbrances, investments, mergers or acquisitions, dispositions, maintenance of collateral accounts, prepayment of other indebtedness, distributions and transactions with affiliates. The credit facilities contain customary events of default subject in certain cases to grace periods and notice requirements, including (a) failure to pay principal, interest and other obligations when due, (b) material misrepresentations, (c) breach of covenants, conditions or agreements in the credit facilities, (d) default under material indebtedness, (e) certain bankruptcy events, (f) a material adverse change; (g) attachment, levy or restraint on business, (h) default with respect to subordinated debt, (i) cross default under our credit facilities, and (j) government approvals being revoked. As of September 30, 2017, all rights, title and interest to our personal property with the exception of our intellectual property, have been pledged as collateral, including cash and cash equivalents, short-term investments, accounts receivable, contractual rights to payment, license agreements, general intangibles, inventory and equipment. We were in compliance with all covenants under the loan and security agreement as of fiscal 2016 and fiscal 2017.

Future maturities of the loan as of September 30, 2017 are as follows:

(in thousands)	Principal	Interest	Total
Years ending September 30,			
2018	$ —	$ 715	$ 715
2019	2,500	673	3,173
2020	3,333	440	3,773
2021	3,333	194	3,527
2022	834	10	844
	10,000	2,032	12,032
Less: Interest			(2,032)
Total amount of loan principal			10,000
Less unamortized debt discount			(860)
Add accretion of final payment fee			14
			$ 9,154

Capital resources

After giving effect to the anticipated net proceeds from this offering, we expect that our existing cash, cash equivalents and short-term investments will be sufficient to fund our operating expenses, capital expenditure requirements and debt service payments through at least the next 12 months. In the future, we expect we will need to raise additional capital to finance our operations which cannot be assured. As of September 30, 2017, without giving effect to the anticipated net proceeds from this offering, we have concluded that this circumstance raises substantial doubt about our ability to continue as a going concern within one year after the issuance date of our consolidated financial statements for the year ended September 30, 2017. However, our operating plan may change as a result of factors currently unknown to us, and we may need to seek additional funds sooner than planned, through public or private equity or debt financings or other sources, such as strategic collaborations. Such financing may result in dilution to stockholders, imposition of debt covenants and repayment obligations, or other restrictions that may adversely affect our business. In addition, we may seek

additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. Our future capital requirements will depend on many factors. See “Risk factors—We will require additional financing to achieve our goals, and a failure to obtain this necessary capital when needed on acceptable terms, or at all, could force us to delay, limit, reduce or terminate our product manufacturing and development and other operations.”

Operating capital requirements

Our primary uses of capital are, and we expect will continue to be for the near future, compensation and related expenses, manufacturing costs, laboratory and related supplies, legal and other regulatory expenses and general overhead costs. As of September 30, 2017, we had $1.3 million in commitments for capital expenditures.

Cash flows

The following table summarizes our sources and uses of cash and cash equivalents:

	Years ended September 30,	
(in thousands)	**2016**	**2017**
Net cash used in operating activities	$(38,592)	$(51,301)
Net cash used in investing activities	(33,345)	(9,870)
Net cash provided by financing activities	69,648	63,802
Net increase (decrease) in cash and cash equivalents	$ (2,289)	$ 2,631

Operating activities

Net cash used in operating activities was $38.6 million in 2016 and consisted primarily of a net loss of $44.1 million adjusted for non-cash items including depreciation and amortization expenses of $4.2 million, stock-based compensation expense of $0.9 million, net increase in operating assets and liabilities of approximately $0.2 million, and other non-cash items of $0.2 million.

Net cash used in operating activities was $51.3 million in 2017 and consisted primarily of a net loss of $59.3 million adjusted for non-cash items including depreciation and amortization expenses of $5.0 million, stock-based compensation expense of $1.9 million, a net decrease in operating assets and liabilities of approximately $0.1 million, and a net increase of non-cash items of $1.2 million.

Investing activities

In 2016, our investing activities used net cash of $33.3 million. The use of net cash resulted from the purchases of investments and purchases of laboratory property and equipment.

In 2017, our investing activities used net cash of approximately $9.9 million. The use of net cash resulted primarily from the net impact of purchases and maturity of investments and purchases of laboratory property and equipment and computers.

Financing activities

Net cash provided by financing activities was $69.6 million in 2016, which consisted of $62.3 million from the issuance of convertible preferred stock and $7.7 million from the issuance of debt, partially offset by the repayment of $0.4 million of debt.

Net cash provided by financing activities was $63.8 million in 2017, which consisted of $65.6 million from the issuance of convertible preferred stock, $2.2 million from additional debt, off-set by the repayment of $4.2 million of debt.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements other than our indemnification agreements as described in Note 8 of the consolidated financial statements.

Contractual obligations and other commitments

The following table summarizes our outstanding contractual obligations as of the payment due date by period as of September 30, 2017:

(in thousands)	Total	Less than 1 Year	Years 1-3	Years 3-5	After 5 Years
Contractual obligations					
Future minimum operating lease payments	$ 3,598	$ 2,133	$1,465	$ —	$ —
Long-term debt obligations	12,032	715	6,946	4,371	—
Total	$15,630	$ 2,848	$8,411	$4,371	$ —

Qualitative and quantitative disclosures about market risk

We are exposed to market risks in the ordinary course of our business. These risks primarily include interest rate risk and foreign currency risk as follows:

Interest rate risk

We had cash and cash equivalents totaling $28.6 million and $31.2 million as of September 30, 2016 and 2017, respectively. We had short-term investments totaling $27.3 million and $31.0 million as of September 30, 2016 and 2017, respectively. Our cash and cash equivalents consist of cash in bank accounts and money market funds, and short-term investments consist of U.S. government agency bonds, corporate bonds, and commercial paper. The primary objectives of our investment activities are to preserve principal and provide liquidity without significantly increasing risk. We do not enter into investments for trading or speculative purposes. Due to the relatively short-term nature of our investment portfolio, a hypothetical 100 basis point change in interest rate would not have a material effect on the fair value of our portfolio for the years presented.

Foreign currency risk

For the years ended in September 30, 2016 and 2017, the majority of our sales and operating expenses were each denominated in U.S. dollars. We therefore have not had material foreign currency risk associated with sales and operating expenses. For the years ended September 30, 2016 and 2017, our operations outside of the United States are not considered material. Therefore, our results of operations and cash flows are minimally subject to fluctuations from changes in foreign currency rates. As we grow our operations, our exposure to foreign currency exchange contracts will likely become more significant. We did not enter into any foreign currency exchange contracts in fiscal 2016 or fiscal 2017. We do, however, anticipate entering into foreign currency exchange contracts for purposes of hedging foreign exchange rate fluctuations on our business operations in future operating periods as our exposures are deemed to be material. For additional discussion on foreign currency risk, see “Risk factors—Doing business internationally creates operational and financial risks” elsewhere in this prospectus.

Critical accounting policies and estimates

Our management’s discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which have been prepared in conformity with U.S. generally accepted

accounting principles, or GAAP. The preparation of financial statements in accordance with GAAP requires management to make estimates and assumptions about future events that affect the amounts of assets and liabilities reported, disclosures about contingent assets and liabilities, and reported amounts of revenues and expenses. These estimates and assumptions are based on management's best estimates and judgment. Management regularly evaluates its estimates and assumptions using historical experience and other factors; however, actual results could differ materially from these estimates and could have an adverse effect on our financial statements. We believe that the accounting policies discussed below are critical to understanding our historical and future performance, as these policies relate to the more significant areas involving management's judgments and estimates.

While our significant accounting policies are described in more detail in Note 2 to our consolidated financial statements appearing in this prospectus, we believe that the following accounting policies are the most critical to the judgments and estimates used in the preparation of our consolidated financial statements.

Revenue recognition

Effective October 1, 2017, we elected to early adopt the requirements of ASC 606 – Revenue from Contracts with Customers using the full retrospective method. We evaluated the impact on revenues, loss from operations, net loss attributable to common stockholders and basic and diluted earnings per share for all periods presented and concluded that there was no material impact on our consolidated financial statements for all periods presented.

Our revenue is generated through the sale of synthetic biology tools, such as synthetic genes, or clonal genes and fragments, oligonucleotide pools, or oligo pools, next generation sequencing, or NGS tools and DNA libraries. We account for a contract when it has approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable.

Contracts with customers are generally in the written form of a purchase order or a quotation, which outline the promised goods and the agreed upon price. Such orders are often accompanied by a Master Supply or Distribution Agreement that establishes the terms and conditions, rights of the parties, delivery terms, and pricing. We assess collectability based on a number of factors, including past transaction history and creditworthiness of the customer.

For all of our contracts to date, the customer orders a specified quantity of a synthetic DNA sequence; therefore, the delivery of the ordered quantity per the purchase order is accounted for as one performance obligation. Some contracts may contain prospective discounts when certain order quantities are exceeded; however, these future discounts are either not significant, not deemed to be incremental to the pricing offered to other customers, or not enforceable options to acquire additional goods. As a result, these discounts do not constitute a material right and do not meet the definition of a separate performance obligation. We do not offer retrospective discounts or rebates.

The transaction price is determined based on the agreed upon rates in the purchase order or master supply agreements applied to the quantity of synthetic DNA that was manufactured and shipped to the customer. Our contracts include only one performance obligation—the delivery of the product to the customer. Accordingly, all of the transaction price, net of any discounts, is allocated to the one performance obligation. Therefore, upon delivery of the product, there are no remaining performance obligations. Our shipping and handling activities are performed before the customer obtains control of the goods and therefore are considered a fulfillment cost. We have elected to exclude all sales and value added taxes from the measurement of the transaction price. We have not adjusted the transaction price for significant financing since the time period between the transfer of goods and payment is less than one year.

We recognize revenue at a point in time when control of the products is transferred to the customer. Management applies judgment in evaluating when a customer obtains control of the promised good which is generally when the product is delivered to the customer. Our customer contracts generally include a standard assurance warranty to guarantee that our products comply with agreed specifications. We reduce revenue by the amount of expected returns which have been insignificant.

We have elected the practical expedient whereby the consideration allocated to the remaining performance obligations and an explanation of when those amounts are expected to be recognized as revenue are not disclosed for all reporting periods presented before the date of initial application.

We do not have any contract assets or contract liabilities as of September 30, 2016 and 2017. For all periods presented, we did not recognize revenue from amounts that were included in the contract liability balance at the beginning of each period. In addition, for all periods presented, there was no revenue recognized in a reporting period from performance obligations satisfied in previous periods.

Based on the nature of our contracts with customers which are recognized over a term of less than 12 months, we have elected to use the practical expedient whereby costs to obtain a contract are expensed as they are incurred.

Stock-based compensation

During the year ended September 30, 2016, we granted stock options to employees and non-employees to purchase 2,441,000 shares of common stock with a weighted average grant date fair value of $0.35. During the year ended September 30, 2017, we granted stock options to employees and non-employees to purchase 8,468,040 shares of common stock with a weighted average grant date fair value of $0.67. We recognized stock-based compensation expense of $0.9 million and $1.9 million, for the years ended September 30, 2016 and 2017, respectively. As of September 30, 2017, there was $6.7 million of total unrecognized compensation expense related to non-vested stock options under our 2013 Stock Plan that is expected to be recognized over a weighted-average period of 3.9 years. As of September 30, 2017, there was $1.2 million of total unrecognized compensation expense related to restricted stock under our 2013 Stock Plan that is expected to be recognized over a weighted-average period of 2.5 years.

Total stock-based compensation expense recognized was as follows:

	Years ended September 30,	
(in thousands)	**2016**	**2017**
Cost of revenues	$ 112	$ 202
Research and development	261	575
Selling, general and administrative	484	1,114
Total stock-based compensation	$ 857	$ 1,891

We use the Black-Scholes option pricing model to calculate the grant date fair value of a stock option. The Black-Scholes model requires various assumptions, including the fair value of our common stock, expected term, expected dividend yield and expected volatility.

The expected volatility of our stock options is estimated from the historical volatility of selected public companies with comparable characteristics to us, including similarity in size and lines of business. The expected term of stock options represents the period that the options are expected to be outstanding before being exercised. The risk-free interest rate is based on the implied yield currently available on U.S. treasury notes

with terms approximately equal to the expected life of the option. The expected dividend rate is zero as we currently have no history or expectation of declaring cash dividends on our common stock.

The fair value of options granted during the years ended September 30, 2016 and 2017, respectively, were calculated using the weighted average assumptions set forth below:

	Years ended September 30,	
	2016	2017
Expected term (years)	6.25	6.25
Expected volatility	64.4%	65.5%
Risk-free interest rate	1.44%	2.02%
Dividend yield	0%	0%

We expect the effect of our stock-based compensation expense to grow in future periods due to the potential increases in the fair value of our common stock and increased number of stock options granted due to anticipated increases in our overall headcount.

As of September 30, 2017, options to purchase 18,017,311 shares of our common stock were outstanding. The aggregate intrinsic value of these options was $7.1 million, assuming an initial public offering price of $ per share, the midpoint of the estimated price range set forth on the cover page of this prospectus. The intrinsic value of all outstanding vested and unvested options as of September 30, 2017, assuming an initial public offering price of $ per share, the midpoint of the estimated price range set forth on the cover page of this prospectus, are as follows:

	Shares available	Options outstanding	Weighted average exercise price per share	Weighted average remaining contractual term
Outstanding as of September 30, 2015 (unaudited)	6,377,752	8,711,502	$ 0.47	8.88
Outstanding as of September 30, 2016	4,659,659	10,233,795	$ 0.50	8.81
Outstanding as of September 30, 2017	6,805,339	18,017,311	$ 0.67	9.14
Vested or expected to vest and exercisable as of September 30, 2017		18,017,311	$ 0.67	9.14

Determination of the fair value of common stock on grant dates

As there has been no public market for our equity instruments to date, the estimated fair value of our shares of common stock has been determined by our board of directors as of the grant date, with input from management, considering our most recently available independent third-party valuations of common shares and our board of directors' assessment of additional objective and subjective factors that it believed were relevant and which may have changed from the date of the most recent valuation through the date of the grant. Following the consummation of this offering, the fair value of our common stock will be determined based on the quoted market price of our common stock. The third-party valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants Practice Aid, Valuation of Privately-Held Company Equity Securities Issued as Compensation, or AICPA's Practice Aid. In conducting the valuations, the independent third-party valuation specialist considered all objective and subjective factors that it believed to be relevant for each valuation conducted in accordance with AICPA's Practice Aid, including our

best estimate of our business condition, prospects and operating performance at each valuation date. Other significant factors included:

- the rights, preferences and privileges of our preferred stock as compared to those of our common stock, including the liquidation preferences of our preferred stock;
- our results of operations, financial position and the status of research and development efforts;
- the composition of, and changes to, our management team and board of directors;
- the lack of liquidity of our common stock;
- our stage of development and business strategy and the material risks related to our business and industry;
- the valuation of publicly traded companies in the life sciences and biotechnology sectors, as well as recently completed mergers and acquisitions of peer companies;
- any external market conditions affecting the life sciences and biotechnology industry sectors;
- the likelihood of achieving a liquidity event for the holders of our common stock and stock options, such as an initial public offering, or IPO, or a sale of our company, given prevailing market conditions; and
- the state of the IPO market for similarly situated privately held biotechnology companies.

Recently issued accounting pronouncements

We have reviewed all recently issued standards and have determined that, other than as disclosed in Note 2 to our consolidated financial statements appearing elsewhere in this prospectus, such standards will not have a material impact on our financial statements or do not otherwise apply to our operations.

Business

Overview

We are a leading and rapidly growing synthetic biology company that has developed a disruptive DNA synthesis platform. The core of our platform is a proprietary technology that pioneers a new method of manufacturing synthetic DNA by “writing” DNA on a silicon chip. We have combined this technology with proprietary software and scalable commercial infrastructure to create an integrated platform that enables us to achieve high levels of quality, precision, automation, and manufacturing throughput at a significantly lower cost than our competitors. We believe that we are the first and only company to harness the highly-scalable production and processing infrastructure of the semiconductor industry to industrialize the production of a wide range of synthetic DNA-based products.

Synthetic DNA is the fundamental building block of synthetic biology, an emerging industry that we believe represents one of the most exciting areas of growth and technological innovation in the 21st century. The ability to modify DNA and design biological systems is the foundation for a rapidly growing set of synthetic biology products, applications, and markets across multiple industries, including:

- healthcare for the discovery and production of new therapeutics and molecular diagnostics;
- industrial chemicals for cost-effective and sustainable production of speciality chemicals and materials, such as nylon, rubber, fragrances, food flavors and food additives;
- agriculture for more effective and sustainable crop production; and
- academic research for a broad range of applications.

The synthetic biology market is growing rapidly and is being fueled by increased access to affordable and innovative tools that enable new applications. We believe this is analogous to the trends seen in the next generation sequencing, or NGS, market, where declining costs of sequencing drove adoption, new applications and market expansion. Similarly, tools that combine advanced production technology with modern digital technology and software capabilities, such as our DNA synthesis platform, are driving growth and market creation. In calendar year 2016, the market for synthetic biology products was approximately $4.0 billion and is expected to grow to $11.0 billion by calendar year 2021. We believe this period of accelerated growth in the synthetic biology industry is in its early stages.

The applications of our DNA synthesis platform are broad and have enabled us to develop and produce an array of different synthetic DNA based products targeting multiple market opportunities. In April 2016, we launched the first application of our platform, our synthetic DNA product offering with the goal to become the leading synthetic DNA provider, disrupt the gene synthesis market and make legacy DNA synthesis methods obsolete. We believe that the traditional DNA synthesis methods used by our competitors are inherently limited in scalability and are not optimized to satisfy the rapidly growing demand for high-quality, low-cost synthetic DNA. Our silicon-based chip technology is able to increase DNA production by a factor of 9,600 on a footprint similar to that of traditional DNA synthesis methods. Also, it significantly lowers the volume of required reagents, specifically the most expensive reagent by a factor of 1,000,000 and improves the precision of the synthesis process relative to legacy methods. This enables us to produce high-quality synthetic DNA on a much larger scale and at a lower cost than competitors.

Since our founding in 2013, we have rapidly become a leading synthetic DNA provider. In fiscal 2017, we served 292 customers including nine of the top 20 pharmaceutical companies by revenue, Ginkgo Bioworks, Inc., or Gingko Bioworks, which we believe is the largest global purchaser of synthetic DNA, four of the largest

agricultural biotechnology companies, over 100 academic research institutions worldwide, and innovative customers using synthetic DNA for new and emerging applications, such as Microsoft Corporation and the University of Washington for use of DNA as a digital data storage medium. We are also an OEM supplier of synthetic DNA to four synthetic DNA manufacturers that also compete with us, which we believe is a strong demonstration of the superiority of our platform.

We have also leveraged the versatility of our platform to expand our product portfolio into other markets in which we believe we have a competitive advantage. In October 2017, we launched an innovative and comprehensive sample preparation kit for next generation sequencing, or NGS, that simplifies the workflow, improves accuracy, and lowers the cost of NGS. Our kit enables customers to perform fewer sequencing runs per sample, without sacrificing accuracy. We have launched a product for CRISPR gene editing that enables customers to edit an exponentially larger number of DNA regions in parallel. We have also commercialized a DNA library solution which enables more effective biologic drug discovery and development for our customers. We continue to expand our portfolio of commercial and development-stage products derived from synthetic DNA.

Our currently marketed products target the synthetic DNA market, a sub-segment of the synthetic biology market, and NGS sample preparation, a large adjacent market opportunity. We estimate that the combined market opportunity was $1.8 billion in calendar year 2016. The growing synthetic biology industry and demand for better DNA sequencing products are driving market growth. We believe that current market estimates understate our market potential as they reflect a market that has historically been limited by the costly, time-consuming, and cumbersome nature of legacy DNA synthesis methods. We are seeing growth in our market opportunity as we improve access to affordable tools that encourage adoption of, and foster new applications and markets for our products.

We have built a scalable commercial platform that enables us to reach a diverse customer base that we estimate consists of over 100,000 synthetic DNA users today. In order to address this diverse customer base, we have employed a multi-channel strategy comprised of a direct sales force and an e-commerce platform. Our sales force is focused on customer acquisition, support, and management, and is highly trained on both the technical aspects of our platform and how synthetic DNA is used in a wide range of industries. In fiscal 2017, we nearly tripled the size of our direct sales force to support our growth. We launched our proprietary, innovative, and easy-to-use e-commerce platform in October 2017 to existing customers and expanded access to the general public in January 2018. Our platform allows customers to design, validate, and place on-demand orders of customized DNA online. We have built our e-commerce platform to allow customers to receive real-time customized quotes for their sequence as well as track their order status through the manufacturing and delivery process, providing them improved flexibility to plan their budgets and internal timelines. This is a critical part of our strategy to address our large market and diverse customer base, as well as drive commercial productivity, enhance the customer experience, and promote loyalty.

Since our formation in 2013, we have grown rapidly and achieved several key milestones that we believe position us for continued growth and success:

- In 2015, we demonstrated the benefits and validated the commercial utility of our proprietary silicon-based platform for DNA synthesis through a proof-of-concept program called the Alpha Access program, which provided initial access to our platform to select customers.
- In 2016, we (i) secured a long-term contract with Ginkgo Bioworks to provide up to 100 million base pairs of DNA, which we believe was the largest agreement for synthetic DNA at that time, (ii) launched our early commercial access program in April called the Beta Access program to select customers and expanded our existing relationship with Ginkgo Bioworks, (iii) acquired Genome Compiler Corporation to add software

design capabilities for our e-commerce ordering system, (iv) laid the groundwork to pursue an opportunity in pharmaceutical drug discovery though a relationship with Distributed Bio, Inc., and (v) supplied DNA to Microsoft Corporation for its work with the University of Washington to develop DNA as a data storage medium.

- In 2017, we continued to increase penetration with existing customers and expand our customer base, by (i) serving 292 customers up from 97 customers in 2016, (ii) agreeing to terms to supply one billion base pairs to Ginkgo Bioworks over a period of three years, (iii) extending the scope of our relationship with Microsoft Corporation and the University of Washington, (iv) entering into an agreement to supply thousands of genes for public benefit through the BioBricks Foundation, (v) successfully achieving industry-leading volumes of synthetic DNA shipped every month, (vi) becoming an OEM supplier of synthetic DNA to four synthetic DNA manufacturers that also compete with us, (vii) launching our e-commerce platform to existing customers in October 2017 and (viii) shipping over 38,000 genes compared to approximately 7,600 for the fourth quarter of fiscal 2016, which represents 400% year-over-year growth.
- In January 2018, we launched our e-commerce platform to the general public.

We generated revenue of $2.3 million in fiscal 2016 and $10.8 million in fiscal 2017 representing 375% year-over-year growth, while incurring net losses of $44.1 million in fiscal 2016 and $59.3 million in fiscal 2017.

Our headquarters and manufacturing facilities are located in San Francisco, California. As of September 30, 2017, we had 187 full-time employees across three locations in the San Francisco Bay Area and an international location in Tel Aviv, Israel. We also utilize a team of 10 dedicated commercial consultants across the European Union and the United Kingdom. As of September 30, 2017, we have raised a total of $200.3 million in gross proceeds from the sale of equity securities.

Industry overview

Synthetic biology

We operate in the field of synthetic biology, which is undergoing an era of rapid innovation and transformation. Synthetic biology is the engineering of biology to build new biological systems or re-design existing biological systems. The ability to engineer biology is creating advances and benefits for a broad and growing range of end markets and consumers. For example, in healthcare, synthetic biology is being used to develop and enable new drugs as well as to improve targeted molecular diagnostics for personalized medicine. In industrial chemical applications, synthetic biology is enabling the production of renewable, cost-effective chemicals such as nylon, rubber, fragrances, and food flavors or new materials, such as silk. In agricultural biotechnology, synthetic biology is being used to improve nutritional content, eliminate the need for oil-based fertilizers, and maximize crop yields. The applications of synthetic biology are constantly growing and new end markets are emerging, driven by innovation, our growing understanding of biology, and access to tools allowing us to modify and build biological systems. With this evolution of technology and demand, we believe synthetic biology is one of the most important technological advances of the 21st century.

The proliferation of modern research tools is transforming the synthetic biology industry and driving new areas of research and application. The understanding of, and the ability to use, synthetic biology continues to vastly improve, accelerated by technological advancements in bioinformatics, genomics, computation and automation, coupled with a decrease in DNA sequencing and DNA synthesis costs. Furthermore the availability and application of artificial intelligence and big data analysis to enhance biological experiments has led to an acceleration of valuable biological insights in a streamlined, automated, and industrialized manner. This digitization of biology has led to an explosion of new and accessible technologies and has made it possible for small and large organizations alike to conduct synthetic biology research.

According to BCC research, the overall market for synthetic biology products was approximately $4.0 billion in calendar year 2016 and is expected to grow to over $11.0 billion by calendar year 2021. This industry momentum creates a significant opportunity for us to grow within our existing markets as well as expand our product offering.

The value chain within the synthetic biology market consists of three areas: enabled products, core technologies and products, and enabling technologies.

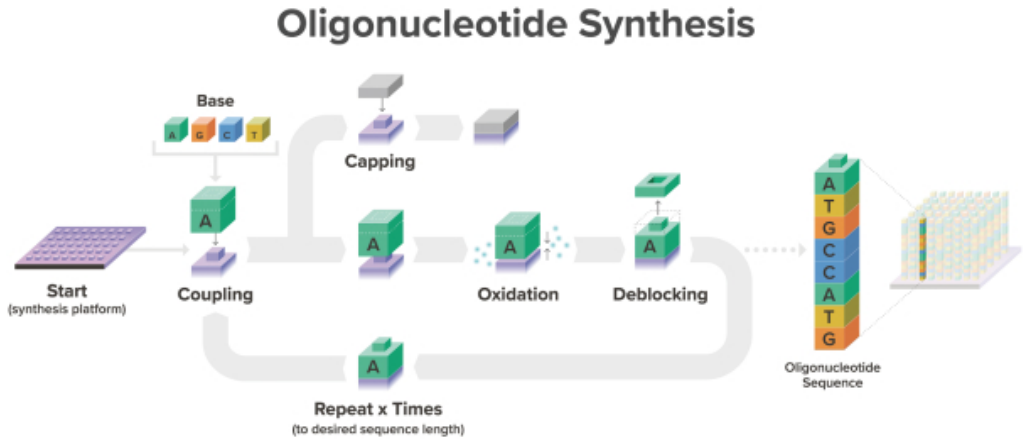
- ***Enabled products*** are the true end products resulting from the use of synthetic biology, which include products such as pharmaceuticals, agricultural crops, industrial chemicals and materials, and molecular diagnostics. Companies that operate in this segment include pharmaceutical and biotech companies, large industrial chemical companies, and agriculture companies.
- ***Core technologies and products*** include the biological components, integrated systems, and ingredients that form the building blocks for the enabled products, including synthetic genes and cells, delivery plasmids, and biobrick parts, among others. Companies that operate in this segment include Ginkgo Bioworks and other companies that help engineer biological components to create the enabled products.
- ***Enabling technologies*** are the tools needed to produce both the core technologies and enabled products. These include technologies such as DNA synthesis, DNA sequencing, gene editing, workflow automation technologies, bioinformatics, and specialty media.

Today, we operate in the enabling technologies segment of the synthetic biology industry, although our platform provides flexibility to pursue opportunities in the core and enabled product segments as well.

Synthetic DNA is the fundamental building block of synthetic biology. DNA controls all cellular processes by coding for the production of proteins and other molecules. Users of synthetic biology can design synthetic DNA to regulate the production of these proteins and molecules to achieve a specific functional purpose. While humans have been slowly altering the genetic coding of DNA in plants and animals for millennia through selective breeding, synthetic biology is the process of rapidly coding man-made DNA to build new biological systems or modify the design of existing biological systems. This is implemented by using powerful computational models and advanced engineering to redesign existing biological systems for new purposes. As the ability to modify DNA has become increasingly accessible, the applications, products, and customer base for synthetic DNA have continued to grow.

Traditional DNA synthesis methods

While synthetic DNA (also referred to as recombinant DNA) has been produced for more than 40 years, the complexities of biology and the production constraints inherent in legacy processes have historically limited the applications and market opportunities for DNA synthesis. DNA synthesis is the process of linking together naturally occurring nucleotides and their phosphodiester analogs to create DNA strands that are chemically identical to naturally occurring DNA. This process is commonly referred to as phosphoramidite chemistry and was first published in 1982. Traditional methods of DNA synthesis consist of a two-step process that initially involves the synthesis of oligonucleotides, also referred to as oligos, which are short strands of DNA of up to approximately 200 base pairs (bp) in length. These oligos are then combined to create longer strands of DNA. The length of DNA required for specific research typically depends on the desired end use and can vary from 50bps to more than 100,000bps.



Currently, there are two primary methodologies used by others to create synthetic DNA, each having production limitations that we believe make these technologies sub-optimal to satisfy the rapidly growing demand for synthetic DNA. Today, all of our competitors use one of these two primary methods of DNA synthesis.

96-well plate method of DNA synthesis

Introduced as early as the 1950s, a 96-well plate is a flat plastic plate, roughly the size of two smartphones, with 8 rows of 12 wells that are used as small test tubes. This plate has become a standard tool used by researchers in multiple industries to conduct tests and also to manufacture synthetic DNA in the form of oligos. Instead of creating one sequence of DNA at a time in a single test tube, the 96-well plate allows researchers to create 96 oligos in parallel, one in each well. While this process successfully achieves DNA synthesis, it requires high volumes of phosphoramidites, an expensive raw material, as well as other ancillary reagents. It also produces excessive amounts of the final product, significantly more than is required for most subsequent processes, resulting in material that is discarded and an unnecessary expense. Additionally, this process is not scalable to produce high volumes, as approximately 100 oligos are needed to assemble one gene and therefore only one gene can be made from each 96-well plate of genes.

Microarray method of DNA synthesis

Unlike a 96-well plate, a microarray is a flat surface made of plastic or glass, on which DNA is synthesized directly in an array of discrete locations. Microarrays were initially developed as an analysis tool, to detect the identity and quantity of DNA in a sample. Beginning in the early 2000s, researchers began using microarrays to synthesize oligos. Microarrays allow large numbers of oligos to be synthesized in parallel, increasing production by up to four orders of magnitude when compared to the 96-well plate. However, DNA synthesis on microarrays presents other production limitations. In order to assemble the microarray-derived oligos into a gene, the oligos are distributed onto a plastic or glass plate, much like printing, and given unique barcodes for identification. Once printed, the oligos are cleaved off of the array chip into a single large pool of oligos, which are then amplified using polymerase chain reaction (PCR). Amplification is necessary because only small amounts of oligos can be produced on a microarray, not enough to be assembled into genes. Oligos are amplified using corresponding primers for their bar codes for separation into smaller pools of approximately 100 oligos. Separation into smaller pools and bar code removal is an expensive and time-consuming process. The oligos are then stored in the separate wells of a 96-well plate and are then assembled into a gene. While this method can make 100 genes in parallel, it remains difficult to scale, requires many steps and results in significant waste of materials.

Because the synthesis of oligos can introduce errors in the sequence order, all DNA synthesis methods require a process called cloning.

Cloning

Cloning is a tedious process to filter out errors and produce many identical copies of a strand of DNA, such as a gene. While the cloning process results in a precise sequence, it is incredibly slow and labor intensive and generally takes around 10 business days to complete. As a result, it is time consuming, expensive, and, in many cases, not an efficient use of researcher's time. In general, more accurate DNA synthesis technology results in fewer errors in the sequence order and reduces the time and costs required or allocated to the cloning process.

Example—Cloning Workflow (4 - 10 business days of researchers' time) Compared to Purchase Workflow (10 business day turnaround at Twist Bioscience)

11-Step, Labor-Intensive Cloning Workflow

Steps		Action	Timeline (hours)
1	Design DNA Sequence	Select desired sequence, modify as needed for specific application	<1
2	Generate DNA Sequence	Source physical DNA. Synthesis, PCR or restriction digest	2-100
3	Prepare Vector	Linearize vector with restriction enzymes or prepare for specific cloning technique	1
4	Cloning	Clone gene into vector. Restriction/Ligation, seamless cloning, recombination or other method	1-16
5	Transform Plasmid	Transform plasmid into E. coli via heat shock or electroporation	1
6	Plate E. coli on Selective Media	E. coli plated on selective agar and grown at 37 C overnight. Only E. coli containing the plasmid with the selective marker will grow	16
7	Pick Clones, Grow Culture	Pick colonies from overnight incubation and grow in selective media	24
8	Isolate Plasmid DNA	Isolate DNA using mini prep kit or direct lysis	1
9	Sequence Cloned Gene	Sequence plasmid using Sanger or Next Generation Sequencing	24-72
10	Analyze Sequence	Analyze sequence for correct clone	1
11	Grow Plasmid for Intended Downstream Application	Grow larger scale culture and isolate DNA using large scale preparation Midi, Maxi or Giga prep	24
	Total Time		4-10+ Days

Our solution: The Twist Bioscience DNA synthesis platform

We developed the Twist Bioscience DNA synthesis platform to address the limitations of throughput, scalability, and cost inherent in legacy DNA synthesis methods. Our platform stems from extensive analyses of, and improvements to, the existing gene synthesis and assembly workflows. Our core technologies combine expertise in silicon, software, fluidics, chemistry, and motion and vision control to miniaturize thousands of parallel chemical reactions on silicon and write thousands of strands of DNA in parallel. With a footprint that is similar to the size of a 96-well plate that produces one gene, we are able to produce 9,600 genes in parallel. Based on current production needs, we have intentionally designed our latest chip to make 6,144 genes in parallel but we have the current capacity to increase this to 9,600 genes, as needed. We have combined our DNA synthesis technology with propriety software and a scalable commercial infrastructure to create our vertically integrated DNA synthesis platform capable of delivering very large volumes of high-quality synthetic DNA at low cost.

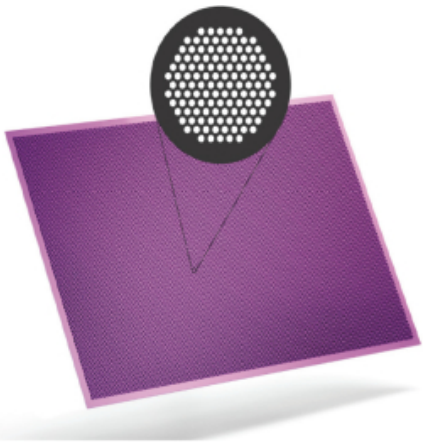
DNA writing on silicon

Silicon is an excellent medium for DNA synthesis because the properties of silicon allow us to miniaturize the chemical reactions of DNA synthesis and precisely control the position of fluid on the silicon surface. Silicon is flat and can be aligned, patterned and imaged. Fluids also flow uniformly over the surface. Silicon is a very hard material and other materials can be added or removed without changing the surface. It conducts heat very well, so the temperature can be controlled quickly, accurately and consistently across the surface.

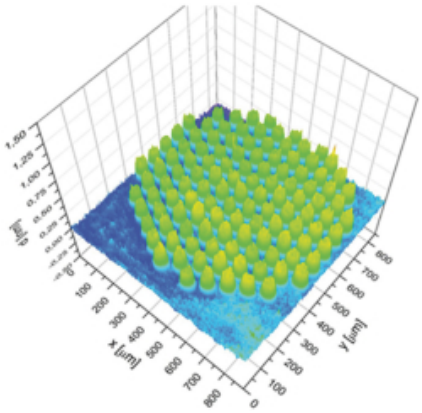
As discovered and capitalized on by the semiconductor industry, it is possible to grow a thin layer of silicon oxide on the surface of silicon by reacting the silicon surface with oxygen at a very high temperature. The resulting oxide layer can be etched to produce micro- or nano-structures and the surface energy of the silicon oxide can be modified to be hydrophobic or hydrophilic. These modifications can also be patterned. We use these oxide-based properties to create an array of discrete devices that are similar in function to the wells on a 96-well plate to control the position of drops of fluid on the surface, replacing legacy plastic. Our process, which miniaturizes the devices relative to the wells on the 96-well plate, enables us to significantly reduce the volumes of reagents required in the oligo synthesis reaction, specifically the most expensive reagent (phosphoramidites) by a factor of 1,000,000. In addition, our silicon chip technology allows us to increase DNA production by a factor of 9,600 on a similar footprint to that of traditional DNA synthesis methods.

Currently, we manufacture DNA on a silicon chip with 6,144 distinct spaces on the chip which we call clusters, each comprised of 121 devices and we have the current capability to increase this to 9,600 genes, as needed. Each device supports the synthesis of a unique oligonucleotide sequence. In parallel, within each cluster, we construct 121 short oligos of 50 to 250 base pairs in length. Each cluster is individually customized to create and assemble the oligos into a single gene and clone them into final form using small volumes and automated processes. Because we synthesize each oligonucleotide individually, almost all DNA sequences can be customized to our customer's specifications, both in terms of volume and amount. This improves production efficiency by enabling the manufacturing of different products in parallel without the need for retooling.

Diagram showing each cluster on the chip containing 121 devices



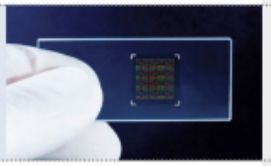
Optical image showing surface structure of a single cluster



We believe that we are only beginning to realize the benefits of our semiconductor-based production process and expect that, similar to the semiconductor industry, we will be able to continuously improve our production process over time and further our technology leadership position. By developing a semiconductor-based

platform to harness the power of biology, we believe that we are promoting the digitization of biology and creating a modern production platform able to satisfy the demands of a rapidly growing industry.

Synthesis and Assembly Comparison

	96-well Plate	Microarray	TWIST BIOSCIENCE
			
Amount of DNA	Waste (Nano-mol)	Amplification (< Femto-mol)	No Amp, no waste (Pico-mol)
DNA processing	Pooling stoichiometrically	De-pooling	No pooling No de-pooling
Genes per 96-well	1	96	9,600*

*Full scale capacity chip shown; current chip in production has the capacity to make 6,144 genes

Key advantages of our proprietary DNA synthesis platform

We designed our DNA synthesis platform to address the diverse needs of our large potential customer base. Given the limitations of traditional DNA synthesis methods, buyers have historically faced trade-offs and compromises when purchasing from legacy DNA providers. Based on market research, we believe that DNA Buyers are looking for a product and purchasing experience that delivers on a number of key factors and that our platform is uniquely designed to meet these customer needs and overcome the limitations of legacy DNA synthesis methods to support the growing demand for synthetic DNA:

	Customer desires	**Twist Bioscience advantages**
Quality and accuracy	• Quality and accuracy is a basic requirement for all customers. Deviations from customer specifications can render customers' downstream uses less productive or ineffective.	• Synthetic DNA providers are able to supply perfect clonal DNA to the customer. However, existing DNA synthesis technologies require significant cloning and error filtration to produce perfect clonal DNA. We are able to consistently produce high-quality oligos with what we believe is an industry-leading error rate of 1/1000 base pairs. This enables us to reduce the cloning and error

	Customer desires	Twist Bioscience advantages
		filtration necessary to achieve perfect clonal DNA. The benefits, quality and accuracy of our platform also apply to customers who purchase other synthetic DNA based products, such as antibody libraries and oligo pools. In each of our market opportunities, we believe the precision of our technology provides the advantage of cost and production throughput.
Cost	• Cost is a critical consideration for both large and small-scale customers. Large-scale commercial DNA purchasers that outsource their DNA supply are becoming increasingly price sensitive due to their growing demand for DNA. On the other hand, smaller-scale users, particularly academic users, have always been price sensitive and typically have made their own DNA because of limited budgets relative to the prices charged by legacy DNA suppliers.	• Because we miniaturize the chemical reaction on a silicon chip, require lower volumes of reagents and automate the production process, we are able to dramatically lower the production cost per base pair of DNA and offer our synthetic DNA at a lower price than competitors. As of November 2017, the publicly available pricing of our competitors for clonal DNA ranged from $0.17—$3.00 per base pair. Our standard pricing for comparable DNA is $0.09 per base pair. One of the best demonstrations of our cost advantage is that we supply synthetic DNA to four other competing synthetic DNA providers.
Throughput / scale	• As the applications for synthetic biology have expanded, customers are increasingly seeking to purchase large quantities of DNA in relatively short periods of time, which often cannot be supplied by a single synthetic DNA provider due to	• Our silicon chip technology is able to increase DNA production by a factor of 9,600 on a footprint similar to traditional DNA synthesis methods. We currently have the capability to manufacture more than 45,000 genes per month, which we believe is the

	Customer desires	Twist Bioscience advantages
	production capacity constraints. Ordering from multiple suppliers to fulfill large orders can be costly and administratively cumbersome for customers.	highest in the industry. We have agreed to terms to supply one billion base pairs to Ginkgo Bioworks over a period of three years, which we believe is the largest volume supply commitment in the industry.
Turnaround time	• The time between placement of the order and delivery is a key consideration for customers. For example, pharmaceutical companies are focused on shortening internal R&D timelines and ready availability of high- quality, custom DNA to meet their internal timelines is an important factor.	• Because our platform enables the large-scale production of DNA, our turnaround time is largely independent of order size. We have enhanced our manufacturing capabilities and expect to reduce turnaround time on large commercial quantities of genes (i.e., orders of over 15,000 per month) to 10 business days.
Product offering / complexity	• Customers require a broad range of products including different gene lengths, complicated sequences and a wide range of additional configurations to fulfill a diverse set of applications and uses.	• Because we synthesize each oligonucleotide individually, we can customize orders to almost any customer's specifications. We offer genes of up to 3,200 base pairs in length, which we believe satisfies a substantial portion of the market for synthetic DNA today. We expect to offer genes of up to 10,000 base pairs in the future. Unlike traditional DNA synthesis technologies, we can also manufacture a broad range of additional products on our same DNA synthesis platform, including antibody libraries and oligo pools, among others.
Reliability	• Customers value the reliability of a supplier to deliver on promises of quality and turnaround time to allow	• Due to our throughput capability and proprietary integrated production and ordering process we have

	Customer desires	Twist Bioscience advantages
	them to plan their downstream workflow and hit internal deadlines.	been able to consistently meet the specifications and turnaround time that we promise customers.
E-commerce capability	• Customers, particularly smaller-scale customers, value an intuitive, seamless e-commerce experience to simplify and automate the purchasing process. Some customers also value an application protocol interface, or an API, for electronic integration into their own procurement systems.	• While some synthetic DNA providers have an e-commerce platform for ordering DNA, we believe we offer the most comprehensive e-commerce platform consisting of customized quotes, automated feedback on the feasibility of the sequence and the ability to track orders from placement to delivery. An API is also a core component of our e-commerce system.

Business strategy

We believe that our DNA synthesis platform will enable our customers to develop breakthrough applications for synthetic biology and further augment the growing demand for synthetic DNA. With our disruptive platform and synthetic DNA tools, our customers across healthcare, industrial chemicals, agriculture, and academia, are developing ways to improve lives and address critical challenges through synthetic biology.

We believe that current market estimates for synthetic DNA significantly underestimate the potential for our market opportunity as they reflect the costly, time-consuming and cumbersome nature of legacy DNA synthesis methods. With our novel, proprietary, silicon-based DNA synthesis platform, we are able to provide customers with large volumes of high-quality DNA at a fraction of the cost as compared to competitors' methods. Accordingly, we believe we are uniquely positioned to scale alongside the rapidly growing synthetic biology industry and grow our leading market position.

Our growth strategy:

Our objective is to be the leading provider of synthetic DNA worldwide and to leverage the versatility of our platform to build a leadership position in other markets in which we have a competitive advantage. We intend to accomplish this objective by executing on the following:

- ***Maintain and expand our position as the provider of choice for high-quality, affordable synthetic DNA to customers across multiple industries***. Offer an unprecedented combination of quality, cost, throughput and scalability to deliver synthetic DNA to our existing customers and win new customers.
- ***Increase our penetration within existing buyers of synthetic DNA***. Drive utilization of our products and expand our relationships with existing buyers of DNA by providing affordable tools that allow them to develop new applications and use more DNA. This is especially true for large-scale synthetic DNA Buyers

including pharmaceutical and biotechnology companies, industrial chemical companies, agricultural biotechnology companies and academic institutions.

- ***Further expand our addressable market by converting current DNA Makers into DNA Buyers***. Convert makers into buyers by offering a compelling value proposition that saves time and money for DNA users that are currently making their own DNA.
- ***Broaden our reach to the more than 100,000 estimated synthetic DNA users***. Scale our multi-channel commercial strategy of our direct sales force and e-commerce platform to reach the large number of synthetic DNA users.
- ***Augment our product offering within the core DNA synthesis franchise to meet the growing needs of our existing and potential new customers***. Continue to expand our product offering within our core DNA synthesis business. For example, we plan to offer longer genes, catalog vectors, maxiprep and products for CRISPR screens.
- ***Expand into adjacent addressable markets***. Leverage the scalability and versatility of our platform to meet additional customer needs in adjacent markets. We have recently launched a next generation sequencing offering, as well as a DNA library product and anticipate launching an antibody optimization software product for pharmaceutical development in 2018. Substantially all of our revenue today is from the sale of synthetic DNA. Over time we expect to generate revenue from additional products, further diversifying our revenue.
- ***Expand our global presence***. Our market is a global opportunity and the benefits of our platform are applicable wherever synthetic DNA is required. We intend to expand our operations into other large global markets in which we believe we can be competitive and build a growing and profitable business. For example, the synthetic biology market in Asia is rapidly growing and we believe represents an attractive market opportunity.

Beyond these opportunities, we are working with industry partners to create new markets for our products. For example, through our relationship with Microsoft and the University of Washington, we have demonstrated the advantages of DNA as a long-term medium for digital data storage, and are developing technology to address this potential large market opportunity. We are also poised to address other new market opportunities as they emerge, such as drug discovery. Furthermore, given that synthetic DNA is the foundation for a broad range of products, we are in a strong position to evaluate acquisition opportunities in existing and adjacent markets and address other new markets as they emerge.

Our products

We have developed multiple products derived from synthetic DNA and our versatile DNA synthesis technology. Our current offering consists of four primary product categories that address different needs of our customers across a variety of applications: synthetic genes, oligo pools, next generation sequencing tools and DNA libraries.

Synthetic genes

Synthetic genes are manufactured strands of DNA. Customers order our synthetic genes to conduct a wide range of research, including product development for the healthcare, agricultural, and industrial chemical industries as well as a multitude of applications within academic research. Virtually all research and

development requires trial and error, and our customers require many variations of genes to find the DNA sequence that achieves their objectives.

We offer two primary categories of synthetic genes: genes of perfect quality, clonal genes, in a vehicle to carry the DNA, also called a vector, and genes of near-perfect quality, non-clonal genes or fragments, that customers can place in their own vector. Within these two categories, customers can order different lengths of DNA depending on their required final gene construct. Customers can order longer genes or shorter genes and can stitch genes together to create longer or shorter constructs if desired.

Clonal genes in a Twist Bioscience or customer vector

Our premier gene synthesis offering delivers clonally perfect genes. For our clonally perfect genes, we perform the cloning on behalf of our customers and deliver DNA in either a customer-supplied vector or a Twist Bioscience vector. Customer-supplied vectors greatly simplify downstream work for our customers, allowing them to take our genes and pass them directly into their workflows. We have also developed a catalog of our own specific vectors. Currently, we manufacture genes of up to 3,200 base pairs in length, yielding a clonally perfect piece of DNA that our customers can immediately use for their research. We offer turnaround times of approximately 15 – 20 business days for clonal genes. As of the date of this prospectus, our standard pricing for clonal DNA is $0.09 per base pair. We intend to further expand the length of genes offered to more than 10,000 base pairs and, in parallel, expand our catalog of available vectors to increase flexibility and reduce turnaround times. We also intend to offer express service options for customers that require genes on an expedited basis.

Non-clonal genes

Non-clonal genes serve customers who prefer to conduct their own cloning protocols or that do not need, or want, to pay for perfect quality genes. We offer non-clonal genes of up to 1,800 base pairs in length, which we believe addresses the vast majority of demand for non-clonal genes. From August 2017 through October 2017, we offered average monthly turnaround times of approximately six to 11 business days for non-clonal DNA. As of the date of this prospectus, our standard pricing for non-clonal DNA is $0.07 per base pair.

Oligonucleotide (Oligo) pools

Oligo pools, or high diversity collections of oligonucleotides, are utilized in many applications, including targeted next generation sequencing, or NGS, CRISPR gene editing, mutagenesis experiments, DNA origami (the nanoscale folding of DNA to create two- and three-dimensional shapes at the nanoscale), DNA computing and data storage in DNA, among others. Our oligo pools are also used for high-throughput reporter assays that are used to study cell signaling pathways, gene regulation, and the structure of cell regulatory elements. For these applications, we provide customers with accurate and uniform synthetic oligos to precisely match their required designs.

We sell a diverse, customizable set of oligo pools, ranging from a few hundred oligos to over one million and offer oligonucleotides of up to 200 nucleotides in length and, from October 2017 through December 2017, average monthly turnaround times of five to six business days. As of the date of this prospectus, our standard pricing for oligo pools is between $0.10 to $1.00 per oligo depending primarily on order size. Because the ability to design oligo pools and customize their experiments is very important to our customers, we have established a co-marketing agreement with Desktop Genetics, a company that specializes in developing algorithms which enable customers to design optimized and high-quality oligo pools. Integration of this design capability with our oligo pool synthesis production competency enables our customers to design and receive a high-quality oligo pool customized to meet their needs.

In the future, we expect to offer longer oligonucleotides, cloned pools, and a sub-pooling capability which will allow our customers to purchase lower complexity pools and arrayed pools.

Oligo pools for CRISPR gene editing

CRISPR is a recently discovered gene editing tool that has become an area of significant research focus, especially in drug development, and is a rapidly growing application that is contributing to growing demand for our oligo pools. In the CRISPR editing process, a short sequence of RNA called guide-RNA (gRNA) binds to its target DNA sequence in a host cell, indicating to an enzyme where to cut and edit the DNA. In order to conduct gene editing research, many single guide-RNA must be created. Researchers can use oligo pools for CRISPR gene editing to silence, through editing, DNA locations. This process creates an error at a particular location in the DNA of the cell, rendering that location unusable, in other words silenced. By studying the relationship between silenced regions and change in phenotype (did the disease get worse or better), researchers can find the genomic regions important to the disease and identify targets for therapeutics. Similar to our standard oligo pools, we offer oligo pools for CRISPR screening with a diverse and customizable set of specifications, including pool sizes ranging from a few hundred oligos to over one million. From oligo produced on a single silicon chip, researchers can edit up to 1,000,000 DNA locations. We currently offer oligo pools for CRISPR screening of up to 200 nucleotides in length, which we believe addresses the vast majority of the market for CRISPR guide library generation.

Next generation sequencing (NGS) tools

We recently expanded the application of our DNA synthesis technology to develop products targeted at the large next generation sequencing market, or NGS. In particular, we are focused on addressing the demand for better sample preparation products that improve sequencing workflow, increase sequencing accuracy, and lower sequencing costs. In the target enrichment process, the DNA probes “enrich” a DNA sample by binding to specified segments of DNA in order to isolate and physically extract the targeted segment of DNA from the sample, prior to downstream sequencing. The targeted segment of DNA can then be copied uniformly prior to NGS analysis by our customers, yielding a larger volume of targeted segments in the sample used for sequencing. Because we are able to precisely target, extract, and uniformly amplify the target DNA segments, our solution considerably improves the accuracy of the downstream sequencing analysis. This enables our customers to perform fewer sequencing runs per sample, without sacrificing accuracy, saving them time and money.

We believe we are the only company to offer double-stranded DNA (dsDNA) probes within a comprehensive target enrichment kit used for exome and targeted sequencing. Using dsDNA as opposed to single-stranded DNA, or RNA, during next generation sequencing preparation avoids the problem of deamination (removal of an amino group). Deamination interferes with the detection of infrequent gene mutations, and may hinder genetic results and clinical diagnosis, particularly in cancer.

Our NGS products are primarily used for diagnostic testing, research for population genetics and biomarker discovery, translational research, microbiology and applied markets. Our customers are primarily diagnostic companies and hospitals, research institutions, agricultural biotechnology companies, and consumer genetics companies conducting diagnostic tests for a wide range of applications.

In addition to our DNA probes, we have created a comprehensive sample preparation kit that combines these probes for NGS target enrichment with all the reagents and consumables necessary to process a sample into sequencing-ready material. This improves the NGS library preparation workflow and is a cost-effective solution that reduces sequencing costs, improves time to results, enhances sequencing coverage, and provides quality control on every DNA probe.

We have launched a kit for sequencing of the exome, or NGS exome capture, the entire known coding region of the genome, and expect to launch a software tool to allow customers to customize their own kit, or NGS custom capture. We expect the development of this software tool, combined with our e-commerce platform, will simplify the design process for our customers and provide broader market access to our products.

DNA libraries

DNA libraries are collections of DNA fragments that are primarily used by pharmaceutical companies during antibody discovery and development. During the drug discovery phase, a pharmaceutical company typically has a biological target or function of interest. In order to find antibodies that best bind to that target in a specific region of a gene and deliver a therapeutic effect, it may be necessary to test many variants of an antibody. Synthetic DNA libraries become useful in this process, as they produce customized, controllable groups of antibodies from specific DNA sequences to run through assays that assess function, toxicity and binding affinity.

Traditionally, pharmaceutical companies have generated antibody libraries through a process called “random mutagenesis.” This uses a technique called polymerase chain reaction (PCR) mutagenesis, where PCR is used to introduce many sequence errors, or variations, within the copies of the antibody. While this generates many different antibody variants, the changes are entirely random and are unknown until the antibody DNA is sequenced. In addition, because of the random approach, there is no guarantee that the resulting antibodies will target the desired region of interest.

Our platform allows customers to customize every antibody variation and construct a library systematically to target the entire region of interest. We can create single site libraries in which we change one single amino acid (a group of three DNA bases) within the sequence or single site saturation libraries in which we change every amino acid within the sequence for a more comprehensive approach. We can also generate combinatorial libraries in which we introduce changes to multiple sites within the same gene in specific ratios and combinations. These libraries can be used for antibody engineering, affinity maturation, and humanization, which simplifies downstream screening and identifies more lead molecules. Our libraries are explicitly developed for a specific area of the genome or tailored to a specific disease, with antibody compounds evenly represented across all areas of the genome desired. We specialize in antibodies that work within the human body, something that is unique among library providers. This enables us to make our libraries highly-focused and affordable for our customers. In the future, we expect to add digital library design tools to our e-commerce platform that will facilitate rapid library design.

End markets for Twist Bioscience products

Our current product set addresses customers across a range of major applications.

	Product offered	Healthcare	Industrial chemicals	Agriculture	Academic research
Genes	Clonal genes	X	X	X	X
	Non-clonal genes (Gene fragments)	X	X	X	X
Oligo pools	Oligonucleotide pools	X	X	X	X
	Oligo pools for CRISPR gene editing	X	X	X	X
NGS tools	NGS exome capture	X			X
	NGS custom capture	X		X	X
Libraries	Antibody and protein Variant libraries	X	X	X	X

Our target markets

Our currently marketed product offering addresses a market opportunity that was approximately $1.8 billion in calendar year 2016. We believe that current market estimates underestimate the potential for synthetic DNA because they reflect the costly, time-consuming and cumbersome nature of legacy DNA synthesis technologies. We believe our solution has the potential to materially expand our initial market by providing end users access to high-quality and lower cost tools, encouraging adoption and facilitating new applications for our products.

DNA synthesis—DNA Buyers and DNA Makers

Our core DNA synthesis market includes our synthetic DNA, oligo pools and DNA libraries. We believe that our current market opportunity for synthetic DNA was approximately $1.3 billion in calendar year 2016. The market consists of those who buy DNA, or DNA Buyers, and those who make their own DNA, or DNA Makers. Driven by access to more affordable and high-quality synthetic DNA, we believe that there is a strong trend of DNA Makers converting to DNA Buyers.

DNA Buyers

DNA Buyers are generally commercial users in the healthcare, industrial, agricultural and academic fields who require large amounts of DNA. These customers value speed, throughput, and reliability and are increasingly price sensitive given the volume of DNA that they purchase. According to BCC Research, the size of the buyer market in 2016 was approximately $300 million and is growing at a rate of approximately 20% annually as existing DNA Buyers develop new uses for synthetic DNA and existing DNA Makers convert to DNA Buyers.

DNA Makers

DNA Makers purchase supplies in order to make their own DNA. They typically require only a few genes at a time and are very price sensitive. While the consumables required to make DNA are relatively inexpensive, it is a time-consuming and labor-intensive task. The steps include copying and pasting each DNA sequence from one vector to another using restriction enzymes, and mutagenizing the sequence of interest to obtain the desired variant and cloning DNA. Our customers in this market segment are predominantly small-scale synthetic DNA users, which typically include emerging biopharmaceutical companies, academic institutions and research organizations. We estimate our market opportunity in the DNA Maker market to be approximately $950 million. Our market estimate is based on the market sizes for products used in manual DNA synthesis, including cloning and restriction digestion enzyme market in 2016, according to a report on Molecular Biology by Markets and Markets.

Cloning one gene is a cumbersome process which typically involves 11 discrete steps and generally takes around 10 business days to complete. However, most small scale researchers have historically made their own DNA due to the prohibitively high cost of purchasing synthetic DNA in small batches. Given the inefficiency of making DNA, we are increasingly seeing DNA Makers transition to DNA Buyers as we provide broader access to affordable DNA. In addition, as we increase the size of the DNA that we offer, we expect to convert certain researchers who are both DNA Buyers and DNA Makers that buy multiple genes and stitch them together for longer constructs. We also expect the implementation of our intuitive e-commerce platform to provide enhanced access to the relatively untapped market of DNA Makers.

We believe that the DNA synthesis market is in the early stages of a growth acceleration that is similar to the growth experienced by the DNA sequencing industry over the last two decades, where initial demand was severely limited by the high cost and time required to sequence genes. The Human Genome Project, which resulted in the sequencing of the full human genome in 2003, cost $2.7 billion in government funding. At that time, the cost to sequence an entire genome was $50 million. An enormous reduction in cost was required

before human genome sequencing could realistically be used as a medical research tool. With innovation in sequencing technology, the first $1,000 genome was achieved in 2014, and costs are significantly lower today.

As the cost of sequencing has decreased, both the size of the market and the number of applications have expanded exponentially. Over the last five years, the market size has more than doubled. Decibio LLC estimates that by 2016 the total market for sequencing technology had grown to approximately $2.4 billion and expects the market to continue to grow at 17% annually to approximately $4.5 billion by 2019. We believe the synthetic DNA market is undergoing a comparable transformation.

Products for next generation sequencing applications (exome and custom capture tools)

Our NGS products target a market opportunity for NGS sample preparation that was approximately $500 million in calendar year 2016 and growing at approximately 20% annually, according to market research provided by Kalorama Information, a division of marketresearch.com. As the cost of sequencing genes has decreased significantly, the applications of sequencing and the utilization of sequencing technology has increased rapidly. Today, sequencing is used in many fields, including the study of population genetics to discover disease specific markers and the diagnosis of patient-specific mutations. However, in many cases, the sequencing of an entire genome is undesirable and custom targeted sequencing, which focuses on specific regions of the genome, is preferable, as it results in a lower cost per sample and deeper coverage. For example, cancer samples are notoriously heterogeneous, and sequencing them multiple times to achieve the desired result, otherwise known as deep sequencing, would be too costly using whole genome sequencing. Similarly, a growing clinical application for cancer treatment called minimal residual disease analysis requires following the evolution of a few genetic locations to instruct physicians when they have successfully managed the disease and can stop therapy. In this application, and many others, it is significantly more cost-effective to use exome sequencing and custom targeted sequencing rather than whole genome sequencing.

We are focused on addressing the demand for better sample preparation products that improve the sequencing workflow, increase sequencing accuracy and lower sequencing costs. We offer kits consisting of double-stranded DNA probe and a comprehensive set of reagents that are used for exome sequencing and custom targeted sequencing.

Future market opportunities

We continue to expand the applications of our silicon-based DNA synthesis technology towards additional large market opportunities and expand our product reach. We have identified two vertical markets as our initial strategic priorities: Pharmaceutical drug discovery and digital data storage in DNA.

Pharmaceutical drug discovery

In the field of pharmaceutical drug discovery we believe our platform can significantly accelerate the time it takes researchers to go from target identification to an Investigational New Drug application. We believe the integral role of synthetic DNA in the drug discovery and development process uniquely positions us to capture a larger portion of this value chain.

For example, in the initial stages of drug development, our oligo pools can be used to increase the probability of identifying a specific drug target. Our genes and gene fragments can be used to validate the specific function of this drug target. Our antibody libraries play a pivotal role in drug discovery selection. As a drug moves into development, our genes and gene fragments can again guide the process of drug optimization. In addition, our NGS target enrichment offering may play a role in patient selection and stratification. Longer term, it may be possible to store clinical data in our long-term data storage solution of DNA.

We are already beginning to provide proprietary content in biologics with an initial focus on G-protein-coupled receptor, or GPCR, antibody and T-cell receptor, or TCR therapeutics, through a partnership with a pharmaceutical company. We are also working with Distributed Bio to develop custom software for the maturation and humanization of antibody hits through the design, build and testing of hyper-variant antibody libraries that follow the rules of the human repertoire. By following the rules of the human repertoire, these libraries will be natural in composition and are expected to be well tolerated in clinical trials. They also have a large degree of synthetic variation, enabling the discovery of antibodies with high affinity and specificity to drug targets. In parallel with the development of the design software, we are conducting a proof-of-concept project to validate whether we are able to identify a “bio-better” antibody of icrucumab, a molecule that failed in clinical studies. With proof that our library design and build software is able to design “bio-better” antibodies, we intend to license access to our design and build library service in order to provide improved variants for pharmaceutical and biotechnology customers. In addition, we are building a library of highly designed antibodies and screening it against approximately 40 of the most commonly studied GPCR targets. We plan to license the library and its hits to drug development partners for further discovery and development, and additional libraries will be designed and tested against other targets (e.g., ion channel, transporters).

Digital data storage in DNA

The market for digital data storage devices, including solid-state disk, magnetic disk, magnetic tape and optical disk storage, is currently estimated at over $35 billion, according to market estimates provided by Spectra Logic. Due to the explosion of data across many industries, finding efficient means of storage has become more important. Many leading semiconductor companies, including Microsoft Corporation, IBM Corporation, Micron Technology, Inc., Autodesk Inc., Mentor Graphics Corporation and GLOBALFOUNDRIES Inc., are participating in the Semiconductor Research Consortium, which is exploring DNA as a data storage medium. The goal of this consortium is to explore DNA as a potential superior storage solution for digital data as compared to magnetic tape. Through our relationship with Microsoft Corporation and the University of Washington, we have demonstrated the feasibility of storing data on DNA and the unique benefits of longevity, density, and universality of this format. We expect that over time our technology will develop to allow data storage in DNA to become cost competitive with magnetic tape and enable us to target several large markets within data storage.

While DNA is currently too expensive for routine storage, we believe that our modern, silicon-based process to synthesize DNA has the potential to make DNA cost-competitive with additional research and development efforts. If the cost of writing data in DNA becomes equivalent to or lower than magnetic tape, we believe DNA will have the advantage in serving several data storage markets, including the storage of deeply cold data, in particular the WORN (Write Once, Read Never) and WORSE (Write Once, Read Seldom if Ever) markets, and the market for digital preservation where latency and the cost of reading the data are minor considerations. Typical end-markets for these storage applications are media and entertainment, healthcare/pharmaceutical records, cultural/heritage, scientific data, intelligence/defense, and libraries/museums.

Commercial strategy, sales and distribution

We have built a scalable commercial platform with a multi-channel strategy designed to address a diverse customer base consisting of an estimated more than 100,000 synthetic DNA users today. This platform is comprised of a direct sales force and an e-commerce platform.

Our sales force is focused on customer acquisition, support, and management and is highly trained on both the technical aspects of our platform and how synthetic DNA is used in a wide range of industries. Their goal is to articulate our value proposition, drive pilot programs and increase the adoption of our product offerings while maintaining close working relationships with customers.

In September 2017, we initiated our multi-channel commercial strategy through a limited launch of our proprietary, innovative, and easy-to-use e-commerce platform to current customers. We expect that this e-commerce platform will enhance the productivity of our sales force and expand our customer reach by allowing customers to design, validate, and place on-demand orders of customized DNA online. We have built our e-commerce platform to allow our customers to receive real-time customized quotes for their sequence as well as track their order status through the manufacturing and delivery process, providing them improved flexibility to plan their budgets and internal timelines. This platform is a critical part of our strategy to address our potential large and diverse customer base, as well as drive commercial productivity, enhance the customer experience and promote loyalty.

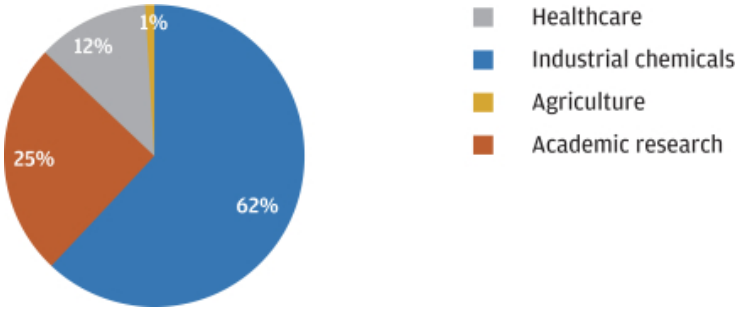
We target customers of our NGS products through a direct sales team focused on the NGS tools market and which is separate from our synthetic DNA sales force. We launched early commercial access for our NGS sample preparation tools to select customers in August 2017. Our direct NGS sales representatives are focused on supporting our early adopters and providing a high level of service in order to familiarize customers with our product offering. In fiscal year 2018, we plan to initiate a full commercial launch for NGS customers including a specific application of our e-commerce platform for customized orders in order to drive adoption by the broader diagnostic community.

Our customers

Our products serve the needs of customers across multiple growing end markets. We categorize our customers as follows:

- ***Healthcare*** companies include pharmaceutical, biotechnology and diagnostics companies that utilize synthetic biology in target discovery, target validation, drug discovery, drug development, manufacturing, clinical trial stratification, DNA sequencing and diagnostics.
- ***Industrial Chemical*** companies that apply synthetic biology to increase the use of cost-effective and sustainable, specialty chemicals and raw materials, as well as new protein-based and protein-inspired chemicals and materials that are inaccessible through traditional industrial organic chemistry.
- ***Agriculture*** customers include companies that apply synthetic biology to improve crop traits, increase resistance to existing and emerging diseases, increase resistance to extremes of weather and replace oil and natural gas-derived fertilizer with synergistic bacteria, leading to better food security and nutrition.
- ***Academic Research*** customers include institutions that perform research across a wide range of applications, both basic and applied. For purposes of financial reports, we consider the customers we are working with to develop permanent data storage applications using DNA as part of this category.

As of fiscal 2017, the composition of our revenue by customer type was as follows: Healthcare revenue of $1.2 million, Industrial chemicals revenue of $6.7 million, Agriculture revenue of $0.1 million and Academic research revenue of $2.7 million.



The benefits and versatility of our platform are exemplified by our expanding relationships with various partners across a variety of customers and end markets, for example:

Ginkgo Bioworks

We believe Ginkgo Bioworks is the largest purchaser of synthetic DNA globally. Ginkgo Bioworks, the organism company, is bringing biotechnology to consumer goods markets, enabling fragrance, cosmetic, nutrition, food, agriculture and pharmaceuticals to make better products. Ginkgo Bioworks also recently partnered with Bayer to form a new company focused on sustainable agriculture. We began working with Ginkgo Bioworks as one of our initial commercial customers in 2015. In March 2016, we signed an agreement with Ginkgo Bioworks to supply up to 100 million base pairs of DNA, which we believe accounted for approximately 10% of the total synthetic DNA market at the time. In 2017, we agreed to terms to supply one billion base pairs to Ginkgo Bioworks over a period of three years, which we believe is the largest volume supply commitment in the industry.

Top 3 pharmaceutical company

For the last two years we have been working closely with one of the top three pharmaceutical companies by revenue, generating bespoke synthetic antibody libraries with ratio controlled amino acid representation at defined positions. Workflow optimization has enabled us to bring the turn-around time for library delivery down to four weeks with no compromise on quality. Outsourcing to us has freed up valuable researcher time for the pharmaceutical company's collaborators, enabling downstream assay development to occur in parallel to library synthesis. In addition, our platform has allowed this company to avoid library enrichment with carry over parental template during the selection process, which can present an issue with more traditional methods of primer-based amplification and assembly.

Syngenta AG

In 2016, Syngenta AG, or Syngenta, a leading agricultural technology company, placed an order to purchase both genes and libraries for research into pesticide resistance. We have been able to offer these genes and libraries at very competitive prices while maintaining high-quality standards that allow Syngenta to improve their research and development process. Syngenta has continued to increase the volume and diversity of products they order from us, consistent with our increase in capabilities.

Case studies demonstrating conversion of makers to buyers

Centre for the Commercialization of Antibodies and Biologics

Since August 2016, we have been working with the Centre for the Commercialization of Antibodies and Biologics (CCAB), which is taking promising therapeutic compounds and providing initial validation and scale-up services for these molecules prior to licensing them to biotechnology companies. CCAB was attracted to us because of our low price for their genes of interest and our ability to supply these genes in CCAB's own vector systems. Importantly, CCAB decided not to hire additional staff for cloning, given their satisfaction with our products, which allowed them to focus staffing resources on other aspects of development within their lab. Given their positive experience, CCAB has continued to expand their business with us and has referred other Toronto academic laboratories to us.

Antibody drug development company

We are working with an antibody drug development company that develops fully human antibody drugs, who uses our synthetic genes for some of its antibody discovery and development. They find that they are able to make better therapeutics using a targeted synthetic approach and have switched to buying synthetic DNA from us. They continue to order larger quantities of our DNA over time.

Competition

Our markets are characterized by significant technological changes, frequent new product introductions and enhancements, and evolving customer demands. We face competition from a broad range of providers of core synthetic biology products such as GenScript Biotech Corporation, GENEWIZ, Inc., IDT DNA Technologies, Inc., DNA Twopointo Inc. d/b/a ATUM, GeneArt (owned by Thermo Fisher Scientific Inc.), Eurofins Genomics LLC, Sigma-Aldrich Corporation (an indirect wholly owned subsidiary of Merck & Company, Inc.), Promega Corporation and others. Additionally, we compete with both large and emerging providers in the life sciences tools and diagnostics industries focused on sample preparation for next generation sequencing such as Thermo Fisher Scientific Inc., Illumina, Inc., IDT DNA Technologies, Inc., Agilent Technologies Inc., and Roche NimbleGen, Inc.

Many of our competitors have greater financial, technical, research and/or other resources than we do. They may also have larger and more established manufacturing capabilities and marketing, sales, and support functions. The competition is intense within this market and we believe that the principal defining factors driving competition in our market will continue to be quality, cost, throughput and scalability, turnaround time, product offering and complexity, reliability, e-commerce capabilities, customer satisfaction and convenience.

We believe that we compete favorably against our competitors based on our proprietary, integrated DNA synthesis platform, which enables us to achieve high levels of quality, precision, automation, and manufacturing throughput at a significantly lower cost as compared to our competitors.

In order for us to successfully compete against others in our industry, we will need to continue to demonstrate that our products deliver superior performance and value as a result of these key differentiators, and continue to expand the breadth and depth of current and future products and applications.

We also believe that as a large-scale participant in the industry, we have gained experience and brand recognition across the sectors in which we operate, and have achieved a competitive advantage over existing market participants and new entrants. These advantages include:

- *Substantial capital investment*—As of September 30, 2017, we had raised a total of $200.3 million in gross proceeds from the sale of equity securities and we have in turn made substantial capital investments in our

disruptive DNA synthesis platform. We believe we are the first and only company to harness the highly scalable production and processing infrastructure of the semiconductor industry to industrialize the production of a wide range of synthetic DNA-based products, we believe we are significantly ahead of current and future competitors.

- *Economies of scale*—Customers are usually price sensitive and economies of scale allow providers to reduce production costs which result in lower pricing for customers. When more genes are produced on a larger scale yet with fewer input costs, as we are able to do with our DNA synthesis technology, economies of scale are achieved.
- *Accumulated technical know-how and operational expertise*—The synthetic biology industry is characterized by rapid and significant changes in technologies and requires precision, years of accumulated technical know-how and operational expertise. Our senior executive team has an average of 23 years of experience across the synthetic biology, semiconductor, software and pharmaceutical industries.
- *Biotechnology expertise and research and development talent*—Because the synthetic biology industry requires continuous innovation to keep up with emerging new technologies, the productivity and success of providers' research and development is highly dependent on the quality and quantity of the employees and consultants recruited and the ability of executive management.
- *Strong brand and market recognition*—Customers generally select well-recognized providers with proven technology for large-scale and technically-demanding projects.
- *Customer experience*—Customers value an intuitive, seamless e-commerce experience to simplify and automate the purchase process as well as electronic integration to their own procurement systems. Customers also value quality customer service which we believe we satisfy with our multi-channel commercial approach and direct sales force.
- *Patents*—We have developed a comprehensive portfolio of issued patents and patent applications that cover our commercial products and technologies in development. Our patent strategy includes each aspect of our technology, from hardware to e-commerce to DNA storage, in order to create robust intellectual property barriers to entry for competitors.

Suppliers

We procure the raw materials we utilize in our production process from a number of different suppliers. Although most of the raw materials required for our business are typically readily available, we rely on certain single source suppliers for two critical components of our production process.

Pursuant to a supply agreement, Fujifilm Dimatix, Inc., one of our single source suppliers, provides us with specialized print heads and related jetting assemblies which we use as part of our DNA synthesis platform. Pursuant to a license agreement, Novici Biotech, LLC, another single source supplier, provides us with certain Novici technology and raw materials which enable us to perform gene production.

We do not have long-term supply agreements with most of our suppliers but secure our raw materials on a purchase order basis. Because most of the raw materials used in our business are readily available in the market from many suppliers, we believe that we can within a reasonable period of time make satisfactory alternative arrangements in the event of an interruption of supply from any vendor.

We procure various raw materials such as reagents, plastic lab ware, and spare parts for use in our DNA synthesis process and we use reagents, plastic lab ware, and packaging in our gene production service.

For fiscal 2016 and fiscal 2017, our cost of raw materials accounted for approximately 27% and 30%, respectively, of the total cost of sales.

Our procurement department manages our raw materials inventory levels by monitoring our sales orders, production and manufacturing output, purchase orders and e-commerce requests. We typically advise our suppliers of our needs one to three months in advance and we procure raw materials on a monthly basis while maintaining one to two months' worth of inventory. We procure raw materials for our customized services and products on an as-needed basis.

We select our suppliers based on the following: technology, quality, delivery, cost, and service. Performance of raw materials from suppliers is monitored at least every six months using data from incoming inspection, non-conformance reports, service reports, on-time delivery reports and customer complaints. Any quality or performance issues are addressed via a quality management conference call or an on-site supplier audit.

We pay for our purchases in cash or on credit and in some cases we prepay for our purchases. Credit terms with our suppliers range between 30 and 90 days.

Manufacturing

Our manufacturing facilities are located at our headquarters in San Francisco and in South San Francisco, California. We currently manufacture all of our products and multiple sub-assemblies at these facilities. As of September 30, 2017, we had 79 employees dedicated to manufacturing our synthetic genes, oligo pools, NGS tools, and DNA libraries.

All of our products originate from synthetic DNA obtained from nanostructured clusters fabricated on our proprietary silicon technology platform. As of September 30, 2017, we have the capacity to synthesize oligos on more than 184,000 nanostructured clusters per month, which corresponds to approximately 230,000 96-well plates on the legacy equipment used by our competitors. Our DNA synthesis process has been meticulously fine-tuned to yield high-quality DNA. In September 2017, we had an average error rate, of one error per 1,000 DNA bps, which we believe is a significantly lower rate than our competitors.

We have also built a large-scale parallel process that transforms nanostructured clusters into synthetic genes (clonal and non-clonal) using a mix of proprietary and over-the counter-laboratory equipment. Synthetic genes are an on-demand product for which customers increasingly demand fast turnaround time. We have enhanced our manufacturing capabilities and we expect to reduce turnaround time on large commercial quantities of genes (i.e., orders of over 15,000 per month) to 10 business days.

Due to its on-demand nature, the gene synthesis business requires manufacturing operations to be in operation 24 hours a day, seven days a week, 365 days per year. For synthetic genes, we have built a highly scalable gene production process with what we believe is industry-leading capacity of more than 45,000 genes per month to address the growing demand of scalable, high-quality, affordable synthetic genes. In December 2017, we only utilized approximately a third of this production capacity for synthetic genes and oligos.

In addition to synthetic genes, we are combining nanostructured clusters into oligo pools. If our production was dedicated entirely to the oligos, we currently have the capacity to produce more than 20 million high-quality oligos per month that can be combined into high-precision oligo pools of various sizes. The pooling process has been fully automated through a mixture of custom proprietary and over-the-counter liquid handling equipment. We are currently only utilizing approximately a third of this production capacity for synthetic genes and oligos. We intend to increase our shipments to leverage our production capacity through our e-commerce platform, which we believe will expand both our market opportunity and our customer base.

The manufacturing process for our NGS tools is highly flexible and scalable and requires minimal fixed costs and direct labor given the efficiency of our production capability. We have automated the entire workflow using proprietary and over-the-counter laboratory equipment. We have built dedicated production capabilities for our NGS products, which began operation in October 2017. We plan to have the full NGS workflow International Organization for Standardization 13,485 certified in 2018 to comply with diagnostic industry regulatory requirements.

Over time, to further improve our production process, we intend to outsource various sub-assemblies to third-party manufacturers.

Research and development

As of September 30, 2017, we had 57 employees dedicated to research and development. Of these employees, 31 hold advanced degrees in engineering and biology or other sciences, including either a Ph.D., M.D. or D.V.M. We incurred expenses of $19.2 million expenses for the year ended September 30, 2017 on research and development activities. Our primary research and development operations are located in leased laboratory facilities in San Francisco and South San Francisco, California.

Intellectual property

Our core technology originated as a collaboration between two of our co-founders, Bill Banyai, Ph.D., and Bill Peck, Ph.D., based on the idea that the synthetic DNA market could be revolutionized through a new oligonucleotide synthesis and gene assembly technology. Applying their engineering expertise, Drs. Banyai and Peck conceived—and later refined through collaboration with several of our other accomplished researchers and engineers—innovative silicon-structure based technologies and other innovations for synthesizing nucleic acids that allowed for the manufacture of DNA at greater yields than existing technology allowed.

Our patent strategy is to seek broad patent protection on new developments in nucleic acid synthesis technology and then later file patent applications covering new implementations of the technology and downstream applications utilizing the technology. As part of our strategy, we include each aspect of our technology, from hardware to e-commerce to DNA storage, in order to create robust intellectual property barriers to entry for competitors. As these technologies are implemented, we file new patent applications covering scientific methodology enabled by our technology. Additionally, where appropriate, we file new patent applications covering instrumentation and software that are used in conjunction with our systems for oligo synthesis and gene assembly.

We have developed our own comprehensive portfolio of issued patents and patent applications that cover each step of our commercial products and technologies in development. For example, in part because of our pioneering development efforts in the field of nucleic acid libraries, we have six issued patents and many patent applications pending relating to different aspects of our technology including our devices, our low error rate for oligo synthesis, our large, accurate nucleic acid libraries and their synthesis. We have additional patent filings directed to nucleic acid design and ordering, devices for low error rate nucleic acid synthesis, nucleic acid based data storage, and diversified biologics encoding libraries.

As of September 30, 2017, we own four issued U.S. patents and two issued international patents in China. We have 58 pending patent applications, including 34 in the United States, 15 international applications and nine applications filed under the Patent Cooperation Treaty. The U.S. issued patents expire between 2034 and 2036. The term of individual patents depends upon the legal term of the patents in the countries in which they are obtained. In most countries in which we file, the patent term is 20 years from the date of filing the non-provisional application or PCT application. In the United States, a patent’s term may be lengthened by

patent term adjustment, which compensates a patentee for administrative delays by the U.S. Patent and Trademark Office, or USPTO, in granting a patent, or may be shortened if a patent is terminally disclaimed over an earlier-expiring patent.

The patent positions of companies like ours are generally uncertain and involve complex legal and factual questions. Our patents may not enable us to obtain or keep any competitive advantage. Our pending U.S. and foreign patent applications may not issue as patents or may not issue in a form that will be advantageous to us. Any patents we have obtained or do obtain may be challenged by re-examination, opposition or other administrative proceeding, or may be challenged in litigation, and such challenges could result in a determination that the patent is invalid. In addition, competitors may be able to design alternative methods or devices that avoid infringement of our patents. To the extent our intellectual property protection offers inadequate protection, or is found to be invalid, we are exposed to a greater risk of direct competition. If our intellectual property does not provide adequate protection against our competitors' products, our competitive position could be adversely affected, as could our business. Both the patent application process and the process of managing patent disputes can be time consuming and expensive. Furthermore, the laws of some foreign countries may not protect our intellectual property rights to the same extent as do the laws of the United States.

In addition to pursuing patents on our technology, we have taken steps to protect our intellectual property and proprietary technology by entering into confidentiality agreements and intellectual property assignment agreements with our employees, consultants, corporate partners and, when needed, our advisors. Such agreements may not be enforceable or may not provide meaningful protection for our trade secrets or other proprietary information in the event of unauthorized use or disclosure or other breaches of the agreements, and we may not be able to prevent such unauthorized disclosure. Monitoring unauthorized disclosure is difficult, and we do not know whether the steps we have taken to prevent such disclosure are, or will be, adequate.

Legal proceedings

On February 3, 2016, Agilent Technologies, Inc., or Agilent, filed a lawsuit against us and our Chief Executive Officer, Ms. Emily Leproust, in the Superior Court of California, Santa Clara County, or the Court. The complaint also names Does 1 through 20, which are fictitious placeholder defendants. It is possible that Agilent may seek to amend its complaint to name other defendants.

Agilent's complaint alleges three claims: (1) alleged breach of contract, related to the use of confidential information and alleged breach of non-solicitation obligations against Ms. Leproust; (2) alleged breach of a duty of loyalty against Ms. Leproust; and (3) alleged misappropriation of trade secrets under the California Uniform Trade Secrets Act, or CUTSA, against all defendants.

On September 23, 2016, we and Ms. Leproust filed a demurrer and motion to strike Agilent's original complaint, arguing among other things that Agilent's duty of loyalty claim was preempted by the CUTSA. Rather than oppose the demurrer, Agilent filed its First Amended Complaint, or FAC, on October 31, 2016, amending the allegations underlying its claims. On January 30, 2017, we and Ms. Leproust filed an Answer to the FAC denying all of Agilent's claims and asserting affirmative defenses.

On September 9, 2016, Agilent served its California Code of Civil Procedure Section 2019.210 disclosure of alleged trade secrets on us and Ms. Leproust. We and Ms. Leproust argued that the disclosure contained significant deficiencies and did not comply with the requirements of California law, and first requested that all of Agilent's outstanding discovery be stayed, a request which the Court granted on October 3, 2016. We and Ms. Leproust then filed a motion for protective order to continue the discovery stay until Agilent fully complied with California Code of Civil Procedure Section 2019.210. On November 18, 2016, the Court granted our motion

for protective order in its entirety. The Court also ruled that Agilent must provide a new trade secret disclosure that remedied deficiencies in the original disclosure. On December 21, 2016, Agilent provided an amended 2019.210 disclosure. Since that time, the parties have engaged in motions practice and met and conferred numerous times regarding the trade secret disclosure and identification, with subsequent amendments being made by Agilent, and the Court maintained the discovery stay as to all of Agilent's claims until lifting the stay in a February 1, 2018 tentative order. The Court has not yet set dates for, among other deadlines, the close of fact discovery, for hearing dispositive motions, or for trial.

We and Ms. Leproust currently believe that we have substantial and meritorious defenses to these claims and intend to vigorously defend our position. The outcome of any litigation is inherently uncertain and there can be no assurance that the outcome of the case or the costs of litigation, regardless of outcome, will not have a material adverse effect on our business.

We are also subject to various other legal proceedings and claims arising in the ordinary course of business. Although occasional adverse decisions or settlements may occur, management believes that the final disposition of such matters will not have a material adverse effect on our business, financial position, results of operations or cash flows.

Government regulation

The synthetic biology industry and our current product portfolio is largely unregulated by the FDA. However, in the future we may be subject to a variety of specialized regulatory requirement, including potential regulation by the FDA, any of which could have a material effect on the business.

FDA. Pursuant to its authority under the Federal Food, Drug, and Cosmetic Act, or the FDC Act, the FDA has jurisdiction over medical devices. The FDA regulates, among other things, the research, testing, manufacturing, safety, labeling, storage, recordkeeping, premarket clearance or approval, marketing and promotion and sales and distribution of medical devices in the United States to ensure that medical products distributed domestically are safe and effective for their intended uses. In addition, the FDA regulates the import and export of medical devices.

The FDC Act classifies medical devices into one of three categories based on the risks associated with the device and the level of control necessary to provide reasonable assurance of safety and effectiveness. Devices deemed by the FDA to pose the greatest risk, such as life-sustaining, life-supporting or implantable devices, or devices deemed not substantially equivalent to a previously 510(k) cleared device are categorized as Class III. These devices typically require submission and approval of a Premarket Approval Application, or PMA. Devices deemed to pose lower risk are categorized as either Class I or II. Class II classification usually requires the manufacturer to submit to the FDA a premarket notification submission requesting clearance of the device for commercial distribution in the United States pursuant to Section 510(k) of the FDC Act, referred to as 510(k) clearance. Most Class I devices are exempt from this requirement, as are some lower risk Class II devices. When a 510(k) is required, the manufacturer must submit to the FDA a premarket notification submission demonstrating that the device is "substantially equivalent" to: (i) a device that was legally marketed prior to May 28, 1976, for which PMA approval is not required, (ii) a legally marketed device that has been reclassified from Class III to Class II or Class I, or (iii) another legally marketed, similar device that has been cleared through the 510(k) process.

In vitro diagnostics, or IVDs, are a category of medical devices that include reagents, instruments, and systems intended for use in diagnosis of disease or other conditions, including a determination of the state of health, in order to cure, mitigate, treat, or prevent disease or its sequelae. IVDs are intended for use in the collection, preparation, and examination of specimens taken from the human body. A research use only, or RUO, IVD product is an IVD product that is in the laboratory research phase of development. As such, an RUO IVD is not intended for use in clinical investigations or in clinical practice. Such RUO products do not require premarket

clearance or approval from the FDA, provided that they be labeled “For Research Use Only. Not for use in diagnostic procedures” pursuant to FDA regulations.

As presently contemplated, none of our IVD products are intended for clinical or diagnostic use, and we market them to academic institutions, life sciences and clinical research laboratories that conduct research, and biopharmaceutical and biotechnology companies for non-diagnostic and non-clinical purposes. Our current IVD products are marketed and labeled as RUO, and are provided to our customers solely for their internal research use. Accordingly, we believe that our current IVD products are subject only to limited regulation with respect to labeling by the FDA, and we have not sought clearance or approval from the FDA to market our products.

In November 2013, the FDA issued final guidance indicating that merely including the RUO labeling statement will not necessarily render the device exempt from FDA premarket clearance, approval, or other regulatory requirements if the totality of circumstances surrounding the distribution of the product indicate that the manufacturer intended its IVDs for diagnostic use. Such circumstances may include, but are not limited to, the product’s advertising, labeling, or promotion, or the manufacturer’s assistance of a clinical laboratory in validating or verifying a test that incorporates products labeled RUO. We do not believe any of these circumstances apply to our current product portfolio.

While we believe that none of our current IVD products require FDA approval or clearance, we may in the future develop and commercialize a subset of our products or related applications that could become subject to additional regulation by the FDA. If we market our products for use in performing clinical diagnostics, thus subjecting them to additional regulation by the FDA, including premarket and post market control as medical devices, we would be required to obtain either prior 510(k) clearance or prior pre-market approval from the FDA before commercializing the product, unless an exemption applies.

International sales of medical devices are subject to foreign government regulations, which vary substantially from country to country. Outside of the European Union, or EU, regulatory approval needs to be sought on a country-by-country basis in order to market medical devices.

FSAP. The federal Centers for Disease Control and Prevention and the Animal and Plant Health Inspection Service administer requirements of the Federal Select Agent Program, or FSAP. FSAP requirements govern possession, use, and transfer of biological select agents and toxins that have the potential to pose a severe threat to public, animal or plant health or to animal or plant products. It is our policy generally not to produce or otherwise work with material that is subject to FSAP requirements.

Export controls. International shipments of DNA sequences that we produce are potentially licensable under export controls, although in our experience so far exports of DNA sequences that we have produced have not required licenses.

Given the evolving nature of our industry, legislative bodies or regulatory authorities may adopt additional regulation or expand existing regulation to include our service. Changes to the current regulatory framework, including the imposition of additional or new regulations, could arise at any time, and we may be unable to obtain or maintain comparable regulatory approval or clearance of our service, if required. These regulations and restrictions may materially and adversely affect our business, financial condition, and results of operations.

Facilities

Our principal executive offices are located in San Francisco, California, where we lease approximately 13,000 square feet under a lease that expires in September 30, 2019. We believe that our facilities are sufficient to meet our current needs and that suitable additional space will be available as and when needed.

Our team

As of September 30, 2017, we had 187 full-time employees and a team of 10 dedicated commercial consultants across the European Union and United Kingdom. Of these full-time employees, 57 employees are engaged in research and development activities. None of our employees is represented by a labor union or covered by a collective bargaining agreement. We consider our relationship with our employees to be good.

Management

Executive officers and directors

The names and ages of our executive officers and directors as of December 31, 2017, are as follows:

Name	Age	Position(s)
Executive officers:		
Emily M. Leproust	44	President, Chief Executive Officer and Director
William Banyai	63	Chief Operating Officer and Director
Kenton D. Chow	53	Interim Chief Financial Officer
Mark Daniels	55	General Counsel, Secretary and Chief Ethics and Compliance Officer
Paula Green	50	Vice President of Human Resources
Patrick Finn	46	Vice President of Sales and Marketing
Patrick Weiss	47	Vice President of Operations
Bill Peck	57	Chief Technology Officer
Non-Employee directors:		
Robert Chess	60	Director
Paul A. Conley	49	Director
Keith Crandell	57	Director
Fredrick Craves	72	Director
Robert Ragusa	58	Director

(1) Member of audit committee

(2) Member of compensation committee

(3) Member of nominating and governance committee

Executive officers

Emily M. Leproust, Ph.D. has served as our President and Chief Executive Officer and as a member of our board of directors since April 2013. Prior to co-founding Twist Bioscience, Ms. Leproust served in various positions at Agilent Technologies, Inc., most recently as its Director, Applications and Chemistry R&D from February 2009 to April 2013. Ms. Leproust holds a M.Sc. in Industrial Chemistry from the Lyon School of Industrial Chemistry and a Ph.D. in Organic Chemistry from the University of Houston. Our board of directors believes that Ms. Leproust is qualified to serve as a director because of her operational and historical expertise gained from serving as our President and Chief Executive Officer, and her extensive professional and educational experience in the biotechnology industry.

William Banyai, Ph.D. has served as our Chief Operating Officer and as a member of our board of directors since February 2013. Prior to co-founding Twist Bioscience, from April 2006 to March 2013, Mr. Banyai was the Vice President of Hardware Engineering at Complete Genomics Inc., a life sciences company that developed and commercialized a platform for sequencing and analyzing human genomes. Mr. Banyai was also previously a director at Glimmerglass Networks, a supplier of SDN enabled Intelligent Optical Switching and Optical Network

Management solutions. Mr. Banyai holds a B.S. in Physics and an M.S. in Electrical Science from the University of Michigan, an Engineer of Electrical Engineering degree from the University of Southern California and a Ph.D. in Optical Science from the University of Arizona. Our board of directors believes that Mr. Banyai's experience as our Chief Operating Officer and extensive executive and professional experience in the biotechnology industry, as well as his previous director experience and expertise in corporate governance, qualify him to serve as a director.

Kenton D. Chow has served as our interim Chief Financial Officer since November 2017. Prior to joining us, Mr. Chow has been a Partner with FLG Partners, LLC, a financial service firm since October 2015. Prior to that, from April 2013 to September 2015, Mr. Chow was the Chief Operating Officer at RetailNext, Inc., a big data analytics software developer for retailers. Before RetailNext, Mr. Chow held various chief financial officer positions, including Wine.com, Aurora Networks, Inc., and Cobalt Networks, Inc., where he led Cobalt's IPO and subsequent sale to Sun Microsystems. Mr. Chow holds a B.S. of Science in Commerce in Finance and a M.B.A., both from Santa Clara University. He is also a licensed CPA in the State of California on inactive status.

Mark Daniels has served as our General Counsel since August 2016, as our Chief Ethics and Compliance Officer since May 1, 2017 and as our Secretary since 2018. Prior to joining the Company, from January 2013 to May 2016, Mr. Daniels was at Broadcom Corporation, a semiconductor manufacturer and producer of wireless and broadband products, where his most recent position was Vice President, Law and Deputy Chief Corporate Compliance Officer. Before that, he spent 20 years in positions of increasing responsibility in the legal department at Amgen, Inc., a producer of biopharmaceuticals, where his last role was Vice President and Associate General Counsel. Mr. Daniels received his B.S. with honors in Industrial and Labor Relations from Cornell University and a J.D., cum laude, from Harvard Law School.

Patrick Finn has served as our Vice President of Sales and Marketing since March 2015. Prior to joining us, Mr. Finn was Vice President of Sales at Enzymatics Inc., a developer, manufacturer, and marketer of enzymes for molecular biology applications, sold predominantly to manufacturers in research and diagnostic markets from January 2012 to March 2015. Mr. Finn holds a B.Sc. in Chemistry from Heriot-Watt University and a Ph.D. in Chemistry from the University of Southampton.

Paula Green has served as our Vice President of Human Resources since March 2016. Prior to joining us, Ms. Green was Vice President of Human Resources at Qiagen, N.V., a provider of sample and assay technologies for molecular diagnostics, applied testing, academic and pharmaceutical research from March 2001 to September 2015. Ms. Green holds a B.S. Organizational Behavior from the University of San Francisco.

Bill Peck has been our Chief Technology Officer since February 2013. Prior to co-founding Twist Bioscience, Mr. Peck was the Director of Fluidic Systems at Complete Genomics Inc. from April 2008 to February 2013. Mr. Peck holds a B.Sc., M.Sc., and Ph.D. in Mechanical Engineering from the University of Alberta.

Patrick Weiss has served as our Vice President of Operations since January 2014. Prior to joining us, between April 2010 and December 2013, Mr. Weiss served as an outside consultant to various technology companies. Mr. Weiss holds an M.Sc. in Chemistry from E.T.H. Zurich.

Non-employee directors

Robert Chess has served on our board of directors since July 2014. Mr. Chess is Chairman of the board of directors of Nektar Therapeutics, a public therapeutics company. He has served on the board of Nektar Therapeutics as either CEO and/or Chairman since 1992 and has held the Chairman position since 1999. Mr. Chess has also served on the board of directors of Pharsight Corp., a public company that provides software and scientific consulting services to pharmaceutical and biotechnology companies, and CoTherix, Inc., a public biopharmaceutical company. Mr. Chess currently serves as a lecturer at the Stanford Graduate School of

Business, a position he has held since 2004. Mr. Chess holds a B.S. in Engineering with Honors from the California Institute of Technology and an M.B.A. from Harvard University. Our board of directors believes that Mr. Chess brings extensive board and executive experience managing operations of biotechnology companies, and his service on a number of public company boards provide important industry and corporate governance experience, which qualify him to serve as one of our directors.

Keith Crandell has served on our board of directors since October 2013. Mr. Crandell is the Managing Director of Arch Venture Corporation, a venture capital firm focused on early-stage technology companies, since 1994. Mr. Crandell is a director of several private companies and he also serves on the board of directors of Adesto Technologies Corp., a provider of low power, smart non-volatile memory products which is a publicly traded company and Quanterix, a publicly traded life science instrument company. Mr. Crandell holds a B.S. in Chemistry and Mathematics from St. Lawrence University, an M.S. in Chemistry from the University of Texas, Arlington, and an M.B.A. from the University of Chicago. Our board of directors believes that Mr. Crandell brings extensive experience in the technology industry and that his service on a number of boards provides an important perspective on operations, finance and corporate governance matters which qualify him to serve as one of our directors.

Frederick Craves, Ph.D. has served on our board of directors since May 2014. Mr. Craves is the Founder of Bay City Capital, one of the world's premier life science investment firms, and has been Managing Director since its founding in September 1996. Over the course of his career, Mr. Craves has worked in executive management of a multinational pharmaceutical company and founded and managed several biotech companies. He previously served on the boards of several private and public companies, including Reliant Pharmaceuticals, Medarex Pharmaceuticals and Incyte Pharmaceuticals. His current board memberships include two public companies, Madrigal Pharmaceuticals, Inc., a clinical stage biopharmaceutical company, where he is lead director and Dermira, Inc. a dermatological biotechnology company. Mr. Craves holds a B.S. in Biology from Georgetown University, an M.S. in Biochemical Pharmacology from Wayne State University, and a Ph.D. in Pharmacology and Toxicology from the University of California, San Francisco. Our board of directors believes that in addition to his educational background, Mr. Craves brings extensive experience in the biotechnology industry and his service on a number of boards of public and private companies provides an important perspective on operations and corporate governance matters which qualifies him to serve as one of our directors.

Paul A. Conley, Ph.D. has served on our board of directors since July 2013. Mr. Conley is a Partner and Managing Director at Paladin Capital Group, a prominent venture capital investment firm, a position he has held since November 2007. Mr. Conley also serves on the board of directors of many companies, several in the biotechnology and related fields, including 10x Genomics, Inc., TOMA Bioscience, Inc., and General Automation Laboratory Technologies, Inc. Mr. Conley holds a B.S. in Mechanical Engineering and an M.S. in Mechanical & Aerospace from the University of Virginia, an M.S. in Bioengineering and a Ph.D. in Applied Physics from the University of California, San Diego. Our board of directors believes that Mr. Conley brings extensive experience in the biotechnology industry and his service on a number of boards provides an important perspective on operations and corporate governance matters, as well as his education in biotechnology, qualifies him to serve as one of our directors.

Robert Ragusa has served on our board of directors since February 2017. Mr. Ragusa is currently the Senior Vice President, Global Quality and Operations, at Illumina, Inc., a strategic commercial partner of Twist Bioscience Corporation and a publicly traded corporation, where he has worked since December 2013. Prior to joining Illumina, Inc., from April 2010 to November 2013, Mr. Ragusa was Executive Vice President, Global Operations and Service at Accuray Incorporated, a radiation oncology company that develops, manufactures, sells and supports cancer treatment solutions. Mr. Ragusa holds a B.S. in Biomedical and Electrical Engineering and an M.B.A. from the University of Connecticut, and an M.S. in Biomedical and Electrical Engineering from Carnegie-Mellon University. Our board of directors believes that Mr. Ragusa brings extensive experience in important

ecosystem partners and managing operations of large public companies, and this, in addition to his education in biotechnology, finance and management, qualifies him to serve as one of our directors.

There are no family relationships among any of our directors or executive officers.

Code of business conduct and ethics

We have adopted a code of business conduct and ethics that will apply to all of our employees, officers and directors beginning on the effective date of the registration statement of which this prospectus forms a part. Immediately prior to the effectiveness of this offering, the full text of our code of business conduct and ethics will be posted on the investor relations section of our website at www.twistbioscience.com. We expect that any amendment to the code, or any waivers of its requirements, will be disclosed on our website to the extent required by the applicable rules and exchange requirements. The inclusion of our website in this prospectus does not include or incorporate by reference the information on our website into this prospectus.

Board of directors

Our board of directors is currently comprised of seven members. Our amended and restated bylaws permit our board of directors to establish by resolution the authorized number of directors, and seven directors are currently authorized. Upon completion of this offering our board of directors will consist of members, of whom will qualify as “independent” under the Listing Standards of The Nasdaq Global Market.

Voting arrangements

The election of the members of our board of directors is currently governed by the amended and restated stockholders agreement that we entered into with certain holders of our common stock and certain holders of our convertible preferred stock in January 2016, as amended in March 2017, and the related provisions of our amended and restated certificate of incorporation. Pursuant to the stockholders agreement and these provisions, Messrs. Banyai, Chess, Conley, Crandell, Craves and Ragusa and Ms. Leproust have been designated to serve on our board of directors.

- Mr. Crandell was designated by ARCH Ventures Fund VII, LP and elected by the holders of our Series A convertible preferred stock;
- Mr. Craves was designated by Tao Invest LLC, and elected by the holders of our Series B convertible preferred stock;
- Mr. Ragusa was designated by Illumina, Inc., and elected by the holders of our Series C convertible preferred stock;
- Mr. Conley was designated by the holders of a majority of the holders of our Series D convertible preferred stock and subject to the approval of the holders of a majority of our common stock;
- Mr. Banyai was elected to the board of directors by the holders of our common stock;
- Mr. Chess was elected to the board of directors by a majority the holders of our common stock and convertible preferred stock, each voting as a single class; and
- Ms. Leproust was elected to the board of directors as our chief executive officer.

The holders of shares of our common stock and convertible preferred stock who are parties to our stockholders agreement are obligated to vote for such designees indicated above. The provisions of this stockholders agreement will terminate upon the closing of this offering and our certificate of incorporation will be amended and restated, after which there will be no further contractual obligations or charter provisions regarding the election of our directors.

Our directors hold office until their successors have been elected and qualified or appointed, or the earlier of their death, resignation or removal.

Classified board

In connection with the closing of this offering, we will file our amended and restated certificate of incorporation which will provide that our board of directors will be divided into three classes, with staggered three-year terms. Only one class of directors will be elected at each annual meeting of our stockholders, with the other classes of directors continuing for the remainder of their respective three-year terms. Upon the expiration of the term of a class of directors, a director in that class will be eligible to be elected for a new three-year term at the annual meeting of stockholders in the year in which their term expires.

Our directors will be divided among the three classes as follows:

- the Class I directors will be , and , and their terms will expire at the annual meeting of stockholders to be held in 2019;
- the Class II directors will be , and , and their terms will expire at the annual meeting of stockholders to be held in 2020; and
- the Class III directors will be , and , and their terms will expire at the annual meeting of stockholders to be held in 2021.

In addition, our amended and restated bylaws and amended and restated certificate of incorporation will provide that (i) only the board of directors may fill vacancies on the board of directors until the next annual meeting of stockholders and (ii) the number of our directors shall be fixed from time to time by a resolution of the majority of our board of directors. Any additional directorships resulting from an increase in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the total number of directors.

This classification of the board of directors and the provisions described above may have the effect of delaying or preventing changes in our control or management. See “Description of capital stock—Anti-takeover effects of Delaware law and our amended and restated certificate of incorporation and amended and restated bylaws.”

Role of the board in risk oversight

One of the key functions of our board of directors is informed oversight of our risk management process. Our board of directors does not have a standing risk management committee, but rather administers this oversight function directly through the board of directors as a whole, as well as through its standing committees that address risks inherent in their respective areas of oversight. In particular, our board of directors is responsible for monitoring and assessing strategic risk exposure. Our audit committee is responsible for reviewing and discussing our major financial risk exposures and the steps our management has taken to monitor and control these exposures, including guidelines and policies with respect to risk assessment and risk management. Our audit committee also monitors compliance with legal and regulatory requirements, in addition to oversight of the performance of our external audit function. Our nominating and governance committee monitors the effectiveness of our governance guidelines. Our compensation committee reviews and discusses the risks arising from our compensation philosophy and practices applicable to all employees that are reasonably likely to have a materially adverse effect on us.

Director independence

In connection with this offering, we intend to list our common stock on The Nasdaq Global Market. Under the rules of The Nasdaq Global Market, independent directors must comprise a majority of a listed company’s board

of directors within a specified period of time after completion of such company's initial public offering. In addition, the rules of require that, subject to specified exceptions, each member of a listed company's audit, compensation, and nominating committees be independent. Under the rules of Nasdaq Global Market, a director will only qualify as an "independent" director if, in the determination of that company's board of directors, that director does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director with the listed company.

Audit committee members must also satisfy the independence criteria set forth in Rule 10A-3 under the Exchange Act. In order to be considered independent for purposes of Rule 10A-3, each member of the audit committee of a listed company may not, other than in his or her capacity as a member of such committee, the board of directors, or any other board committee: (i) accept, directly or indirectly, any consulting, advisory, or other compensatory fees from the listed company or any of its subsidiaries; or (ii) be an affiliated person of the listed company or any of its subsidiaries.

Our board of directors has undertaken a review of its composition, the composition of its committees, and the independence of each director and considered whether any director has a material relationship with us that could compromise his or her ability to exercise independent judgment in carrying out his or her responsibilities. Based on information provided by each director concerning his or her background, employment, and affiliations, including family relationships, our board of directors has determined that each of , , , and does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director and that each of these directors is "independent" as that term is defined under the applicable rules and regulations of the Securities and Exchange Commission, and the listing standards of The Nasdaq Global Market. In making these determinations, our board of directors considered the current and prior relationships that each non-employee director has with our company and all other facts and circumstances our board of directors deemed relevant in determining their independence, including the beneficial ownership of our capital stock by each non-employee director, and the transactions involving them described in the section titled "Certain relationships and related party transactions."

Committees of the board of directors

Our board of directors has established an audit committee, a compensation committee and a nominating and governance committee. The composition and responsibilities of each committee are described below. Immediately prior to the closing of this offering, copies of the charters for each committee will be available on the investor relations portion of our website at www.twistbioscience.com. Members serve on these committees until their resignations or removal. The inclusion of our website in this prospectus does not include or incorporate by reference the information on our website into this prospectus.

Audit committee

Our audit committee is comprised of Messrs. Chess, Conley and Craves, and, effective upon the completion of this offering, our audit committee will consist of , and , with serving as audit committee chairperson. Our board of directors has determined that each of the members of our audit committee satisfies the requirements for independence and financial literacy under the current listing standards of The Nasdaq Global Market and Securities and Exchange Commission rules and regulations, including Rule 10A-3. Our board of directors has also determined that and are each an audit committee financial expert within the meaning of Item 407(d) of Regulation S-K of the Securities Act.

Our audit committee will be responsible for, among other things:

- selecting a qualified firm to serve as independent registered public accounting firm to audit our financial statements;
- helping to ensure the independence and performance of the independent registered public accounting firm;
- discussing the scope and results of the audit with the independent registered public accounting firm, and reviewing, with management and the independent accountants, our interim and year-end operating results;
- establishing policies and procedures for the receipt and retention of accounting related complaints and concerns, including a confidential, anonymous mechanism for the submission of concerns by employees;
- periodically reviewing legal compliance matters, including securities trading policies, periodically reviews significant accounting and other financial risks or exposures to our company and reviewing and, if appropriate, approving all transactions between our company or its subsidiaries and any related party (as described in Item 404 of Regulation S-K);
- establishing policies for the hiring of employees and former employees of the independent registered public accounting firm;
- reviewing related party transactions and proposed waivers of the code of conduct;
- considering the adequacy of our internal accounting controls and audit procedures;
- reviewing our policies on risk assessment and risk management;
- approving all audit and non-audit services other than *de minimis* non-audit services, to be performed by the independent registered public accounting firm; and
- reviewing the audit committee report required by Securities and Exchange Commission rules to be included in our annual proxy statement.

Our audit committee will operate under a written charter, to be effective on the date of this offering, which satisfies the applicable rules of the Securities and Exchange Commission and the listing standards of The Nasdaq Global Market, and which will be available on our website upon completion of this offering. All audit services to be provided to us and all permissible non-audit services, other than *de minimis* non-audit services, to be provided to us by our independent registered public accounting firm will be approved in advance by our audit committee.

Compensation Committee

Our compensation committee is comprised of Messrs. Chess, Crandell and Craves, and, effective upon the completion of this offering, our compensation committee will consist of , and with serving as compensation committee chairperson. Our board of directors has determined that each member of the compensation committee is a non-employee director, as defined pursuant to Rule 16b-3 promulgated under the Exchange Act. Our board has determined that , and meet the requirements for independence under the listing standards of The Nasdaq Global Market and Securities and Exchange Commission rules and regulations. Our compensation committee will be responsible for, among other things:

- reviewing and approving the compensation of our chief executive officer and other executive officers;
- reviewing the compensation paid to our directors and making recommendations to our board of directors;

- administering our equity incentive plans and other benefit programs;
- reviewing, adopting, amending, and terminating, incentive compensation and equity plans, severance agreements, bonus plans, change-of-control protections, and any other compensatory arrangements for our executive officers;
- reviewing, evaluating, and recommending to our board of directors succession plans for our executive officers; and
- establishing our general compensation policies and practices.

Our compensation committee will operate under a written charter, to be effective on the date of this offering, which satisfies the applicable rules of the Securities and Exchange Commission and the listing standards of The Nasdaq Global Market and that will be available on our website upon completion of this offering. In accordance with and pursuant to Section 10A(i)(3) of the Exchange Act, our board of directors has delegated to the authority to pre-approve any auditing and permissible non-auditing services to be performed by our registered independent public accounting firm, provided that all such decisions to pre-approve an activity are presented to the full audit committee at its first meeting following any such decision.

Nominating and governance committee

Effective upon the completion of this offering, our nominating and governance committee will consist of Messrs. , and , each of whom is a non-employee member of our board of directors, with Mr. serving as the nominating and governance committee chairperson. Our board of directors has determined that , and meet the requirements for independence under the listing standards of The Nasdaq Global Market and Securities and Exchange Commission rules and regulations.

Our nominating and governance committee will be responsible for, among other things:

- identifying, evaluating and selecting, or making recommendations to our board of directors regarding, nominees for election or our board of directors and its committees;
- considering and making recommendations to our board of directors regarding the composition of our board of directors and its committees;
- reviewing succession planning for our chief executive officer and other executive officers and evaluating potential successors;
- reviewing and assessing the adequacy of our corporate governance guidelines and recommending any proposed changes to our board of directors;
- evaluating the performance of our board of directors and of individual directors.

The nominating and governance committee will operate under a written charter, to be effective on the date of this offering, which satisfies the applicable listing requirements and rules of The Nasdaq Global Market, and which will be available on our website upon completion of this offering.

Our board of directors may from time to time establish other committees.

Compensation committee interlocks and insider participation

During fiscal 2017, our compensation committee consisted of Messrs. Chess, Crandell and Craves. None of the members of our compensation committee has at any time been one of our officers or employees. None of our executive officers currently serves, or during fiscal 2017 has served, as a member of our board of directors or

the compensation committee (or other board committee performing equivalent functions) of any entity that has one or more of its executive officers who served on our board of directors or our compensation committee during fiscal 2017.

Director compensation

Historically, we have neither had a formal compensation policy for our non-employee directors, nor have we had a formal policy of reimbursing expenses incurred by our non-employee directors in connection with their board service. However, we have reimbursed our non-employee directors for reasonable expenses incurred in connection with their attendance at board of directors or committee meetings and occasionally granted stock options. Other than as described below, we did not provide our non-employee directors, in their capacities as such, with any cash, equity or other compensation in fiscal 2017. Neither Emily Leproust, our President and Chief Executive Officer, nor William Banyai, our Chief Operating Officer, received separate compensation for services as a director. Ms. Leproust and Mr. Banyai's compensation is discussed in the section titled "Executive compensation." Although we have not yet done so, we intend to implement a compensation policy for non-employee directors that will be effective shortly after the date of this prospectus.

The following table sets forth certain information regarding the compensation of our non-employee directors for fiscal 2017:

Name	Option awards ($)(1)(2)	Total ($)
Robert Chess	75,264	75,264
Paul A. Conley	—	—
Keith Crandell	—	—
Frederick Craves	—	—
Robert Ragusa	—	—

(1) The amount reported in this column represents the aggregate grant date fair value for financial statement reporting purposes of stock options granted in fiscal 2017 under our 2013 Plan, as determined in accordance with FASB ASC Topic 718. This amount reflects our accounting expense for these stock options and does not represent the actual economic value that may be realized by each non-employee director. There can be no assurance that this amount will ever be realized. For information on the assumptions used in valuing this award, refer to Note 15 to the consolidated financial statements included elsewhere in this prospectus.

(2) The number of shares underlying outstanding stock options held by each non-employee director as of September 30, 2017 was as follows: Mr. Chess (70,340); Mr. Conley (0); Mr. Crandell (0); Mr. Craves (0); and Mr. Ragusa (0). In addition, as of September 30, 2017, Mr. Chess held 167,894 shares of restricted common stock subject to a repurchase right in favor of the Company that he received in connection with the exercise of a stock option that was immediately exercisable upon grant, or "early exercisable" and 523,421 additional shares of common stock.

Board diversity

Upon consummation of this offering, our nominating and governance committee will be responsible for reviewing with the board of directors, on an annual basis, the appropriate characteristics, skills and experience required for the board of directors as a whole and its individual members. In evaluating the suitability of individual candidates (both new candidates and current members), the nominating and governance committee, in recommending candidates for election, and the board of directors, in approving (and, in the case of vacancies, appointing) such candidates, may take into account many factors, including, but not limited to, diversity of personal and professional background, perspective and experience; personal and professional integrity, ethics and values; experience in corporate management, operations or finance; experience relevant to our industry and with relevant social policy concerns; experience as a board member or executive officer of another publicly held company; relevant academic expertise or other proficiency in an area of our operations; practical and mature business judgment; and any other relevant qualifications, attributes or skills.

Currently, our board of directors evaluates, and following the consummation of this offering will evaluate, each individual in the context of the board of directors as a whole, with the objective of assembling a group that can best maximize the success of the business and represent stockholder interests through the exercise of sound judgment using its diversity of experience in these various areas.

Limitation of liability and indemnification of directors and officers

Our amended and restated certificate of incorporation, which will become effective upon the closing of this offering, will contain provisions that limit the liability of our directors for monetary damages to the fullest extent permitted by Delaware law. Consequently, our directors will not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duties as directors, except liability for the following:

- any breach of their duty of loyalty to our company or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; or
- any transaction from which they derived an improper personal benefit.

Our amended and restated bylaws, which will become effective upon the closing of this offering, will provide that we shall indemnify, to the fullest extent permitted by law, any person who is or was a party or is threatened to be made a party to any action, suit or proceeding, by reason of the fact that he or she is or was one of our directors or officers or is or was serving at our request as a director or officer of another corporation, partnership, joint venture, trust or other enterprise. Our amended and restated bylaws will provide that we may indemnify to the fullest extent permitted by law any person who is or was a party or is threatened to be made a party to any action, suit or proceeding, by reason of the fact that he or she is or was one of our employees or agents or is or was serving at our request as an employee or agent of another corporation, partnership, joint venture, trust or other enterprise. Our amended and restated bylaws will also provide that we must advance expenses incurred by or on behalf of a director or officer in advance of the final disposition of any action or proceeding, subject to very limited exceptions.

Prior to the closing of this offering, we intend to obtain insurance policies under which, subject to the limitations of the policies, coverage is provided to our directors and officers against loss arising from claims made by reason of breach of fiduciary duty or other wrongful acts as a director or officer, including claims relating to public securities matters, and to us with respect to payments that may be made by us to these officers and directors pursuant to our indemnification obligations or otherwise as a matter of law.

Prior to the closing of this offering, we intend to enter into indemnification agreements with each of our directors and executive officers that may be broader than the specific indemnification provisions contained in the Delaware General Corporation Law. These indemnification agreements may require us, among other things, to indemnify our directors and executive officers against liabilities that may arise by reason of their status or service. These indemnification agreements may also require us to advance all expenses incurred by the directors and executive officers in investigating or defending any such action, suit or proceeding. We believe that these agreements are necessary to attract and retain qualified individuals to serve as directors and executive officers.

The underwriting agreement provides for indemnification by the underwriters of us and our officers, directors and employees for certain liabilities arising under the Securities Act, or otherwise.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling our company pursuant to the foregoing provisions, we have been informed that, in the opinion of the Securities and Exchange Commission, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Executive compensation

Overview

As an emerging growth company, we have opted to comply with the executive compensation disclosure rules applicable to "smaller reporting companies," as such term is defined in the rules promulgated under the Securities Act.

Our named executive officers for fiscal 2017 were:

- Emily M. Leproust, our President, Chief Executive Officer and Secretary;
- William Banyai, our Chief Operating Officer; and
- Patrick Weiss, our Senior Vice President, Global Operations.

Summary compensation table

The following table sets forth certain information regarding the compensation of our named executive officers for fiscal 2017:

Name and principal position	Year	Salary ($)(1)	Bonus ($)	Option awards ($)(2)	Non-equity incentive plan compensation ($)(3)	All other compensation ($)	Total ($)
Emily M. Leproust *President, Chief Executive Officer and Secretary*	2017	340,001	—	2,445,057	87,150	—	2,872,208
William Banyai *Chief Operating Officer*	2017	317,501	—	1,615,700	58,848	—	1,992,049
Patrick Weiss *Senior Vice President, Global Operations*	2017	314,994	—	1,070,000	44,136	—	1,429,130

(1) The amounts reported in this column represent salary earned by each of our named executive officers in fiscal 2017.

(2) The amounts reported in this column reflect the aggregate grant date fair value for financial statement reporting purposes of stock options granted in fiscal 2017 as determined in accordance with FASB ASC Topic 718. These amounts reflect our accounting expense for these stock options and do not represent the actual economic value that may be realized by each named executive officer. There can be no assurance that these amounts will ever be realized. For information on the assumptions used in valuing these awards, refer to Note 15 to the consolidated financial statements included elsewhere in this prospectus.

(3) Represents annual bonuses earned by each named executive officer under our annual cash incentive plan for executive officers for fiscal 2017. The amounts reported represent performance-based cash incentives earned by each named executive officer based on the achievement of certain revenue goals and strategic objectives and the named executive officer's target incentive compensation amount.

Outstanding equity awards as of September 30, 2017

The following table provides information regarding the unexercised stock options and restricted stock awards held by each of our named executive officers as of September 30, 2017:

		Option awards(1)				Stock awards(1)	
Name	Grant date	Number of securities underlying unexercised options (#) exercisable (2)	Number of securities underlying unexercised options (#) unexercisable (3)	Option exercise price ($)(4)	Option expiration date	Number of shares or units of stock that have not vested (#) (5)	Market value of shares or units of stock that have not vested ($) (6)
Emily M. Leproust	9/29/2015(7)	500,000	500,000	0.60	9/28/2025	—	—
	9/29/2017(8)	228,510	2,056,590	0.89	9/28/2027	—	—
William Banyai	9/29/2015(7)	500,000	500,000	0.60	9/28/2025	—	—
	9/29/2017(8)	151,000	1,359,000	0.89	9/28/2027	—	—
Patrick Weiss	4/1/2014(9)	—	—	—	—	9,875	
	6/19/2014(10)	—	—	—	—	86,415	
	9/29/2015(11)	250,000	250,000	0.60	9/28/2025	—	—
	9/29/2017(8)	100,000	900,000	0.89	9/28/2027	—	—

(1) All awards were granted under our 2013 Plan.

(2) Because all stock options granted to our named executive officers under the 2013 Plan are early exercisable, and early exercised shares are subject to a repurchase right in favor of the Company which lapses as the option vests, this column reflects the number of options held by our named executive officers that were exercisable and vested as of September 30, 2017.

(3) Because all stock options granted to our named executive officers under the 2013 Plan are early exercisable, and early exercised shares are subject to a repurchase right in favor of the Company which lapses as the option vests, this column reflects the number of options held by our named executive officers that were exercisable and unvested as of September 30, 2017.

(4) This column represents the fair market value of a share of our common stock on the date of grant, as determined by our board of directors.

(5) The shares in this column represent shares of restricted stock issued upon the early exercise of stock options, in each case that remained unvested as of September 30, 2017. We have a right to repurchase any unvested shares subject to each such award if the holder of the award ceases to provide services to us prior to the applicable vesting dates.

(6) The market value of our common stock is based upon the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus.

(7) The option grant is subject to a 4-year vesting schedule, with 25% of the shares vesting on September 1, 2016 and 1/48th of the shares vesting monthly thereafter, subject to continuous service through each applicable vesting date. The option grant is also subject to a 50% single trigger acceleration provision and a 100% double trigger acceleration provision (in each case, as described below).

(8) The option grant is subject to a 4-year vesting schedule, with 10% of the shares vesting on September 29, 2017, 15% of the shares vesting on September 28, 2018 and 1/48th of the shares vesting monthly thereafter, subject to continuous service through each applicable vesting date.

(9) The restricted shares were part of an early exercised stock option grant covering 79,000 shares of our common stock that are subject to a 4-year vesting schedule, with 25% of the shares vesting on March 31, 2015 and 1/48th of the shares vesting monthly thereafter, subject to continuous service through each applicable vesting date.

(10) The restricted shares were part of an early exercised stock option grant covering 460,877 shares of our common stock that are subject to a 4-year vesting schedule, with 25% of the shares vesting on June 19, 2015 and 1/48th of the shares vesting monthly thereafter, subject to continuous service through each applicable vesting date.

(11) The option grant is subject to a 4-year vesting schedule, with 25% of the shares vesting on September 1, 2016 and 1/48th of the shares monthly thereafter, subject to continuous service through each applicable vesting date.

Base salary

We use base salaries to recognize the experience, skills, knowledge and responsibilities required of all our employees, including our named executive officers. None of our named executive officers is currently party to an employment agreement or other agreement or arrangement that provides for automatic or scheduled increases in base salary.

Annual bonus

We have an annual objective-setting and review process for our named executive officers that is the basis for the determination of potential annual bonuses. Our board of directors reviews and approves both the annual objectives and the payment of annual bonuses for our executives. Each of our named executive officers is eligible for annual performance-based bonuses of up to a specific percentage of their salary, subject to approval by our board of directors or the compensation committee. The performance-based bonus is tied to a set of specified goals and strategic objectives for our named executive officers and we conduct an annual performance review to determine the attainment of such goals and objectives. Our management may propose bonus awards to our board of directors primarily based on such review process. Our board of directors or the compensation committee makes the final determination of the achievement of both the specified corporate and strategic objectives and the eligibility requirements for and the amount of such bonus awards. For fiscal 2017, annual bonuses were paid out based on the satisfaction of certain revenue goals and strategic objectives.

Equity-based incentive awards

Our equity-based incentive awards are designed to align our interests and the interests of our stockholders with those of our employees and consultants, including our named executive officers. Our board of directors or the compensation committee is responsible for approving equity grants to employees and consultants.

Prior to this offering, we have granted all equity incentive awards pursuant to our 2013 Plan. Following this offering, we will grant equity incentive awards under the terms of our 2018 Plan. The terms of our equity plans are described below under “Equity incentive plans.”

All stock options are granted with an exercise price per share that is no less than the fair market value of our common stock on the date of grant of each award. Our stock option awards generally vest over a four-year period and may be subject to acceleration of vesting and exercisability under certain termination and corporate transaction events.

On September 29, 2017, the compensation committee granted stock options to Emily Leproust, William Banyai and Patrick Weiss, to purchase 2,285,100 shares, 1,510,000 shares and 1,000,000 shares, respectively, each at an exercise price of $0.89 per share. Ten percent of the shares subject to each option grant were vested on the date of grant and 15% of the shares will vest on September 28, 2018, and 1/48th of the shares will vest on each monthly anniversary thereafter, subject to the named executive officer’s continuous service through each applicable vesting date.

Executive employment arrangements

We entered into an employment agreement with Emily Leproust and William Banyai in April 2013 and an offer letter agreement with Patrick Weiss in March 2014. These agreements provide for at-will employment and establish the executive officer’s base salary, eligibility to receive an annual bonus and standard employee benefit plan participation as of the time of their execution. The employment agreements with Ms. Leproust and Mr. Banyai also contain provisions that provide for certain payments and benefits in the event of certain terminations of employment. The Company intends to amend and restate each of the employment agreements with Ms. Leproust and Mr. Banyai and enter into an employment agreement with Mr. Weiss in connection with the initial public offering.

Potential payments upon a termination or corporate transaction

Employment agreements

In the event Ms. Leproust or Mr. Banyai's employment is terminated by us without "cause" or by the applicable executive officer for "good reason" (each, as defined in the applicable executive officer's employment agreement):

- Ms. Leproust will be eligible to receive, subject to her execution of a general release of claims in favor of the Company and complying with certain post-termination restrictions including assignment of intellectual property, confidentiality, non-solicitation, non-disparagement and cooperation obligations:
    - cash payments equal to 4 months of her base salary as in effect as of the date of termination, payable in accordance with our regular payroll schedule over a 4-month period; and
    - payment of any annual bonus not yet paid for the fiscal year preceding the year in which her employment is terminated, payable at the time that annual bonuses are paid to employees of the Company, generally.
- Mr. Banyai will be eligible to receive, subject to his execution of a general release of claims in favor of the Company and complying with certain post-termination restrictions including assignment of intellectual property, confidentiality, non-solicitation, non-disparagement and cooperation obligations:
- cash payments equal to 3 months of his base salary as in effect as of the date of termination, payable in accordance with our regular payroll schedule over a 3-month period; and
- payment of any annual bonus not yet paid for the fiscal year preceding the year in which his employment is terminated, payable at the time that annual bonuses are paid to employees of the Company, generally.

In addition, we must provide Ms. Leproust and Mr. Banyai at least 30 days written notice to terminate each applicable executive officer's employment due to the executive officer's disability. Furthermore, if Ms. Leproust or Mr. Banyai become disabled such that he or she is unable to perform the essential functions of her or his position or positions, the board of directors may remove the applicable executive officer from any responsibilities and/or reassign the executive officer to another position with the Company during the period of such disability, and the executive officer will continue to receive her or his full base salary (less any disability pay or sick pay benefits to which the executive officer may be entitled under our policies) and benefits for a period of no longer than 3 months.

As defined in Ms. Leproust's and Mr. Banyai's employment agreements, "cause" exists if the executive officer is terminated as a result of the following: (i) dishonest statements or acts of the executive officer with respect to the Company that are materially injurious to the Company; (ii) commission by the executive officer of, or indictment of the executive officer for, (A) a felony or (B) a misdemeanor involving moral turpitude, deceit, dishonesty or fraud; (iii) commission of an act involving a violation of material procedures or policies of the Company, which, if curable, remain uncured for more than 30 days after the executive officer's knowledge of such violation; (iv) material and sustained failure of the executive officer to perform the duties and responsibilities assigned under her or his employment agreement, which if curable, remain uncured for more than 30 days after the executive officer is given notice of such breach; (v) gross negligence, willful misconduct or insubordination of the executive officer with respect to the Company or any affiliate of the Company that is materially injurious to the Company; (vi) a material breach by the executive officer of any of her or his obligations under the employment agreement or any other agreement with the Company; or (vii) termination by the executive officer of her or his employment upon less than 60 days advance written notice.

As defined in Ms. Leproust's and Mr. Banyai's employment agreements, "good reason" means a resignation of the employment by the applicable executive officer after the occurrence of any of the following events: (i) a material reduction in the executive officer's then current base salary except in certain limited circumstances; (ii) a material reduction in the executive officer's authority, duties, or responsibilities except in certain limited circumstances; or (iii) a relocation of the executive officer's principal office to a location which increases the executive officer's commute more than 50 miles from the location of the executive officer's principal office.

Option agreements

The stock option awards granted to Emily Leproust and William Banyai on September 29, 2015, provide that in the event of a "corporate transaction" (as defined in the 2013 Plan) that occurs during the executive officer's service, 50% of the then unvested shares subject to the stock option shall vest as of immediately prior to such corporate transaction. In addition, if the executive officer is terminated (A) upon the consummation of, or within 12 months following, a corporate transaction and (B) by the Company without "cause" or by the executive officer for "good reason" (each, as defined in the applicable executive officer's employment agreement), then 100% of the then unvested shares subject to the option shall immediately vest as of the date of such termination.

Equity incentive plans

2018 equity incentive plan

General. Our 2018 Equity Incentive Plan, or 2018 Plan, was adopted by our board of directors on and approved by our stockholders on . The 2018 Plan will become effective on the day immediately prior to the date that the registration statement of which this prospectus forms a part becomes effective.

Share Reserve. The maximum aggregate number of shares that may be issued under the 2018 Plan is shares of our common stock, which number is the sum of (i) shares of our common stock plus (ii) any shares remaining available for issuance under the 2013 Stock Plan at the time the 2018 Plan becomes effective, in an amount not to exceed shares, plus (iii) any shares subject to awards under the 2013 Plan that otherwise would have been returned to the 2013 Plan on account of the expiration, cancellation or forfeiture of such awards following the effectiveness of the 2018 Plan, in an amount not to exceed shares. In addition, the number of shares reserved for issuance under the 2018 Plan will be increased automatically on the first day of each fiscal year, following the fiscal year in which the 2018 Plan becomes effective, by a number equal to the least of:

- shares;
- % of the shares of common stock outstanding at that time; or
- such number of shares determined by our board of directors.

If an award expires, is forfeited or becomes unexercisable for any reason without having been exercised in full, or is surrendered pursuant to an exchange program, the unissued shares that were subject to the award will, unless the 2018 Plan is terminated, continue to be available under the 2018 Plan for issuance pursuant to future awards. In addition, any shares which are retained by the Company upon exercise of an award in order to satisfy the exercise or purchase price for such award or any withholding taxes due with respect to such award will be treated as not issued and will continue to be available under the 2018 Plan for issuance pursuant to future awards. Shares issued under the 2018 Plan and later forfeited to the Company due to the failure to vest or repurchased by the Company at the original purchase price paid to the Company for the shares (including, without limitation, upon forfeiture to or repurchase by the Company in connection with a participant ceasing to be a service provider) will again be available for future grant under the 2018 Plan. To the extent an award

under the 2018 Plan is paid out in cash rather than shares, such cash payment will not result in reducing the number of Shares available for issuance under the 2018 Plan.

Plan administration. Our board of directors has delegated its authority to administer the 2018 Plan to our compensation committee. Subject to the provisions of our 2018 Plan, the administrator has the power to determine the terms of awards, including the recipients, the exercise price, if any, the number of shares subject to each award, the fair market value of a share of our common stock, the vesting schedule applicable to the awards, together with any vesting acceleration, and the form of consideration, if any, payable upon exercise of the award and the terms of the award agreement for use under the 2018 Plan. The administrator also has the authority, subject to the terms of the 2018 Plan, to amend existing awards, to prescribe rules and to construe and interpret the 2018 Plan and awards granted thereunder and to institute an exchange program by which outstanding awards may be surrendered in exchange for awards of the same type which may have a lower exercise price or different terms, awards of a different type and/or cash subject to stockholder approval.

Eligibility. Employees, members of our board of directors who are not employees and consultants are eligible to participate in our 2018 Plan.

Types of award. Our 2018 Plan provides for the grant of incentive stock options, within the meaning of Section 422 of the Code, to our employees and the employees of our subsidiaries, and for the grant of nonstatutory stock options, stock appreciation rights, restricted stock, restricted stock units, performance units, and performance shares to our employees, directors, and consultants and the employees and consultants of our subsidiaries.

Stock options. The administrator may grant incentive and/or non-statutory stock options under our 2018 Plan, provided that incentive stock options may only be granted to employees. The exercise price of such options must generally be equal to at least the fair market value of our common stock on the date of grant. The term of an option may not exceed 10 years; provided, however, that an incentive stock option held by a participant who owns more than 10% of the total combined voting power of all classes of our stock, or of certain of our subsidiary corporations, may not have a term in excess of five years and must have an exercise price of at least 110% of the fair market value of our common stock on the grant date. The administrator will determine the methods of payment of the exercise price of an option, which may include cash, shares or other property acceptable to the administrator. Subject to the provisions of our 2018 Plan, the administrator determines the remaining terms of the options (e.g., vesting). After the termination of service of an employee, director or consultant, the participant may exercise his or her option, to the extent vested, for the period of time stated in his or her option agreement. Generally, if termination is due to death or disability, the option will remain exercisable for 12 months. In the event of a termination for cause, options generally terminate immediately upon the termination of the participant for cause. In all other cases, the option will generally remain exercisable for three months following the termination of service. However, in no event may an option be exercised later than the expiration of its term. The maximum aggregate number of shares of our common stock that may be issued under the 2018 Plan pursuant to incentive stock options may not exceed the maximum number of shares initially reserved under the 2018 Plan and to the extent allowable under Section 422 of the Internal Revenue Code, or the Code, any other shares that become available for issuance or reissuance pursuant to the terms of the 2018 Plan.

Stock appreciation rights. Stock appreciation rights may be granted under our 2018 Plan. Stock appreciation rights allow the recipient to receive the appreciation in the fair market value of our common stock between the date of grant and the exercise date. Subject to the provisions of our 2018 Plan, the administrator determines the terms of stock appreciation rights, including when such rights vest and become exercisable and whether to settle such awards in cash or with shares of our common stock, or a combination thereof, except that the per share exercise price for the shares to be issued pursuant to the exercise of a stock appreciation right will be no

less than 100% of the fair market value per share on the date of grant. The specific terms will be set forth in an award agreement.

Restricted stock. Restricted stock may be granted under our 2018 Plan. Restricted stock awards are grants of shares of our common stock that are subject to various restrictions, including restrictions on transferability and forfeiture provisions. Shares of restricted stock will vest and the restrictions on such shares will lapse, in accordance with terms and conditions established by the administrator. Such terms may include, among other things, vesting upon the achievement of specific performance goals determined by the administrator and/or continued service. The administrator, in its sole discretion, may accelerate the time at which any restrictions will lapse or be removed. Recipients of restricted stock awards generally will have voting and dividend rights with respect to such shares upon grant without regard to vesting, unless the administrator provides otherwise. Shares of restricted stock that do not vest for any reason will be subject to our right of repurchase or forfeited by the recipient and will revert to us. The specific terms will be set forth in an award agreement.

Restricted stock units. Restricted stock units may be granted under our 2018 Plan, and may include the right to dividend equivalents, as determined in the discretion of the administrator. Each restricted stock unit granted is a bookkeeping entry representing an amount equal to the fair market value of one share of our common stock. The administrator determines the terms and conditions of restricted stock units, including the vesting criteria, which may include achievement of specified performance criteria and/or continued service, and the form and timing of payment. The administrator, in its sole discretion, may accelerate the time at which any restrictions will lapse or be removed. The administrator determines, in its sole discretion, whether an award will be settled in stock, cash or a combination of both. The specific terms will be set forth in an award agreement.

Performance units/performance shares. Performance units and performance shares may be granted under our 2018 Plan. Performance units and performance shares are awards that will result in a payment to a participant only if performance goals established by the administrator are achieved and any other applicable vesting provisions are satisfied. The administrator will establish organizational or individual performance goals in its discretion, which, depending on the extent to which they are met, will determine the number and/or the value of performance units and performance shares to be paid out to participants. For purposes of such awards, the performance goals may be based on one or more of the following performance criteria and any adjustment(s) thereto, in each case as determined by the administrator: (i) sales or non-sales revenue; (ii) return on revenues; (iii) operating income; (iv) income or earnings including operating income; (v) income or earnings before or after taxes, interest, depreciation, and/or amortization; (vi) income or earnings from continuing operations; (vii) net income; (viii) pre-tax income or after-tax income; (ix) net income excluding amortization of intangible assets, depreciation and impairment of goodwill and intangible assets, and/or excluding charges attributable to the adoption of new accounting pronouncements; (x) raising of financing or fundraising; (xi) project financing; (xii) revenue backlog; (xiii) gross margin; (xiv) operating margin or profit margin; (xv) capital expenditures, cost targets, reductions and savings, and expense management; (xvi) return on assets (gross or net), return on investment, return on capital or invested capital, or return on stockholder equity; (xvii) cash flow, free cash flow, cash flow return on investment (discounted or otherwise), net cash provided by operations, or cash flow in excess of cost of capital; (xviii) performance warranty and/or guarantee claims; (xix) stock price or total stockholder return; (xx) earnings or book value per share (basic or diluted); (xxi) economic value created; (xxii) pre-tax profit or after-tax profit; (xxiii) strategic business criteria, consisting of one or more objectives based on meeting specified market penetration or market share, completion of strategic agreements such as licenses, funded collaborations, joint ventures, acquisitions, and the like, geographic business expansion, objective customer satisfaction or information technology goals, and/or intellectual property asset metrics; (xxiv) objective goals relating to divestitures, joint ventures, mergers, acquisitions, and similar transactions; (xxv) objective goals relating to staff management, results from staff attitude and/or opinion surveys, staff satisfaction scores, staff safety, staff accident and/or injury rates,

compliance headcount, performance management, and completion of critical staff training initiatives; (xxvi) objective goals relating to projects, including project completion timing and/or achievement of milestones, project budget, and technical progress against work plans; (xxvii) key regulatory objectives or milestones; and (xxviii) enterprise resource planning. However, awards issued to participants may take into account other factors (including subjective factors). In addition, performance goals may differ from participant to participant, performance period to performance period, and from award to award. Any criteria used may be measured, as applicable, (i) in absolute terms, (ii) in relative terms (including, but not limited to, any increase (or decrease) over the passage of time and/or any measurement against other companies or financial or business or stock index metrics particular to us), (iii) on a per share and/or share per capita basis, (iv) against our performance as a whole or against any of our affiliate(s), or a particular segment(s), a business unit(s) or a product(s) of ours or individual project company, (v) on a pre-tax or after-tax basis, and/or (vi) using an actual foreign exchange rate or on a foreign exchange neutral basis. After the grant of a performance unit or performance share, the administrator, in its sole discretion, may reduce or waive any performance objectives or other vesting provisions for such performance units or performance shares. Performance units shall have an initial dollar value established by the administrator prior to the grant date. Performance shares shall have an initial value equal to the fair market value of our common stock on the grant date. The administrator, in its sole discretion, may pay earned performance units or performance shares in the form of cash, in shares, or in some combination thereof.

Non-transferability of awards. Unless the administrator provides otherwise, our 2018 Plan generally does not allow for the transfer of awards and only the recipient of an option or stock appreciation right may exercise such an award during his or her lifetime.

Certain adjustments. In the event of certain corporate events or changes in our capitalization, to prevent diminution or enlargement of the benefits or potential benefits available under the 2018 Plan, the administrator will make adjustments to one or more of the number, kind and class of securities that may be delivered under the 2018 Plan and/or the number, kind, class and price of securities covered by each outstanding award.

Liquidation or dissolution. In the event of our proposed winding up, liquidation or dissolution, the administrator will notify participants as soon as practicable and all awards will terminate immediately prior to the consummation of such proposed transaction.

Corporate transaction. Our 2018 Plan provides that in the event of certain significant corporate transactions, including: (1) a transfer of all or substantially all of our assets, (2) a merger, consolidation or other capital, reorganization or business combination transaction of the Company with or into another corporation, entity or person, or (3) the consummation of a transaction, or series of related transactions, in which any person becomes the beneficial owner, directly or indirectly, of more than 50% of the Company's then outstanding capital stock, each outstanding award will be treated as the administrator determines. Such determination may provide that such awards will be (i) continued if we are the surviving corporation, (ii) assumed by the surviving corporation or its parent, (iii) substituted by the surviving corporation or its parent for a new award, (iv) canceled in exchange for a payment equal to the excess of the fair market value of our shares subject to such award over the exercise price or purchase price paid for such shares, or if such award is "underwater" canceled for no consideration, if any, or (v) in the case of options, accelerated prior to the consummation of the corporate transaction and cancelled for no consideration if not exercised.

Change of control. The administrator may provide, in an individual award agreement or in any other written agreement between a participant and us that the stock award will be subject to additional acceleration of vesting and exercisability in the event of a change of control. Under the 2018 Plan, a "change of control" is generally (1) a merger, consolidation, or any other corporate reorganization in which our stockholders

immediately before the transaction do not own, directly or indirectly, more than a majority of the combined voting power of the surviving entity (or the parent of the surviving entity), (2) the consummation of the sale, transfer or other disposition of all or substantially all of our assets, (3) an unapproved change in the majority of the board of directors, and (4) the acquisition by any person or company of more than 50% of the total voting power of our then outstanding stock.

Clawback/recovery. Stock awards granted under the 2018 Plan will be subject to recoupment in accordance with any clawback policy we may be required to adopt pursuant to applicable law and listing requirements. In addition, the administrator may impose such other clawback, recovery or recoupment provisions in any stock award agreement as it determines necessary or appropriate.

Amendment or termination. Our board of directors has the authority to amend, suspend or terminate the 2018 Plan provided such action does not impair the existing rights of any participant. Our 2018 Plan will automatically terminate in 2028, unless we terminate it sooner. We will obtain stockholder approval of any amendment to our 2018 Plan as required by applicable law or listing requirements.

2013 stock plan

General. Our board of directors adopted, and our stockholders approved, our 2013 Stock Plan, or the 2013 Plan, on February 4, 2013. The 2013 Plan was last amended on June 1, 2017. Our 2013 Stock Plan, or 2013 Plan, will be terminated effective immediately prior to the effectiveness of the registration statement of which this prospectus forms a part, and no new awards will be granted under our 2013 Plan following this offering, but previously granted awards will continue to be subject to the terms and conditions of the 2013 Plan and the stock award agreements pursuant to which such awards were granted.

Share reserve. Under our 2013 Plan, we have reserved for issuance an aggregate of 34,306,102 shares. In general, if an award granted under our 2013 Plan is canceled or terminated or otherwise forfeited by a participant, then the number of shares underlying such award will again become available for awards under the 2013 Plan. Following the effectiveness of our 2018 Plan, such shares will again become available for awards under the 2018 Plan.

Plan administration. Our board of directors has administered the 2013 Plan before this offering. Our board of directors has delegated its authority to administer the 2013 Plan to our compensation committee following this offering.

Eligibility. Employees, members of our board of directors who are not employees and consultants are eligible to participate in our 2013 Plan.

Types of award. Our 2013 Plan provides for incentive and nonstatutory stock options to purchase shares of our common stock and restricted stock awards.

Stock options. The administrator may grant incentive and/or non-statutory stock options under our 2013 Plan, provided that incentive stock options are only granted to employees. The exercise price of such options must generally be equal to at least the fair market value of our common stock on the date of grant except for certain grants made to certain foreign employees. The term of an option must not exceed 10 years; provided, however, that an incentive stock option held by a participant who owns more than 10% of the total combined voting power of all classes of our stock, or of certain of our subsidiary corporations, must not have a term in excess of 5 years and must have an exercise price of at least 110% of the fair market value of our common stock on the grant date. The administrator determines the methods of payment of the exercise price of an option. In addition, the administrator determines the vesting schedule applicable to options, together with any vesting acceleration, and the terms of the option agreements for use under our 2013 Plan. After the termination of

service of an employee, director or consultant, the participant may exercise his or her option, to the extent vested, for the period of time stated in his or her option agreement. Generally, if termination is due to death or disability, the option will remain exercisable for 12 months. In the event of a termination for cause, options generally terminate immediately upon the termination of the participant for cause. In all other cases, the option will generally remain exercisable for 3 months following the termination of service. However, in no event may an option be exercised later than the expiration of its term.

Restricted stock. Restricted stock may be granted under our 2013 Plan. Restricted stock awards are grants of shares of our common stock that are subject to various restrictions, including restrictions on transferability and forfeiture provisions. Shares of restricted stock will vest and the restrictions on such shares will lapse, in accordance with terms and conditions established by the administrator. The administrator, in its sole discretion, may accelerate the time at which any restrictions will lapse or be removed. Recipients of restricted stock awards generally will have the same rights as other shareholders with respect to such shares upon grant without regard to vesting, subject to any applicable agreements. Shares of restricted stock that do not vest for any reason will be subject to our right of repurchase or forfeited by the recipient and will revert to us. The specific terms will be set forth in an award agreement.

Non-transferability of awards. Unless the administrator provides otherwise, our 2013 Plan generally does not allow for the transfer of awards and only the recipient of an option or stock appreciation right may exercise such an award during his or her lifetime.

Certain adjustments. In the event of certain corporate events or changes in our capitalization, to prevent diminution or enlargement of the benefits or potential benefits available under the 2013 Plan, the administrator will make adjustments to one or more of the number, kind and class of securities that may be delivered under the 2013 Plan and/or the number, kind, class and price of securities covered by each outstanding award.

Liquidation or dissolution. In the event of our proposed winding up, liquidation or dissolution, all awards will terminate immediately prior to the consummation of such proposed transaction.

Corporate transaction. Our 2013 Plan provides that in the event of certain significant corporate transactions, including: (1) a transfer of all or substantially all of our assets, (2) a merger, consolidation or other capital, reorganization or business combination transaction of the Company with or into another corporation, entity or person, or (3) the consummation of a transaction, or series of related transactions, in which any person becomes the beneficial owner, directly or indirectly, of more than 50% of the Company's then outstanding capital stock, each outstanding award will be treated as the administrator determines. Such determination may provide that such awards will be (i) continued if we are the surviving corporation, (ii) assumed by the surviving corporation or its parent, (iii) substituted by the surviving corporation or its parent for a new award, (iv) canceled in exchange for a payment equal to the excess of the fair market value of our shares subject to such award over the exercise price or purchase price paid for such shares, or if such award is "underwater" canceled for no consideration, if any, or (v) in the case of options, accelerated prior to the consummation of the corporate transaction and cancelled for no consideration if not exercised.

Amendment or termination. Our board of directors may amend or terminate the 2013 Plan at any time. If our board of directors amends a plan, it does not need to ask for stockholder approval of the amendment unless such amendment increases the number of shares available for issuance under the 2013 Plan or as otherwise required by applicable law. No further awards will be made under our 2013 Plan after this offering.

Employee stock purchase plan

General. Our Employee Stock Purchase Plan, or ESPP, was adopted by our board of directors on and approved by our stockholders on . Our ESPP will become effective on the day immediately prior to the

date that the registration statement of which this prospectus forms a part becomes effective. The ESPP is intended to qualify as an "employee stock purchase plan" within the meaning of Section 423 of the Code for U.S. employees. In addition, the ESPP authorizes grants of purchase rights that do not comply with Section 423 of the Code under a separate non-423 component.

Share reserve. We have reserved shares of our common stock for issuance under the ESPP. The number of shares reserved for issuance under the ESPP will be increased automatically on the first day of each fiscal year for a period of up to ten years, starting with the fiscal year following the year in which the ESPP becomes effective, by a number equal to the least of:

- shares;
- % of the shares of common stock outstanding at that time; or
- such number of shares determined by our board of directors.

As of the date hereof, no shares of our common stock have been purchased under the ESPP.

Plan administration. The ESPP will be administered by our board of directors or a committee designated by our board of directors. Our board of directors has delegated its authority to administer the ESPP to our compensation committee.

Eligibility. Employees may have to satisfy one or more of the following service requirements before participating in the ESPP, as determined by the administrator, including: (1) being customarily employed for more than 20 hours per week, (2) being customarily employed for more than five months per calendar year, or (3) continuous employment with us or one of our affiliates for a period of time (not to exceed two years). No employee may purchase shares under the ESPP at a rate in excess of $25,000 worth of our common stock based on the fair market value per share of our common stock at the beginning of an offering for each year such a purchase right is outstanding. Finally, no employee will be eligible for the grant of any purchase rights under the ESPP if immediately after such rights are granted, such employee has voting power over 5% or more of our outstanding capital stock measured by vote or value under Section 424(d) of the Code.

Offerings. The ESPP is implemented through a series of offerings under which eligible employees are granted purchase rights to purchase shares of our common stock on specified dates during such offerings. Under the ESPP, we may specify offerings with durations of not more than 27 months, and may specify shorter purchase periods within each offering. Each offering will have one or more purchase dates on which shares of our common stock will be purchased for employees participating in the offering. An offering under the ESPP may be terminated under certain circumstances. The administrator will have the discretion to structure an offering so that if the fair market value of a share of our common stock on the first trading day of a new purchase period within that offering is less than or equal to the fair market value of a share of our common stock on the offering date for that offering, then that offering will terminate immediately as of that first trading day, and the participants in such terminated offering will be automatically enrolled in a new offering beginning on the first trading day of such new offering period.

Payroll deductions. Generally, all regular employees, including executive officers, employed by us or by any of our designated affiliates, may participate in the ESPP and may contribute, normally through payroll deductions, up to % of their earnings (as defined in the ESPP) for the purchase of our common stock under the ESPP. Unless otherwise determined by the administrator, common stock will be purchased for the accounts of employees participating in the ESPP at a price per share that is at least the lesser of (1) 85% of the fair market value of a share of our common stock on the first date of an offering, or (2) 85% of the fair market value of a share of our common stock on the date of purchase.

Certain adjustments. In the event that there occurs a change in our capital structure through such actions as a stock split, reverse stock split, stock dividend, combination, consolidation, recapitalization (including a

recapitalization through a large nonrecurring cash dividend) or reclassification of our common stock, subdivision of our common stock, a rights offering, a reorganization, merger, spin-off, split-up, repurchase, or exchange of our common stock or other significant corporate transaction, or other change affecting our common stock, the administrator will make appropriate adjustments to: (1) the classes) and maximum number of shares reserved under the ESPP, (2) the class(es) and maximum number of shares by which the share reserve may increase automatically each year, (3) the class(es) and number of shares and purchase price of all outstanding purchase rights, and (4) the class(es) and number of shares that are subject to purchase limits under ongoing offerings.

Dissolution or liquidation. In the event of our proposed winding up, liquidation or dissolution, any offering period then in progress will be shortened by setting a new purchase date, and will terminate immediately prior to the consummation of such proposed dissolution or liquidation, unless provided otherwise by the administrator. The administrator will notify each participant that the purchase date has been changed and that the participant's purchase right will be exercised automatically on the new purchase date unless prior to such date the participant has withdrawn from the offering period.

Corporate transactions. Our ESPP provides that in the event of certain significant corporate transactions, including: (1) a transfer of all or substantially all of our assets, (2) a merger, consolidation or other capital, reorganization or business combination transaction of the Company with or into another corporation, entity or person, or (3) the consummation of a transaction, or series of related transactions, in which any person becomes the beneficial owner, directly or indirectly, of more than 50% of the Company's then outstanding capital stock, a successor corporation may assume or substitute each outstanding purchase right. If the successor corporation refuses to assume or substitute the purchase right, the offering period then in progress will be shortened, and a new purchase date will be set. The administrator will notify each participant that the purchase date has been changed and that the participant's purchase right will be exercised automatically on the new purchase date unless prior to such date the participant has withdrawn from the offering period.

Amendment or termination. The administrator has the authority to amend, suspend or terminate our ESPP, except that, subject to certain exceptions described in our ESPP, no such action may adversely affect any outstanding rights to purchase stock under our ESPP without the holder's consent. We will obtain stockholder approval of any amendment to our ESPP as required by applicable law or listing requirements.

Executive incentive bonus plan

Our Executive Incentive Bonus Plan, or Bonus Plan, was adopted by our board of directors on . The Bonus Plan will become effective on the day immediately prior to the date that the registration statement of which this prospectus forms a part becomes effective. The purpose of the Bonus Plan is to motivate and reward eligible officers and employees for their contributions toward the achievement of certain performance goals.

Administration. The Bonus Plan will be administered by the compensation committee, which shall have the discretionary authority to interpret the provisions of the Bonus Plan, including all decisions on eligibility to participate, the establishment of performance goals, the amount of awards payable under the plan, and the payment of awards. The compensation committee, in its sole discretion and on such terms and conditions as it may provide, may delegate all or part of its authority and powers under the Bonus Plan to one or more directors and/or officers of the Company.

Eligibility. Officers and other key employees of the Company designated by the compensation committee to participate in the Bonus Plan will be eligible to participate in this Bonus Plan, provided the compensation committee has not, in its sole discretion, withdrawn such designation and he or she meets the following conditions: (a) is a full-time regular employee of the Company as of the last day of the applicable performance

period; and (b) is not subject to disciplinary action, is in good standing with the Company and is not subject to a performance improvement plan.

Performance criteria. Commencing with fiscal 2019, we expect the compensation committee to establish cash bonus targets and corporate performance metrics for a specific performance period pursuant to the Bonus Plan. Corporate performance goals may be based on one or more of the following criteria, as determined by our compensation committee and any adjustments thereto established by the compensation committee: (i) sales or non-sales revenue; (ii) return on revenues; (iii) operating income; (iv) income or earnings including operating income; (v) income or earnings before or after taxes, interest, depreciation, and/or amortization; (vi) income or earnings from continuing operations; (vii) net income; (viii) pre-tax income or after-tax income; (ix) net income excluding amortization of intangible assets, depreciation, and impairment of goodwill and intangible assets and/or excluding charges attributable to the adoption of new accounting pronouncements; (x) raising of financing or fundraising; (xi) project financing; (xii) revenue backlog; (xiii) gross margin; (xiv) operating margin or profit margin; (xv) capital expenditures, cost targets, reductions, and savings and expense management; (xvi) return on assets (gross or net), return on investment, return on capital or invested capital, or return on stockholder equity; (xvii) cash flow, free cash flow, cash flow return on investment (discounted or otherwise), net cash provided by operations, or cash flow in excess of cost of capital; (xviii) performance warranty and/or guarantee claims; (xix) stock price or total stockholder return; (xx) earnings or book value per share (basic or diluted); (xxi) economic value created; (xxii) pre-tax profit or after-tax profit; (xxiii) strategic business criteria, consisting of one or more objectives based on meeting specified market penetration or market share, completion of strategic agreements such as licenses, funded collaborations, joint ventures acquisitions, and the like, geographic business expansion, objective customer satisfaction or information technology goals, or intellectual property asset metrics; (xxiv) objective goals relating to divestitures, joint ventures, mergers, acquisitions, and similar transactions; (xxv) objective goals relating to staff management, results from staff attitude and/or opinion surveys, staff satisfaction scores, staff safety, staff accident and/or injury rates, compliance, headcount, performance management, or completion of critical staff training initiatives; (xxvi) objective goals relating to projects, including project completion, timing and/or achievement of milestones, project budget, or technical progress against work plans; (xxvii) key regulatory objectives or milestones; and (xxviii) enterprise resource planning.

However, awards issued to participants may take into account other factors (including subjective factors). Performance goals may differ from participant to participant, performance period to performance period, and from award to award. Any criteria used may be measured, as applicable, (i) in absolute terms, (ii) in relative terms (including, but not limited to, any increase (or decrease) over the passage of time and/or any measurement against other companies or financial or business or stock index metrics particular to us), (iii) on a per share and/or share per capita basis, (iv) against our performance as a whole or against any of our affiliate(s), or a particular segment(s), a business unit(s) or a product(s) of ours or individual project company, (v) on a pre-tax or after-tax basis, and/or (vi) using an actual foreign exchange rate or on a foreign exchange neutral basis.

Service requirement. Unless otherwise determined by the compensation committee, a participant must be actively employed and in good standing with the Company on the date the award is paid. The compensation committee may make exceptions to this requirement in the case of retirement, death or disability, an unqualified leave of absence or under other circumstances, as determined by the compensation committee in its sole discretion.

Amendment or termination. The compensation committee may terminate the Bonus Plan at any time, provided such termination shall not affect the payment of any awards accrued under the Bonus Plan prior to the date of the termination. The compensation committee may, at any time, or from time to time, amend or suspend and, if suspended, reinstate, the Bonus Plan in whole or in part.

Perquisites, health, welfare and retirement benefits

Our named executive officers are eligible to participate in our employee benefit plans, including our medical, dental, vision, group life, disability and accidental death and dismemberment insurance plans, in each case on the same basis as all of our other employees, except that beginning in fiscal 2018, our named executive officers along with certain other key employees will be eligible to participate in a supplemental disability plan for which we will pay premiums. We provide a 401(k) plan to our employees, including our current named executive officers, as discussed in the section below entitled "—401(k) Plan."

We generally do not provide perquisites or personal benefits to our named executive officers, except in limited circumstances.

401(k) plan

We maintain a tax-qualified retirement plan (401(k) plan) that provides eligible employees with an opportunity to save for retirement on a tax advantaged basis. Eligible employees are able to defer eligible compensation subject to applicable annual Code limits. Employees are immediately and fully vested in their contributions. The 401(k) plan permits us to make matching contributions and profit sharing contributions to eligible participants, although we have not made any such contributions to date. We intend for our 401(k) plan to qualify under Sections 401(a) and 501(a) of the Code so that contributions by employees to the 401(k) plan, and earnings on those contributions, are not taxable to employees until withdrawn from the 401(k) plan.

Pension benefits

None of our named executive officers participate in or have an account balance in any qualified or non-qualified defined benefit plan sponsored by us.

Nonqualified deferred compensation

We have not offered any nonqualified deferred compensation plans or arrangements or entered into any such arrangements with any of our named executive officers

Rule 10b5-1 sales plans

We expect that some of our executive officers will enter into stock selling plans in accordance with Rule 10b5-1 of the Securities Exchange Act of 1934, as amended, and our insider trading policy prior to the closing of this offering.

Certain relationships and related party transactions

In addition to the compensation arrangements, including employment, termination of employment and change in control arrangements, and indemnification arrangements, discussed, when required, in the sections titled “Management” and “Executive compensation” and the registration rights described in the section titled “Description of capital stock—Registration rights,” the following is a description of each transaction since October 1, 2014 and each currently proposed transaction in which:

- we have been or are to be a participant;
- the amount involved exceeded or will exceed $120,000; and
- any of our directors, executive officers, or holders of more than 5% of any class of our voting securities, or any immediate family member of, or person sharing the household with, any of these persons, had or will have a direct or indirect material interest.

Equity financings

Series A convertible preferred stock financing

In three closings between July 2013 and January 2014, we sold an aggregate of 27,898,391 shares of our Series A convertible preferred stock at a purchase price of $0.3290 per share and upon conversion of certain convertible promissory notes with an aggregate conversion amount of approximately $610,000, for an aggregate purchase price of approximately $9.1 million. Each share of our Series A convertible preferred stock will convert automatically into one share of our common stock immediately prior to the completion of our initial public offering.

The following table summarizes the Series A convertible preferred stock purchased by our directors, executive officers and beneficial holders of more than 5% of our capital stock. The terms of these purchases, notwithstanding the conversion terms of the convertible promissory notes, were the same for all purchasers of our Series A convertible preferred stock.

Name of stockholder*	Shares of series A convertible preferred stock	Total purchase price (cash)	Total purchase price (conversion of indebtedness)
Entities affiliated with ARCH Venture Partners VII, LLC(1)	11,709,369	$3,399,999.83	$ 407,144.31
Illumina, Inc.(2)	5,368,361	$1,539,999.65	$ 203,572.01
Entities affiliated with Paladin Capital Group(3)	4,133,737	$1,359,999.48	$ 0.00

* Owners of more than 5% of our common stock

(1) Keith Crandell, a member of our board of directors, is a managing director at ARCH Venture Partners VII, LLC. Consists of shares held by ARCH Venture Fund VII, LLP.

(2) Robert Ragusa, an affiliate of Illumina, Inc., is a member of our board of directors.

(3) Paul Conley, a member of our board of directors, is a partner and managing director of Paladin Capital Group. Consists of shares held by Paladin III (CA), LP, Paladin III (Cayman Islands) LP, Paladin III (HR), LP, Paladin III (NY City), LP, Paladin III Co-Investment, LLC and Paladin III, LP.

Series B convertible preferred stock financing

In May 2014, we sold an aggregate of 32,828,281 shares of our Series B convertible preferred stock at a purchase price of $0.7920 per share for an aggregate purchase price of approximately $26 million. Each share of our Series B convertible preferred stock will convert automatically into one share of our common stock immediately prior to the completion of our initial public offering.

The following table summarizes the Series B convertible preferred stock purchased by our directors, executive officers and beneficial holders of more than 5% of our capital stock. The terms of these purchases were the same for all purchasers of our Series B convertible preferred stock.

Name of Stockholder*	Shares of series B convertible preferred stock	Total purchase price
Entities affiliated with ARCH Venture Partners VII, LLC(1)	7,111,643	$ 5,632,421.26
Illumina, Inc.(2)	3,260,455	$ 2,582,280.36
Entities affiliated with Paladin Capital Group(3)	4,134,841	$ 3,274,794.07
Tao Invest LLC(4)	9,532,828	$ 7,549,999.78

* Owners of more than 5% of our common stock

(1) Keith Crandell, a member of our board of directors, is a managing director at ARCH Venture Partners VII, LLC. Consists of shares held by ARCH Venture Fund VII, LLP.

(2) Robert Ragusa, an affiliate of Illumina, Inc., is a member of our board of directors.

(3) Paul Conley, a member of our board of directors, is a partner and managing director of Paladin Capital Group. Consists of shares held by Paladin III (CA), LP, Paladin III (Cayman Islands) LP, Paladin III (HR), LP, Paladin III (NY City), LP, Paladin III Co-Investment, LLC and Paladin III, LP.

(4) Frederick Craves, an appointee to the Board by Tao Invest LLC is a member of our board of directors.

Series C convertible preferred stock financing

In May 2015, we sold an aggregate of 24,668,310 shares of our Series C convertible preferred stock at a purchase price of $1.4999 per share for an aggregate purchase price of approximately $37 million. Each share of our Series C convertible preferred stock will convert automatically into one share of our common stock immediately prior to the completion of our initial public offering.

The following table summarizes the Series C convertible preferred stock purchased by our directors, executive officers and beneficial holders of more than 5% of our capital stock. The terms of these purchases were the same for all purchasers of our Series C convertible preferred stock.

Name of Stockholder*	Shares of series C convertible preferred stock	Total purchase price
Entities affiliated with ARCH Venture Partners VII, LLC(1)	2,641,354	$ 3,961,766.86
Illumina, Inc.(2)	6,667,111	$ 9,999,999.79
Entities affiliated with Paladin Capital Group(3)	1,160,419	$ 1,740,512.46
Entities affiliated with Fidelity Select Portfolios(4)	10,000,666	$ 14,999,998.94
Tao Invest LLC(5)	1,337,843	$ 2,006,630.72

* Owners of more than 5% of our common stock

(1) Keith Crandell, a member of our board of directors, is a managing director at ARCH Venture Partners VII, LLC. Consists of shares held by ARCH Venture Fund VII, LLP.

(2) Robert Ragusa, an affiliate of Illumina, Inc., is a member of our board of directors.

(3) Paul Conley, a member of our board of directors, is a partner and managing director of Paladin Capital Group. Consists of shares held by Paladin III (CA), LP, Paladin III (Cayman Islands) LP, Paladin III (HR), LP, Paladin III (NY City), LP, Paladin III Co-Investment, LLC and Paladin III, LP.

(4) Consists of shares held by Fidelity Advisor Series VII: Fidelity Advisor Biotechnology Fund and Fidelity Select Portfolios: Biotechnology Portfolio.

(5) Frederick Craves, an appointee to our board by Tao Invest LLC is a member of our board of directors.

Series D convertible preferred stock financing

In multiple closings between January 2016 and December 2017, we sold an aggregate of 64,026,689 shares of our Series D convertible preferred stock at a purchase price of $2.1457 per share for an aggregate purchase price of approximately $137.4 million. Each share of our Series D convertible preferred stock will convert automatically into one share of our common stock immediately prior to the completion of our initial public offering.

The following table summarizes the Series D convertible preferred stock purchased by our directors, executive officers and beneficial holders of more than 5% of our capital stock. The terms of these purchases were the same for all purchasers of our Series D convertible preferred stock.

Name of stockholder*	Shares of series D convertible preferred stock	Total purchase price
Entities affiliated with ARCH Venture Partners VII, LLC(1)	11,077,949	$ 23,769,955.17
Illumina, Inc.(2)	1,556,590	$ 3,339,975.16
Entities affiliated with Paladin Capital Group(3)	1,405,825	$ 3,016,478.70
Entities affiliated with Fidelity Select Portfolios(4)	2,429,930	$ 5,213,900.80
Tao Invest LLC(5)	2,086,725	$ 4,477,485.83

* Owners of more than 5% of our common stock

(1) Keith Crandell, a member of our board of directors, is a managing director at ARCH Venture Partners VII, LLC. Consists of shares held by ARCH Venture Fund VII, LLP and ARCH Venture Fund VII Overage, L.P.

(2) Robert Ragusa, an affiliate of Illumina, Inc., is a member of our board of directors.

(3) Paul Conley, a member of our board of directors, is a partner and managing director of Paladin Capital Group. Consists of shares held by Paladin III (CA), LP, Paladin III (Cayman Islands) LP, Paladin III (HR), LP, Paladin III (NY City), LP, Paladin III Co-Investment, LLC and Paladin III, LP.

(4) Consists of shares held by Fidelity Advisor Series VII: Fidelity Advisor Biotechnology Fund and Fidelity Select Portfolios: Biotechnology Portfolio.

(5) Frederick Craves, an appointee to our board by Tao Invest LLC is a member of our board of directors.

Indemnification agreements and directors' and officers' liability insurance

We have entered into or intend to enter into indemnification agreements with each of our directors and executive officers. The indemnification agreements and our certificate of incorporation and bylaws require us to indemnify our directors and officers to the fullest extent permitted by Delaware law, including indemnification of expenses such as attorneys' fees, judgments, penalties fines and settlement amounts incurred by the director or executive officer in any action or proceeding, including any action or proceeding by or in right of us, arising out of the person's services as a director or executive officer. We have obtained an insurance policy that insures our directors and officers against certain liabilities, including liabilities arising under applicable securities laws. For more information regarding these indemnification agreements, see "Executive compensation—Limitation of liability and indemnification of directors and officers."

Registration rights agreement

In January 2016, we entered into an amended and restated registration rights agreement, as amended in March 2017, with certain holders of our convertible preferred stock, including entities affiliated with Arch Venture Partners, Fidelity Advisor, Illumina, Inc., Paladin Holdings, and Tao Invest LLC, which each hold more than 5% of our capital stock and some of which certain of our directors are affiliated. Pursuant to the amended and restated registration rights agreement, these holders are entitled to rights with respect to the registration of their shares following this offering under the Securities Act. For a more detailed description of these registration rights, see "Description of capital stock—Registration rights."

Stockholders agreement

In January 2016, we entered into an amended and restated stockholders agreement, as amended in March 2017, under which certain holders of our capital stock, including entities with which certain of our directors are affiliated, have agreed to vote their shares on certain matters, including with respect to the election of directors. This agreement grants certain of our investors the right of co-sale with respect to proposed transfers of our securities by certain stockholders. This agreement will terminate upon the completion of this offering and thereafter none of our stockholders will have any special rights regarding the election or designation of members of our board of directors, co-sale or the voting of our capital stock.

Other transactions

We have granted stock options and other equity awards to our executive officers and certain of our directors. For a description of these options and equity awards, see “Executive Compensation—Outstanding equity awards as of September 30” and “Management—Non-employee director compensation Table.”

We have entered into certain employment arrangements or agreements with some of our executive officers that provide for severance and change in control benefits. We intend to amend such agreements in connection with the completion of this offering and we will disclose the terms of such agreements once finalized. For a description of the current employment arrangements, see “Executive compensation—Executive employment arrangements.”

On November 10, 2017, we entered into a separation and release agreement with Solange Glaize in connection with her resignation as our Chief Financial Officer on October 23, 2017. Pursuant to the terms of her separation and release agreement, she received approximately $160,000 in severance benefits, which consisted of cash severance and reimbursements for COBRA premiums and legal fees.

We purchase certain reagents and equipment from Illumina, Inc., a company that owns more than five percent of our outstanding capital stock and where Robert Ragusa, one of our board members, serves as the Senior Vice President, Global Quality and Operations Purchases from Illumina, Inc. amounted to $1 million and $2 million for the years ended September 30, 2016 and 2017, respectively. We do not currently have an agreement with Illumina, Inc., for the purchase of reagents but we acquire them on a purchase order basis. We believe that the prices we pay to Illumina, Inc. for reagents and equipment are comparable to prices available from third parties selling similar reagents and equipment of similar quality.

Policies and procedures for related party transactions

Our audit committee charter will be effective when we complete this offering. The charter states that our audit committee is responsible for reviewing and approving in advance any related party transaction. Our board of directors intends to adopt a written related person transaction policy to set forth the policies and procedures for the review and approval or ratification of related person transactions by the audit committee. Pursuant to the policy, all of our directors, officers and employees will be required to report to the audit committee prior to entering into any transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships in which we are to be a participant, the amount involved exceeds $120,000 and a related person had or will have a direct or indirect material interest, including purchases of goods or services by or from the related person or entities in which the related person has a material interest, indebtedness, guarantees of indebtedness and employment by us of a related person.

We believe that we have executed all of the transactions set forth under the section entitled “Certain Relationships and Related Party Transactions” on terms no less favorable to us than we could have obtained from unaffiliated third parties. It is our intention to ensure that all future transactions between us and our officers, directors and principal stockholders and their affiliates, are approved by the audit committee of our board of directors, and are on terms no less favorable to us than those that we could obtain from unaffiliated third parties.

Principal stockholders

The following table and footnotes set forth information with respect to the beneficial ownership of our common stock as of December 31, 2017, subject to certain assumptions set forth in the footnote and as adjusted to reflect the sale of the shares of common stock offered in the public offering under this prospectus for:

- each holder of 5% of more of the outstanding shares of our common stock;
- each of our named executive officers;
- each of our directors; and
- all of our executive officers and directors as a group.

In accordance with SEC rules, each listed person's beneficial ownership includes:

- all shares the investor actually owns beneficially or of record;
- all shares over which the investor has or shares voting or dispositive control (such as in the capacity as a general partner of an investment fund); and
- all shares the investor has the right to acquire beneficial ownership of within 60 days after December 31, 2017.

Our calculation of the percentage of beneficial ownership prior to this offering is based on 181,231,466 shares of common stock outstanding as of December 31, 2017, assuming the automatic conversion of all outstanding shares of our convertible preferred stock on a one-for-one basis into 149,421,671 shares of common stock and shares outstanding after completion of this offering. The percentage ownership information assumes no exercise of the underwriters' option to purchase additional shares. Shares of common stock that a person has the right to acquire within 60 days after December 31, 2017 are deemed outstanding for purposes of computing the percentage ownership of the person holding such rights, but are not deemed outstanding for purposes of computing the percentage ownership of any other person, except with respect to the percentage ownership of all directors and executive officers as a group.

Unless otherwise indicated, we believe, based on the information furnished to us, that the persons named in the table below have sole voting and investment power with respect to all securities that they beneficially own, subject to community property laws where applicable. Unless otherwise noted below, the business address of the stockholders listed below is the address of our principal executive office, 455 Mission Bay Boulevard South. Suite 545, San Francisco, CA 94158.

Name of beneficial owner	Shares beneficially owned prior to the offering: Common stock	Options exercisable within 60 days	Aggregate number of shares beneficially owned	%	Shares beneficially owned after the offering: Aggregate number of shares beneficially owned	%
5% or more stockholders:						
Entities affiliated with ARCH Venture Partners(1)	32,540,315	0	32,540,315	17.96%		
Illumina, Inc.(2)	16,852,517	0	16,852,517	9.30%		
Tao Invest LLC(3)	12,957,396	0	12,957,396	7.15%		
Entities affiliated with Fidelity Select Portfolios(4)	12,430,596	0	12,430,596	6.86%		
Entities affiliated with Paladin Capital Group(5)	10,834,822	0	10,834,822	5.98%		
Named executive officers and directors:						
Emily M. Leproust(6)	7,013,171	853,510	7,866,681	4.32%		
William Banyai(7)	7,013,171	776,000	7,789,171	4.28%		
Robert Chess(8)	691,315	7,034	698,349	*		
Frederick B. Craves(3)(9)	13,618,518	0	13,618,518	7.51%		
Paul A. Conley(5)	10,834,822	0	10,834,822	5.98%		
Keith Crandell(1)(11)	32,540,315	0	32,540,315	17.96%		
Robert Ragusa(2)	16,852,517	0	16,852,517	9.30%		
Patrick Weiss(10)	539,877	412,500	952,377	*		
All directors and executive officers as a group(12) (13 persons)	96,116,877	3,579,593	99,696,470	53.95%		

* Represents beneficial ownership of less than one percent of the outstanding shares of our common stock.

(1) Consists of (i) 23,687,378 shares held of record by Arch Venture Fund VII, L.P. and (ii) 8,852,937 shares held of record by Arch Venture Fund VII Overage, L.P. ARCH Venture Partners VII, L.P., or the GPLP, as the sole general partner of ARCH VII, may be deemed to beneficially own certain of the shares held of record by ARCH VII. The GPLP disclaims beneficial ownership of all shares held of record by ARCH VII in which the GPLP does not have an actual pecuniary interest. ARCH Venture Partners VII, LLC, or the GPLLC, as the sole general partner of the GPLP, may be deemed to beneficially own certain of the shares held of record by ARCH VII. The GPLLC disclaims beneficial ownership of all shares held of record by ARCH VII in which it does not have an actual pecuniary interest. Keith Crandell, Clinton Bybee and Robert Nelsen are the managing directors of the GPLLC, and may be deemed to beneficially own certain of the shares held of record by ARCH VII. The managing directors disclaim beneficial ownership of all shares held of record by ARCH VII in which they do not have an actual pecuniary interest. GPLLC as the sole general partner of ARCH VIII Overage, may be deemed to beneficially own certain of the shares held of record by ARCH VIII Overage. The GPLLC disclaims beneficial ownership of all shares held of record by ARCH VIII Overage in which it does not have an actual pecuniary interest. Keith Crandell, Clinton Bybee and Robert Nelsen are the managing directors of the GPLLC, and may be deemed to beneficially own certain of the shares held of record by ARCH VIII Overage. The managing directors disclaim beneficial ownership of all shares held of record by ARCH VII in which they do not have an actual pecuniary interest. The address for each of the entities identified in this footnote is 1700 Owens Street # 535, San Francisco, CA 94158.

(2) Consists of 16,852,517 shares held of record by Illumina, Inc. Mr. Robert Ragusa is Senior Vice President, Global Quality and Operations of Illumina, Inc., and may be deemed to beneficially own the shares held of record by Illumina, Inc. Mr. Ragusa disclaims beneficial ownership of all shares held of record by Illumina, Inc. in which he does not have a pecuniary interest. The address of Illumina, Inc. is 25861 Industrial Boulevard, Hayward, CA 94545.

(3) Mr. Craves is an appointee of Tao Invest LLC to our board, and may be deemed to beneficially own the shares held of record by Tao Invest LLC. Mr. Craves disclaims beneficial ownership of all shares held of record by Tao Invest LLC in which he does not have a pecuniary interest. The address of Tao Invest LLC is 1 Letterman Drive, San Francisco, CA 94129.

(4) These accounts are managed by direct or indirect subsidiaries of FMR LLC. Edward C. Johnson 3d is a Director and the Chairman of FMR LLC and Abigail P. Johnson is a Director, the Vice Chairman and the President of FMR LLC. Members of the family of Edward C. Johnson 3d, including Abigail P. Johnson, are the predominant owners, directly or through trusts, of Series B voting common shares of FMR LLC, representing 49% of the voting power of FMR LLC. The Johnson family group and all other Series B shareholders have entered into a shareholders' voting agreement

under which all Series B voting common shares will be voted in accordance with the majority vote of Series B voting common shares. Accordingly, through their ownership of voting common shares and the execution of the shareholders' voting agreement, members of the Johnson family may be deemed, under the Investment Company Act of 1940, to form a controlling group with respect to FMR LLC. Neither FMR LLC nor Edward C. Johnson 3d nor Abigail P. Johnson has the sole power to vote or direct the voting of the shares owned directly by the various investment companies registered under the Investment Company Act, or Fidelity Funds, advised by Fidelity Management & Research Company, or FMR Co, a wholly owned subsidiary of FMR LLC, which power resides with the Fidelity Funds' Boards of Trustees. Fidelity Management & Research Company carries out the voting of the shares under written guidelines established by the Fidelity Funds' Boards of Trustees. Consists of (i) 2,320,378 shares held of record by Fidelity Advisor Series VII: Fidelity Advisor Biotechnology Fund and (ii) 10,110,218 shares held of record by Fidelity Select Portfolios: Biotechnology Portfolio. The address for each of the entities identified in this footnote is 525 Washington Boulevard, New Jersey, NJ 07310.

(5) Consists of (i) 988,543 shares held of record by Paladin III (CA), LP, (ii) 1,990,272 shares held of record by Paladin III (Cayman Islands), LP, (iii) 988,543 shares held of record by Paladin III (HR), LP, (iv) 2,897,892 shares held of record by Paladin III (NY City), LP, (v) 536,026 shares held of records by Paladin III Co-Investment, LLC and (vi) 3,433,546 shares held of record by Paladin III, LP. Paladin Capital Group III, LLC is the general partner of Paladin III, L.P., Paladin III (NY City), L.P., Paladin III (HR), L.P., Paladin III (CA), L.P. and Managing Member Paladin III Co-Investment, LLC. Paul Conley is a partner and managing director of Paladin Capital Management, LLC which is the manager of the Paladin Funds (defined below). As the general partner of Paladin III, L.P., Paladin III (NY City), L.P., Paladin III (HR), L.P., Paladin III (CA), L.P. and Paladin III Co-Investment, LLC, or the Paladin Funds, Paladin Capital Group III, LLC, may be deemed to beneficially own certain shares held of record by the Paladin Funds. Paladin Capital Group III, LLC disclaims beneficial ownership of all shares held of record by the Paladin Funds in which it does not have an actual pecuniary interest. Paul Conley disclaims beneficial ownership of all shares held of record by the Paladin Funds, Paladin Capital Management, LLC and Paladin Capital Group III, LLC in which he does not have an actual pecuniary interest. The address for each of the entities identified in this footnote is c/o Paladin Capital Management, LLC, 2020 K Street, NW - Suite 620, Washington, DC 20006.

(6) Consists of (i) 7,013,171 shares of common stock and (ii) 853,510 shares subject to stock options issuable upon the exercise of options exercisable within 60 days after December 31, 2017.

(7) Consists of (i) 7,013,171 shares of common stock and (ii) 776,000 shares subject to stock options issuable upon the exercise of options exercisable within 60 days after December 31, 2017.

(8) Consists of (i) 691,315 shares of common stock and (ii) 7,034 shares subject to stock options issuable upon the exercise of options exercisable within 60 days after December 31, 2017.

(9) Consists of (i) 661,122 shares held of record by The Craves Family Foundation and (ii) the shares described in note 3 above. Mr. Craves may be deemed to hold sole voting and dispositive power with respect to the shares held by The Craves Family Foundation. Mr. Craves' address is 750 Battery Street, Suite 400, San Francisco, CA 94111.

(10) Consists of (i) 539,877 shares of common stock and (ii) 412,500 shares subject to stock options issuable upon the exercise of stock options exercisable within 60 days after December 31, 2017.

(11) Consists of the shares described in note 1 above. Mr. Crandell is a managing director of GPLLC, which is the sole general partner of GPLP, which is the sole general partner of ARCH VII and ARCH VIII Overage, and as such may be deemed to beneficially own such shares. Mr. Crandell disclaims beneficial ownership of such shares except to the extent of any pecuniary interest therein.

(12) Consists of (i) 22,270,705 shares of common stock, (ii) 3,579,593 shares of common stock that may be acquired pursuant to the exercise of stock options within 60 days of December 31, 2017 and (iii) 73,846,172 shares of common stock issuable upon conversion of preferred stock.

Description of capital stock

The following is a description of the material terms of our amended and restated certificate of incorporation and amended and restated bylaws as each will be in effect as of the completion of this offering, and of specific provisions of Delaware law. The following description is intended as a summary only and is qualified in its entirety by reference to our amended and restated certificate of incorporation, our amended and restated bylaws and the Delaware General Corporation Law, or DGCL. Copies of our amended and restated certificate of incorporation and amended and restated bylaws have been filed as exhibits to the registration statement of which this prospectus is a part.

General

Immediately following the closing of this offering, our authorized capital stock will consist of shares of common stock, $0.00001 par value per share, and shares of preferred stock, $0.00001 par value per share, all of which preferred stock will be undesignated. The following information reflects the filing of our amended and restated certificate of incorporation and the conversion of all outstanding shares of our preferred stock into shares of common stock immediately prior to the closing of this offering.

Upon the closing of this offering and based on 176,612,969 shares of our common stock outstanding as of September 30, 2017, shares of our common stock will be outstanding, assuming the conversion of all outstanding shares of our convertible preferred stock into 145,138,924 shares of our common stock immediately prior to the closing of this offering. As of September 30, 2017, we had 172 stockholders of record.

Common stock

As of September 30, 2017, we had 176,612,969 shares of common stock issued and outstanding assuming the conversion of all outstanding shares of our convertible preferred stock into 145,138,924 shares of our common stock as if such conversion had occurred on September 30, 2017. The holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders. Cumulative voting for the election of directors is not provided for in our certificate of incorporation, which means the holders of a majority of our shares of common stock can elect all of the directors then standing for election. Subject to preferences that may be applicable to any outstanding convertible preferred stock, holders of common stock are entitled to receive ratably such dividends as may be declared by the board of directors out of funds legally available for that purpose. See “Dividend policy.” In the event of liquidation, dissolution or winding up of the company, the holders of our common stock are entitled to share ratably in all assets remaining after payment of liabilities, subject to the prior distribution rights of any outstanding convertible preferred stock. The common stock has no preemptive or conversion rights or other subscription rights. The outstanding shares of common stock are, and the shares of common stock to be issued upon completion of this offering will be, fully paid and non-assessable.

Preferred stock

As of September 30, 2017, there were 145,138,924 shares of convertible preferred stock outstanding, which will automatically convert, immediately prior to the completion of this offering, into 145,138,924 shares of our common stock. After the closing of this offering, the board of directors will have the authority, without further action by the stockholders, to issue up to shares of preferred stock, $0.00001 par value per share, in one or more series. The board of directors will also have the authority to designate the rights, preferences, privileges and restrictions of each such series, including dividend rights, preferences, privileges and restrictions of each such series, including dividend rights, dividend rates, conversion rights, voting rights, terms of

redemption, redemption prices, liquidation preferences, sinking fund terms and the number of shares constituting any series.

The issuance of preferred stock may have the effect of delaying, deferring or preventing a change in control of the company without further action by the stockholders. The issuance of convertible preferred stock with voting and conversion rights may also adversely affect the voting power of the holders of common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation. In certain circumstances, an issuance of preferred stock could have the effect of decreasing the market price of the common stock. As of the closing of the offering, no shares of convertible preferred stock will be outstanding. We currently have no plans to issue any shares of convertible preferred stock.

Warrants

As of September 30, 2017, we had warrants outstanding to purchase 1,421,515 shares of our common stock, assuming the conversion of our convertible preferred stock into common stock, and which will become exercisable for an additional 634,920 shares of our common stock at an exercise price of $0.63 per share upon the drawing down of additional loans under our credit facility, at exercise prices ranging from approximately $0.329 to $2.1457 per share. Each outstanding warrant contains provisions for the adjustment of the exercise price and the number of shares issuable upon exercise in the event of stock dividends, stock splits, reorganizations and reclassifications, consolidations and the like.

Options

As of September 30, 2017, we had outstanding options to purchase 18,017,311 shares of our common stock under our 2013 Plan and 6,805,339 shares remained available for future awards.

Registration rights

Based on the number of shares outstanding as of September 30, 2017, under our amended and restated registration rights agreement, after the consummation of this offering, the holders of up to approximately 166.5 million shares of common stock, or their affiliates or transferees, have the right to require us to register their shares under the Securities Act so that those shares may be publicly resold, or to include their shares in any registration statement we file, in each case as described below.

The registration rights terminate with respect to the registration rights of an individual holder on the earliest to occur of (i) five years following the consummation of this offering, (ii) the liquidation, dissolution or indefinite cessation of the business operations of our company, or the closing of a deemed liquidation, dissolution or winding up of our company pursuant to our amended and restated certificate of incorporation, or (iii) such time as Rule 144 or another similar exemption under the Securities Act is available for the sale of such stockholder's shares.

Demand registration rights

Based on the number of shares outstanding as of September 30, 2017, after the consummation of this offering, the holders of approximately 145 million shares of our common stock (on an as-converted basis), or their transferees, will be entitled to certain demand registration rights. At any time after one hundred eighty (180) days following the effectiveness of the registration statement of which this prospectus is a part, the holders of at least a majority of the registrable securities may demand that we effect a registration under the Securities Act covering the public offering and sale of at least the number of registrable securities held by such stockholders having an anticipated aggregate offering price, net of underwriting discounts and commissions, of at least $10,000,000. Upon any such demand, we must effect the registration of such registrable securities that

have been requested to register together with all other registrable securities that we may have been requested to register by other stockholders pursuant to the incidental registration rights described below. We are only obligated to effect two registrations in response to these demand registration rights. In the event we are required to effect such a demand registration, we may not effect any other registration of securities for sale for our own account (other than a registration effected solely to implement an employee benefit plan or in certain business combination transactions) within 120 days following the effective date of the demand registration.

Piggyback registration rights

In connection with this offering, certain holders were entitled to, and the necessary percentage of holders waived, their rights to notice of this offering and to include their shares of registrable securities in this offering. If we register any securities for public sale in another offering, including pursuant to any stockholder initiated demand registration, holders of such registrable securities will have the right to include their shares in the registration statement for such offering, subject to certain exceptions. The underwriters of any underwritten offering will have the right to limit the number registrable securities to be included in the registration statement, subject to certain restrictions.

Form S-3 registration rights

Following this offering, we are required to use our best efforts to qualify and remain qualified to register securities pursuant to a registration statement on Form S-3 under the Securities Act. At any time after we are qualified to file a registration statement on Form S-3, the holders of registrable securities anticipated to have an aggregate sale price, net of underwriting discounts and commission, in excess of $5,000,000 may request in writing an unlimited number of registration statements on Form S-3 for the registrable securities held by such requesting holder or holders, and we are required to use our best efforts to effect such registrations.

Expenses of registration

We will pay all registration expenses related to any demand, piggyback or Form S-3 registration, including reasonable fees and disbursements of one special counsel for the holders of such registrable securities, other than underwriting fees, discounts or commissions (if any), which will be borne by the holders of such registrable securities.

Anti-takeover effects of delaware law and our amended and restated certificate of incorporation and amended and restated bylaws

Our amended and restated certificate of incorporation and our amended and restated bylaws, which will be in effect upon the completion of this offering, will contain certain provisions that could have the effect of delaying, deterring or preventing another party from acquiring control of us. These provisions and certain provisions of Delaware law, which are summarized below, are expected to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed, in part, to encourage persons seeking to acquire control of us to negotiate first with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate more favorable terms with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging a proposal to acquire us.

Undesignated preferred stock

As discussed above, our board of directors will have the ability to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control of us. These and other provisions may have the effect of deterring hostile takeovers or delaying changes in control or management of our company.

Limits on ability of stockholders to act by written consent or call a special meeting

Our amended and restated certificate of incorporation will provide that our stockholders may not act by written consent, which may lengthen the amount of time required to take stockholder actions. As a result, a holder controlling a majority of our capital stock would not be able to amend our bylaws or remove directors without holding a meeting of our stockholders called in accordance with our bylaws.

In addition, our amended and restated bylaws will provide that special meetings of the stockholders may be called only by the chairperson of the board, the Chief Executive Officer or our board of directors. Stockholders may not call a special meeting, which may delay the ability of our stockholders to force consideration of a proposal or for holders controlling a majority of our capital stock to take any action, including the removal of directors.

Requirements for advance notification of stockholder nominations and proposals

Our amended and restated bylaws will establish advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of our board of directors or a committee of our board of directors. These provisions may have the effect of precluding the conduct of certain business at a meeting if the proper procedures are not followed. These provisions may also discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of our company.

Board classification

Upon the closing of the offering, our board of directors will be divided into three classes, one class of which is elected each year by our stockholders. The directors in each class will serve three-year terms. For more information on the classified board, see "Management—Board of directors." A third party may be discouraged from making a tender offer or otherwise attempting to obtain control of us as it is it more difficult and time-consuming for stockholders to replace a majority of the directors on a classified board.

No cumulative voting

Our amended and restated certificate of incorporation and amended and restated bylaws will not permit cumulative voting in the election of directors. Cumulative voting allows a stockholder to vote a portion or all of its shares for one or more candidates for seats on the board of directors. Without cumulative voting, a minority stockholder may not be able to gain as many seats on our board of directors as the stockholder would be able to gain if cumulative voting were permitted. The absence of cumulative voting makes it more difficult for a minority stockholder to gain a seat on our board of directors to influence our board's decision regarding a takeover.

Amendment of charter and bylaws provisions

The amendment of the above provisions of our amended and restated certificate of incorporation will require approval by holders of at least two thirds of our outstanding capital stock entitled to vote generally in the election of directors. The amendment of our bylaws will require approval by the holders of at least two thirds of our outstanding capital stock entitled to vote generally in the election of directors.

Delaware anti-takeover statute

We are subject to the provisions of Section 203 of the DGCL regulating corporate takeovers. In general, Section 203 prohibits a publicly held Delaware corporation from engaging, under certain circumstances, in a

business combination with an interested stockholder for a period of three years following the date the person became an interested stockholder unless:

- prior to the date of the transaction, our board of directors approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, calculated as provided under Section 203; or
- at or subsequent to the date of the transaction, the business combination is approved by our board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

Generally, a business combination includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. An interested stockholder is a person who, together with affiliates and associates, owns or, within three years prior to the determination of interested stockholder status, did own 15% or more of a corporation's outstanding voting stock. We expect the existence of this provision to have an anti-takeover effect with respect to transactions our board of directors does not approve in advance. We anticipate that Section 203 may also discourage attempts that might result in a premium over the market price for the shares of common stock held by stockholders.

The provisions of Delaware law and the provisions of our amended and restated certificate of incorporation and amended and restated bylaws, as amended upon the completion of this offering, could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they might also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions might also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders might otherwise deem to be in their best interests.

Transfer agent and registrar

Upon the completion of this offering, the transfer agent and registrar for our common stock will be . The transfer agent and registrar's address is , and its telephone number is .

Listing

We intend to apply to list our common stock on The Nasdaq Global Market under the trading symbol "TWST."

Shares eligible for future sale

Prior to this offering, there has not been any public market for our common stock, and we make no prediction as to the effect, if any, that market sales of shares of common stock or the availability of shares of common stock for sale will have on the market price of common stock prevailing from time to time. Nevertheless, sales of substantial amounts of common stock in the public market, or the perception that such sales could occur, could adversely affect the market price of common stock and could impair our future ability to raise capital through the sale of equity securities.

Sale of restricted shares

Based on the number of shares outstanding as of December 31, 2017, when this offering is complete, we will have an aggregate of shares of common stock outstanding.

Of the outstanding shares, all of the shares sold in this offering will be freely tradable. The remaining shares of common stock will be deemed "restricted securities" as defined in Rule 144. Restricted securities may be sold in the public market only if registered or if they qualify for an exemption from registration under Rule 144 or Rule 701, promulgated under the Securities Act, which rules are summarized below.

As a result of the contractual restrictions described below and the provisions of Rules 144 and 701, the restricted shares will be available for sale in the public market as follows:

- no shares will be eligible for sale when this offering is complete; and
- shares will be eligible for sale upon the expiration of the lock-up agreements, described below, beginning 181 days after the date of this prospectus.

In addition, of the 18,753,077 shares of our common stock that were subject to stock options outstanding as of December 31, 2017, options to purchase 8,856,904 shares of common stock were vested as of December 31, 2017 and will be eligible for sale 181 days following the date of this prospectus.

Lock-up agreements and obligations

We, all of our directors, officers and substantially all of our securityholders have entered into lock-up agreements that generally provide that these holders will not offer, pledge, sell, agree to sell, directly or indirectly, or otherwise dispose of any shares of common stock or any securities convertible into or exchangeable for shares of common stock without the prior written consent of J.P. Morgan Securities LLC and Cowen and Company, LLC for a period of 180 days from the date of this prospectus, subject to certain exceptions.

In addition, each grant agreement under our 2013 Plan contains restrictions similar to those set forth in the lock-up agreements described above limiting the disposition of securities issuable pursuant to those plans for a period of 180 days following the date of this prospectus.

Rule 144

In general, under Rule 144 as currently in effect, once we have been subject to public company reporting requirements for at least 90 days, a person who is not deemed to have been one of our affiliates for purposes of the Securities Act at any time during the 90 days preceding a sale and who has beneficially owned the shares proposed to be sold for at least six months, including the holding period of any prior owner other than our

affiliates, is entitled to sell such shares without complying with the manner of sale, volume limitation or notice provisions of Rule 144, subject to compliance with the public information requirements of Rule 144. If such a person has beneficially owned the shares proposed to be sold for at least one year, including the holding period of any prior owner other than our affiliates, then such person is entitled to sell such shares without complying with any of the requirements of Rule 144.

In general, under Rule 144, as currently in effect, our affiliates or persons selling shares on behalf of our affiliates are entitled to sell upon expiration of the lock-up agreements described above, within any three-month period beginning 90 days after the date of this prospectus, a number of shares that does not exceed the greater of:

- 1% of the number of shares of our common stock then outstanding, which will equal approximately shares, assuming no exercise of the underwriters' option to purchase additional shares of common stock, immediately after this offering; or
- the average weekly trading volume of our common stock on the during the four calendar weeks preceding the filing of a notice on Form 144 with respect to such sale.

Sales under Rule 144 by our affiliates or persons selling shares on behalf of our affiliates are also subject to certain manner of sale provisions and notice requirements and to the availability of current public information about us.

Rule 701

Rule 701, as presently in effect, generally allows a stockholder who purchased shares of our common stock pursuant to a written compensatory plan or contract and who is not deemed to have been an affiliate of our company during the immediately preceding 90 days to sell these shares in reliance upon Rule 144, but without being required to comply with the public information, holding period, volume limitation, or notice provisions of Rule 144. Rule 701 also permits affiliates of our company to sell their Rule 701 shares under Rule 144 without complying with the holding period requirements of Rule 144. All holders of Rule 701 shares, however, are required to wait until 90 days after the date of the· prospectus before selling such shares pursuant to Rule 701.

As of December 31, 2017, 10,460,452 shares of our outstanding stock had been issued in reliance on Rule 701 as a result of exercises of stock options and stock awards. These shares will be eligible for resale in reliance on this rule upon expiration of the lock-up agreements described above.

Stock options

We intend to file a registration statement on Form S-8 under the Securities Act covering all of the shares of our common stock subject to options outstanding or reserved for issuance under our stock plans, and shares of our common stock issued upon the exercise of options by employees. We expect to file this registration statement as soon as permitted under the Securities Act. Shares covered by this registration statement will be eligible for sale in the public market, upon the expiration or release from the terms of the lock-up agreements, and subject to vesting of such shares.

Registration rights

When this offering is complete, the holders of an aggregate of 166,514,825 shares of our common stock, or their transferees, will be entitled to rights with respect to the registration of their shares under the Securities Act. Registration of these shares under the Securities Act would result in these shares becoming freely tradeable without restriction under the Securities Act immediately upon the effectiveness of such registration. For a further description of these rights, see "Description of capital stock - registration rights."

Material U.S. federal income tax considerations for non-U.S. holders

This section discusses certain material U.S. federal income tax consequences of the ownership and sale, exchange or other taxable disposition of our common stock sold pursuant to this offering to a "non-U.S. holder" (as defined below). This discussion does not provide a complete analysis of all potential tax considerations. The information provided below is based upon provisions of the Internal Revenue Code of 1986, as amended, or Code, Treasury regulations promulgated thereunder, administrative rulings and judicial decisions currently in effect. These authorities may change at any time, possibly on a retroactive basis, or the Internal Revenue Service, or IRS, might interpret the existing authorities differently. In either case, the U.S. federal income tax considerations of owning or disposing of our common stock could differ from those described below. As a result, we cannot assure you that the U.S. federal income tax considerations described in this discussion will not be challenged by the IRS or will be sustained by a court if challenged by the IRS.

This discussion does not address the tax considerations arising under the alternative minimum tax, the net investment income tax, the laws of any state, local or non-U.S. jurisdiction, or under U.S. federal gift and estate tax laws. In addition, this discussion does not address tax considerations applicable to an investor's particular circumstances or to investors that may be subject to special tax rules, including, without limitation:

- banks, insurance companies or other financial institutions;
- partnerships or entities or arrangements treated as partnerships or other pass-through entities for U.S. federal income tax purposes (or investors in such entities);
- corporations that accumulate earnings to avoid U.S. federal income tax;
- tax-exempt or governmental organizations or tax-qualified retirement plans;
- real estate investment trusts or regulated investment companies;
- controlled foreign corporations or passive foreign investment companies;
- persons who acquired our common stock pursuant to the exercise of an employee stock option or otherwise as compensation for services;
- dealers in securities or currencies;
- traders in securities that elect to use a mark-to-market method of accounting for their securities holdings;
- persons that own, or are deemed to own, more than 5% of our capital stock (except to the extent specifically set forth below);
- certain former citizens or long-term residents of the United States;
- persons who hold our common stock as a position in a hedging transaction, "straddle," "conversion transaction" or other risk reduction transaction;
- persons who do not hold our common stock as a capital asset within the meaning of Section 1221 of the Code (generally, for investment purposes); or
- persons deemed to sell our common stock under the constructive sale provisions of the Code.

In addition, if a partnership or entity classified as a partnership for U.S. federal income tax purposes is a beneficial owner of our common stock, the tax treatment of a partner in the partnership or an owner of the entity will depend upon the status of the partner or other owner and the activities of the partnership or other entity. Accordingly, this discussion does not address U.S. federal income tax considerations applicable to partnerships that hold our common stock, and partners in such partnerships should consult their tax advisors.

Investors considering the purchase of our common stock should consult their own tax advisors regarding the application of the U.S. federal income, gift and estate tax laws to their particular situations and the consequences of non-U.S., state or local laws, and tax treaties.

Non-U.S. holder defined

For purposes of this section, a “non-U.S. holder” is any holder of our common stock, other than an entity taxable as a partnership for U.S. federal income tax purposes, that is not:

- an individual who is a citizen or resident of the United States for U.S. federal income tax purposes;
- a corporation, or other entity taxable as a corporation for U.S. federal income tax purposes, created or organized under the laws of the United States, any state therein or the District of Columbia or otherwise treated as such for U.S. federal income tax purposes;
- a trust that (1) is subject to the primary supervision of a U.S. court and one or more U.S. persons have authority to control all substantial decisions of the trust or (2) has a valid election in effect under applicable Treasury regulations to be treated as a U.S. person; or
- an estate whose income is subject to U.S. federal income tax regardless of source.

If you are a non-U.S. citizen who is an individual, you may, in many cases, be deemed to be a resident alien, as opposed to a nonresident alien, by virtue of being present in the United States for at least 31 days in the calendar year and for an aggregate of at least 183 days during a three-year period ending in the current calendar year. For these purposes, all the days present in the current year, one-third of the days present in the immediately preceding year, and one-sixth of the days present in the second preceding year are counted. Resident aliens are subject to U.S. federal income tax as if they were U.S. citizens. Such an individual is urged to consult his or her own tax advisor regarding the U.S. federal income tax consequences of the ownership and sale, exchange or other taxable disposition of our common stock.

Distributions

We do not anticipate paying any distributions in the foreseeable future. If we do make any distributions on shares of our common stock, however, such distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Distributions in excess of our current and accumulated earnings and profits will constitute a return of capital that is applied against and reduces, but not below zero, a non-U.S. holder’s adjusted tax basis in shares of our common stock. Any remaining excess will be treated as gain realized on the sale, exchange or other taxable disposition of our common stock. See “—Sale of common stock.”

Subject to the discussion below regarding the Foreign Account Tax Compliance Act, or FATCA, and backup withholding, any distribution made to a non-U.S. holder on our common stock that is not effectively connected with a non-U.S. holder’s conduct of a trade or business in the United States will generally be subject to U.S. withholding tax at a 30% rate. The withholding tax might not apply, however, or might apply at a reduced rate, under the terms of an applicable income tax treaty between the United States and the non-U.S. holder’s country of residence. You should consult your tax advisors regarding your entitlement to benefits under a relevant income tax treaty. Generally, in order for us or our paying agent to withhold tax at a lower treaty rate, a non-U.S. holder must certify its entitlement to treaty benefits. A non-U.S. holder generally can meet this certification requirement by providing an IRS Form W-8BEN, W-8BEN-E (or any successor form to the IRS Form W-8BEN or W-8BEN-E) to us or our paying agent. If the non-U.S. holder holds the stock through a financial institution or other agent acting on the non-U.S. holder’s behalf, the non-U.S. holder will be required to provide appropriate documentation to the agent. The non-U.S. holder’s agent will then be required to provide certification to us or our paying agent, either directly or through other intermediaries. If you are eligible for a reduced rate of U.S. federal withholding tax under an income tax treaty, you may obtain a refund or credit from the IRS of any excess amounts withheld by filing an appropriate claim for a refund with the IRS in a timely manner.

Distributions received by a non-U.S. holder that are effectively connected with a U.S. trade or business conducted by the non-U.S. holder, and, if required by an applicable income tax treaty between the United States and the non-U.S. holder's country of residence, are attributable to a permanent establishment maintained by the non-U.S. holder in the United States, are not subject to such withholding tax. To obtain this exemption, a non-U.S. holder must provide us with an IRS Form W-8ECI properly certifying such exemption. Such effectively connected distributions, although not subject to U.S. withholding tax, are generally taxed at the same graduated rates applicable to U.S. persons, net of certain deductions and credits. In addition to the graduated tax described above, distributions received by corporate non-U.S. holders that are effectively connected with a U.S. trade or business of the corporate non-U.S. holder may also be subject to a branch profits tax equal to 30% of its effectively connected earnings and profits for the taxable year, as adjusted for certain items, although an applicable income tax treaty between the United States and the non-U.S. holder's country of residence might provide for a lower rate.

Sale of common stock

Subject to the discussion below regarding FATCA and backup withholding, non-U.S. holders will generally not be subject to U.S. federal income tax on any gains realized on the sale, exchange or other taxable disposition of our common stock unless:

- the gain (1) is effectively connected with the conduct by the non-U.S. holder of a U.S. trade or business and (2) if required by an applicable income tax treaty between the United States and the non-U.S. holder's country of residence, is attributable to a permanent establishment (or, in the case of an individual, a fixed base) maintained by the non-U.S. holder in the United States (in which case the special rules described below apply);
- the non-U.S. holder is an individual who is present in the United States for 183 days or more in the taxable year of the sale, exchange or other taxable disposition of our common stock, and certain other requirements are met (in which case the gain would be subject to a flat 30% tax, or such reduced rate as may be specified by an applicable income tax treaty, which may be offset by U.S.-source capital losses, even though the individual is not considered a resident of the United States, provided that the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses); or
- the rules of the Foreign Investment in Real Property Tax Act, or FIRPTA, treat the gain as effectively connected with a U.S. trade or business.

The FIRPTA rules may apply to a sale, exchange or other taxable disposition of our common stock if we are at the time of the sale, exchange, or other taxable disposition, or were within the shorter of the five-year period preceding the disposition and the non-U.S. holder's holding period, a "United States real property holding corporation," or USRPHC. In general, we would be a USRPHC if the value of our interests in U.S. real property comprised at least half of the value of our business assets and our U.S. and non-U.S. real property interests. If we are or become a USRPHC, as long as our common stock is regularly traded on an established securities market, such common stock will be treated as U.S. real property interests subject to the FIRPTA rules only if a non-U.S. holder actually owns or constructively holds more than 5% of our outstanding common stock at any time within the shorter of the five-year period preceding the disposition and the non-U.S. holder's holding period. Currently, we believe we are not, and do not anticipate becoming, a USRPHC.

If any gain from the sale, exchange or other taxable disposition of our common stock, (1) is effectively connected with a U.S. trade or business conducted by a non-U.S. holder and (2) if required by an applicable income tax treaty between the United States and the non-U.S. holder's country of residence, is attributable to a permanent establishment (or, in the case of an individual, a fixed base) maintained by such non-U.S. holder in

the United States, then the gain generally will be subject to U.S. federal income tax at the same graduated rates applicable to U.S. persons, net of certain deductions and credits. If the non-U.S. holder is a corporation, under certain circumstances, that portion of its earnings and profits that is effectively connected with its U.S. trade or business, subject to certain adjustments, generally would be subject to a "branch profits tax." The branch profits tax rate is equal to 30% of its effectively connected earnings and profits for the taxable year, as adjusted for certain items, although an applicable income tax treaty between the United States and the non-U.S. holder's country of residence might provide for a lower rate.

Backup withholding and information reporting

Payments of dividends on our common stock will not be subject to backup withholding, provided the non-U.S. holder certifies its non-U.S. status, such as by furnishing a valid IRS Form W-8BEN, W-8BEN-E or W-8ECI (and we or our paying agent do not have actual knowledge or reason to know the holder is a U.S. person or that the conditions of any other exemption are not, in fact, satisfied), or otherwise establishes an exemption. However, information returns are required to be filed with the IRS in connection with any dividends on our common stock paid to the non-U.S. holder, regardless of whether any tax was actually withheld. Copies of these reports may be made available to tax authorities in the country where the non-U.S. holder resides. In addition, proceeds of the sale or other taxable disposition of our common stock within the United States or conducted through certain U.S.-related brokers generally will not be subject to backup withholding or information reporting, if the applicable withholding agent receives the certification described above or the non-U.S. holder otherwise establishes an exemption. Proceeds of a disposition of our common stock conducted through a non-U.S. office of a non-U.S. broker that does not have certain enumerated relationships with the United States generally will not be subject to backup withholding or information reporting. The backup withholding rate is currently 24%.

Backup withholding is not an additional tax. Any amounts withheld from a payment to a holder of our common stock under the backup withholding rules can be credited against any U.S. federal income tax liability of the holder and may entitle the holder to a refund from the IRS, provided that the required information is furnished to the IRS in a timely manner.

Foreign account tax compliance act, or FATCA

FATCA imposes U.S. federal withholding tax of 30% on certain types of U.S. source "withholdable payments" (including dividends and the gross proceeds from the sale, exchange or other taxable disposition of U.S. stock) to foreign financial institutions, which are broadly defined for this purpose, and other non-U.S. entities that fail to comply with certain certification and information reporting requirements regarding U.S. account holders or owners of such institutions or entities. The obligation to withhold under FATCA applies to any dividends on our common stock, and will apply to gross proceeds from the sale, exchange or other taxable disposition of our common stock paid after December 31, 2018 and to certain "pass-thru" payments received with respect to instruments held through foreign financial institutions after the later of December 31, 2018 and the date on which applicable final Treasury regulations are issued. An intergovernmental agreement between the United States and an applicable foreign country may modify the requirements described in this paragraph. Non-U.S. holders should consult their own tax advisors regarding the possible implications of FATCA on their investment in our common stock.

The preceding discussion of U.S. federal income tax considerations is for general information only. It is not tax advice. Each prospective investor should consult its own tax advisor regarding the particular U.S. federal, state, local and non-U.S. tax consequences of the sale, exchange or other taxable disposition of our common stock, including the consequences of any proposed change in applicable laws.

Underwriting

We are offering the shares of common stock described in this prospectus through a number of underwriters. J.P. Morgan Securities LLC and Cowen and Company, LLC are acting as joint book-running managers of the offering and as representatives of the underwriters. We have entered into an underwriting agreement with the underwriters. Subject to the terms and conditions of the underwriting agreement, we have agreed to sell to the underwriters, and each underwriter has severally agreed to purchase, at the public offering price less the underwriting discounts and commissions set forth on the cover page of this prospectus, the number of shares of common stock listed next to its name in the following table:

Name	Number of shares
J.P. Morgan Securities LLC	
Cowen and Company, LLC	
Allen & Company LLC	
Robert W. Baird & Co. Incorporated	
Total	

The underwriters are committed to purchase all the shares of common stock offered by us if they purchase any shares. The underwriting agreement also provides that if an underwriter defaults, the purchase commitments of non-defaulting underwriters may also be increased or the offering may be terminated.

The underwriters propose to offer the shares of common stock directly to the public at the initial public offering price set forth on the cover page of this prospectus and to certain dealers at that price less a concession not in excess of $ per share. Any such dealers may resell shares to certain other brokers or dealers at a discount of up to $ per share from the initial public offering price. After the initial offering of the shares to the public, the offering price and other selling terms may be changed by the underwriters. Sales of shares made outside of the United States may be made by affiliates of the underwriters.

The underwriters have an option to buy up to additional shares of common stock from us solely to cover sales of shares by the underwriters which exceed the number of shares specified in the table above. The underwriters have 30 days from the date of this prospectus to exercise this option to purchase additional shares. If any shares are purchased with this option to purchase additional shares, the underwriters will purchase shares in approximately the same proportion as shown in the table above. If any additional shares of common stock are purchased, the underwriters will offer the additional shares on the same terms as those on which the shares are being offered.

The underwriting fee is equal to the public offering price per share of common stock less the amount paid by the underwriters to us per share of common stock. The underwriting fee is $ per share. The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	Without exercise of option to purchase additional shares	With full exercise of option to purchase additional shares
Per share	$	$
Total	$	$

We estimate that the total expenses of this offering, including registration, filing and listing fees, printing fees and legal and accounting expenses, but excluding the underwriting discounts and commissions, will be

approximately $. We have agreed to reimburse the underwriters for expenses relating to the clearance of this offering with the Financial Industry Regulatory Authority, Inc. (in an amount not to exceed $).

A prospectus in electronic format may be made available on the web sites maintained by one or more underwriters, or selling group members, if any, participating in the offering. The underwriters may agree to allocate a number of shares to underwriters and selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the representatives to underwriters and selling group members that may make Internet distributions on the same basis as other allocations.

We have agreed that we will not (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, or file with the Securities and Exchange Commission a registration statement under the Securities Act of 1933, as amended, or the Securities Act, relating to, any shares of our common stock or any securities convertible into or exchangeable or exercisable for any shares of our common stock, or publicly disclose the intention to make any offer, sale, pledge, disposition or filing, or (ii) enter into any swap or other arrangement that transfers all or a portion of the economic consequences associated with the ownership of any shares of common stock or any such other securities (regardless of whether any of these transactions are to be settled by the delivery of shares of common stock or such other securities, in cash or otherwise), in each case without the prior written consent of J.P. Morgan Securities LLC and Cowen and Company, LLC for a period of 180 days after the date of this prospectus, other than (i) the shares of our common stock to be sold hereunder, or (ii) any shares of our common stock issued upon the exercise of options granted under our existing equity incentive plans.

Our directors and executive officers, and all of our stockholders have entered into lock-up agreements with the underwriters prior to the commencement of this offering pursuant to which each of these persons or entities, with limited exceptions, for a period of 180 days after the date of this prospectus, may not, without the prior written consent of J.P. Morgan Securities LLC and Cowen and Company, LLC, (1) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, any shares of our common stock or any securities convertible into or exercisable or exchangeable for our common stock (including, without limitation, common stock or such other securities which may be deemed to be beneficially owned by such directors, executive officers and stockholders in accordance with the rules and regulations of the Securities and Exchange Commission and securities which may be issued upon exercise of a stock option or warrant), or publicly disclose the intention to make any offer, sale, pledge or disposition, (2) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of our common stock or such other securities, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of common stock or such other securities, in cash or otherwise or (3) make any demand for or exercise any right with respect to the registration of any shares of our common stock or any security convertible into or exercisable or exchangeable for our common stock.

The restrictions described in the immediately preceding paragraph do not apply to, among other items:

- transfers or dispositions of shares of common stock:
    - as a bona fide gift;
    - to any trust for the direct or indirect benefit of the party subject to the lock-up restrictions or the immediate family of such person;
    - to any corporation, partnership, limited liability company or other entity under the ownership of the party subject to the lock-up restrictions or the immediate family of such person;

- by will, other testamentary document or intestate succession to the legal representative, heir, beneficiary or a member of the immediate family of the party subject to the lockup restrictions;
- as distributions to partners, members or stockholders of the party subject to the lock-up restrictions; and
- as transfers to affiliates, investment funds or other entities controlled or managed by the party subject to the lock-up restrictions,

provided that in the case of any transfer or distribution pursuant to the above six subclauses, (i) each transferee, donee or distributee shall sign and deliver a lock-up letter in the form executed by the party subject to the lock up restrictions and (ii) no filing or other public announcement under Section 16(a)of the Exchange Act of 1934, as amended, or the Exchange Act shall be required or shall be voluntarily made during the restricted period (other than a filing on Form 5 or a required filing on a Schedule 13F or 13G);

- the transfer pursuant to a bona fide third-party tender offer, merger, consolidation or other similar transaction made to all holders of our common stock involving a change of control; provided that in the event such tender offer, merger, consolidation or other such transaction is not completed, the shares of our common stock shall remain subject to the lock-up restrictions;
- the exercise of outstanding warrants or options to purchase shares of common stock granted under any stock incentive plan or stock purchase plan of the Company, provided that the underlying shares shall continue to be subject to the lock-up restrictions;
- the establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of shares of common stock, provided that (i) such plan does not provide for the transfer of shares of common stock during the restricted period and (ii) no filing under the Exchange Act or other public announcement shall be required or voluntarily made by or on behalf of the party subject to the lock-up restrictions regarding the establishment of such plan;
- the transfer or disposition of shares of common stock acquired in this offering or on the open market following this offering, provided that no filing under the Exchange Act or other public announcement shall be required or voluntarily made in connection with such transfer or disposition during the restricted period (other than a required filing on a Schedule 13F or 13G);
- transfers or surrenders to us of shares of common stock pursuant to any contractual arrangement that provides us with an option to repurchase such shares in connection with the termination of the party subject to the lock-up's employment or service relationship with us, or pursuant to a right of first refusal with respect to transfers of such shares of common stock or other securities, or on a cashless or "net exercise" basis or to cover tax withholding obligations of the party subject to the lock-up, in connection with the vesting or exercise of such shares of common stock or other securities, provided that any filing under Section 16 of the Exchange Act shall clearly indicate in the footnotes thereto that the filing relates to such circumstances described above and no other public announcement shall be required or voluntarily made in connection with such transfers or surrenders; and
- transfers or dispositions of shares of common stock by operation of law pursuant to a qualified domestic order or in connection with a divorce settlement or other court order, provided that the recipient of such shares shall execute and deliver to J.P. Morgan Securities LLC and Cowen and Company, LLC a lock-up letter in the form of this Letter Agreement, provided, further that any filing under Section 16 of the Exchange Act shall clearly indicate in the footnotes that the filing relates to the circumstances described above and no other public announcement shall be required or voluntarily made in connection with such transfer or disposition.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act.

We intend to apply to have our common stock quoted on The Nasdaq Global Market under the symbol “TWST.”

In connection with this offering, the underwriters may engage in stabilizing transactions, which involves making bids for, purchasing and selling shares of common stock in the open market for the purpose of preventing or retarding a decline in the market price of the common stock while this offering is in progress. These stabilizing transactions may include making short sales of the common stock, which involves the sale by the underwriters of a greater number of shares of common stock than they are required to purchase in this offering, and purchasing shares of common stock on the open market to cover positions created by short sales. Short sales may be “covered” shorts, which are short positions in an amount not greater than the underwriters’ option to purchase additional shares referred to above, or may be “naked” shorts, which are short positions in excess of that amount. The underwriters may close out any covered short position either by exercising their option to purchase additional shares, in whole or in part, or by purchasing shares in the open market. In making this determination, the underwriters will consider, among other things, the price of shares available for purchase in the open market compared to the price at which the underwriters may purchase shares through the option to purchase additional shares. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market that could adversely affect investors who purchase in this offering. To the extent that the underwriters create a naked short position, they will purchase shares in the open market to cover the position.

The underwriters have advised us that, pursuant to Regulation M of the Securities Act, they may also engage in other activities that stabilize, maintain or otherwise affect the price of the common stock, including the imposition of penalty bids. This means that if the representatives of the underwriters purchase common stock in the open market in stabilizing transactions or to cover short sales, the representatives can require the underwriters that sold those shares as part of this offering to repay the underwriting discount received by them.

These activities may have the effect of raising or maintaining the market price of the common stock or preventing or retarding a decline in the market price of the common stock, and, as a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. If the underwriters commence these activities, they may discontinue them at any time. The underwriters may carry out these transactions on The Nasdaq Global Market, in the over-the-counter market or otherwise.

Prior to this offering, there has been no public market for our common stock. The initial public offering price will be determined by negotiations between us and the representatives of the underwriters. In determining the initial public offering price, we and the representatives of the underwriters expect to consider a number of factors including:

- the information set forth in this prospectus and otherwise available to the representatives of the underwriters;
- our prospects and the history and prospects for the industry in which we compete;
- an assessment of our management;
- our prospects for future earnings;
- the general condition of the securities markets at the time of this offering;

- the recent market prices of, and demand for, publicly traded common stock of generally comparable companies; and
- other factors deemed relevant by the underwriters and us.

Neither we nor the underwriters can assure investors that an active trading market will develop for our common shares, or that the shares will trade in the public market at or above the initial public offering price.

Directed shares

At our request, the underwriters have reserved approximately up to shares of our common stock offered by this prospectus for sale, at the initial public offering price, to our directors and officers and certain employees and other parties related to us. Shares purchased by our directors and officers will be subject to the 180-day lock-up restriction described above. The number of shares of common stock available for sale to the general public will be reduced to the extent these individuals purchase such reserved shares. Any reserved shares that are not so purchased will be offered by the underwriters to the general public on the same basis as the other shares offered by this prospectus.

Selling restrictions

Other than in the United States, no action has been taken by us or the underwriters that would permit a public offering of the securities offered by this prospectus in any jurisdiction where action for that purpose is required. The securities offered by this prospectus may not be offered or sold, directly or indirectly, nor may this prospectus or any other offering material or advertisements in connection with the offer and sale of any such securities be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons into whose possession this prospectus comes are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any securities offered by this prospectus in any jurisdiction in which such an offer or a solicitation is unlawful.

Notice to prospective investors in the European economic area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a “Relevant Member State”), with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State, no offer of shares may be made to the public in that Relevant Member State other than:

a) to any legal entity which is a qualified investor as defined in the Prospectus Directive;

b) to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), subject to obtaining the prior consent of the underwriters; or

c) in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of shares shall require the Company or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Directive or supplement a prospectus pursuant to Article 16 of the Prospectus Directive and each person who initially acquires any shares or to whom any offer is made will be deemed to have represented, acknowledged and agreed to and with each of the underwriters and the Company that it is a “qualified investor” within the meaning of the law in that Relevant Member State implementing Article 2(1)(e) of the Prospectus Directive.

In the case of any shares being offered to a financial intermediary as that term is used in Article 3(2) of the Prospectus Directive, each such financial intermediary will be deemed to have represented, acknowledged and agreed that the shares acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer of any shares to the public other than their offer or resale in a Relevant Member State to qualified investors as so defined or in circumstances in which the prior consent of the representatives has been obtained to each such proposed offer or resale.

For the purposes of this provision, the expression an "offer of shares to the public" in relation to any shares in any Relevant Member State means the communication in any form and by means of sufficient information on the terms of the offer and the shares to be offered so as to enable an investor to decide to purchase shares, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State, the expression "Prospectus Directive" means Directive 2003/71/EC (as amended, including by Directive 2010/73/EU), and includes any relevant implementing measure in the Relevant Member State.

Notice to prospective investors in the United Kingdom

In addition, in the United Kingdom, this document is being distributed only to, and is directed only at, and any offer subsequently made may only be directed at persons who are "qualified investors" (as defined in the Prospectus Directive) (i) who have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended, or the Order and/or (ii) who are high net worth companies (or persons to whom it may otherwise be lawfully communicated) falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as "relevant persons") or otherwise in circumstances which have not resulted and will not result in an offer to the public of the shares in the United Kingdom within the meaning of the Financial Services and Markets Act 2000.

Any person in the United Kingdom that is not a relevant person should not act or rely on the information included in this document or use it as basis for taking any action. In the United Kingdom, any investment or investment activity that this document relates to may be made or taken exclusively by relevant persons.

Notice to prospective investors in Canada

The shares may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the shares must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

Notice to prospective investors in Switzerland

The shares may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange, or SIX or on any other stock exchange or regulated trading facility in Switzerland. This document does not constitute a prospectus within the meaning of, and has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to the shares or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the offering, the Company or the shares has been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of shares will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA, or FINMA, and the offer of shares has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes, or CISA. The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of shares.

Notice to prospective investors in the Dubai international financial centre, or DIFC

This document relates to an Exempt Offer in accordance with the Markets Rules 2012 of the Dubai Financial Services Authority, or DFSA. This document is intended for distribution only to persons of a type specified in the Markets Rules 2012 of the DFSA. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus supplement nor taken steps to verify the information set forth herein and has no responsibility for this document. The securities to which this document relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the securities offered should conduct their own due diligence on the securities. If you do not understand the contents of this document you should consult an authorized financial advisor.

In relation to its use in the DIFC, this document is strictly private and confidential and is being distributed to a limited number of investors and must not be provided to any person other than the original recipient, and may not be reproduced or used for any other purpose. The interests in the securities may not be offered or sold directly or indirectly to the public in the DIFC.

Notice to prospective investors in the united Arab Emirates

The shares have not been, and are not being, publicly offered, sold, promoted or advertised in the United Arab Emirates (including the Dubai International Financial Centre) other than in compliance with the laws of the United Arab Emirates (and the Dubai International Financial Centre) governing the issue, offering and sale of securities. Further, this prospectus does not constitute a public offer of securities in the United Arab Emirates (including the Dubai International Financial Centre) and is not intended to be a public offer. This prospectus has not been approved by or filed with the Central Bank of the United Arab Emirates, the Securities and Commodities Authority or the Dubai Financial Services Authority.

Notice to prospective investors in Australia

This prospectus:

- does not constitute a product disclosure document or a prospectus under Chapter 6D.2 of the Corporations Act 2001 (Cth) of the Corporations Act;

- has not been, and will not be, lodged with the Australian Securities and Investments Commission, or ASIC, as a disclosure document for the purposes of the Corporations Act and does not purport to include the information required of a disclosure document under Chapter 6D.2 of the Corporations Act;
- does not constitute or involve a recommendation to acquire, an offer or invitation for issue or sale, an offer or invitation to arrange the issue or sale, or an issue or sale, of interests to a "retail client" (as defined in section 761G of the Corporations Act and applicable regulations) in Australia; and
- may only be provided in Australia to select investors who are able to demonstrate that they fall within one or more of the categories of investors, or Exempt Investors, available under section 708 of the Corporations Act.

The shares may not be directly or indirectly offered for subscription or purchased or sold, and no invitations to subscribe for or buy the shares may be issued, and no draft or definitive offering memorandum, advertisement or other offering material relating to any shares may be distributed in Australia, except where disclosure to investors is not required under Chapter 6D of the Corporations Act or is otherwise in compliance with all applicable Australian laws and regulations. By submitting an application for the shares, you represent and warrant to us that you are an Exempt Investor.

As any offer of shares under this document will be made without disclosure in Australia under Chapter 6D.2 of the Corporations Act, the offer of those securities for resale in Australia within 12 months may, under section 707 of the Corporations Act, require disclosure to investors under Chapter 6D.2 if none of the exemptions in section 708 applies to that resale. By applying for the shares you undertake to us that you will not, for a period of 12 months from the date of issue of the shares, offer, transfer, assign or otherwise alienate those securities to investors in Australia except in circumstances where disclosure to investors is not required under Chapter 6D.2 of the Corporations Act or where a compliant disclosure document is prepared and lodged with ASIC.

Notice to prospective investors in Japan

The shares have not been and will not be registered pursuant to Article 4, Paragraph 1 of the Financial Instruments and Exchange Act. Accordingly, none of the shares nor any interest therein may be offered or sold, directly or indirectly, in Japan or to, or for the benefit of, any "resident" of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan or to or for the benefit of a resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Act and any other applicable laws, regulations and ministerial guidelines of Japan in effect at the relevant time.

Notice to prospective investors in Hong Kong

The shares have not been offered or sold and will not be offered or sold in Hong Kong, by means of any document, other than (a) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance; or (b) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of that Ordinance. No advertisement, invitation or document relating to the shares has been or may be issued or has been or may be in the possession of any person for the purposes of issue, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the Securities and Futures Ordinance and any rules made under that Ordinance.

Warning

The contents of this document have not been reviewed by any regulatory authority in Hong Kong. You are advised to exercise caution in relation to the offer. If you are in any doubt about any of the contents of this document, you should obtain independent professional advice.

Notice to prospective investors in Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore, or the SFA, (ii) to a relevant person pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section 275 of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities (as defined in Section 239(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares pursuant to an offer made under Section 275 of the SFA except:

a) to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;

b) where no consideration is or will be given for the transfer;

c) where the transfer is by operation of law;

d) as specified in Section 276(7) of the SFA; or

e) as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore.

Notice to prospective investors in Bermuda

Shares may be offered or sold in Bermuda only in compliance with the provisions of the Investment Business Act of 2003 of Bermuda which regulates the sale of securities in Bermuda. Additionally, non-Bermudian persons (including companies) may not carry on or engage in any trade or business in Bermuda unless such persons are permitted to do so under applicable Bermuda legislation.

Notice to prospective investors in Saudi Arabia

This document may not be distributed in the Kingdom of Saudi Arabia except to such persons as are permitted under the Offers of Securities Regulations as issued by the board of the Saudi Arabian Capital Market Authority,

or CMA pursuant to resolution number 2-11-2004 dated 4 October 2004 as amended by resolution number 1-28-2008, as amended, or the CMA Regulations. The CMA does not make any representation as to the accuracy or completeness of this document and expressly disclaims any liability whatsoever for any loss arising from, or incurred in reliance upon, any part of this document. Prospective purchasers of the securities offered hereby should conduct their own due diligence on the accuracy of the information relating to the securities. If you do not understand the contents of this document, you should consult an authorised financial adviser.

Notice to prospective investors in the British Virgin Islands

The shares may be offered to persons located in the British Virgin Islands who are "qualified investors" for the purposes of SIBA. Qualified investors include (i) certain entities which are regulated by the Financial Services Commission in the British Virgin Islands, including banks, insurance companies, licensees under SIBA and public, professional and private mutual funds; (ii) a company, any securities of which are listed on a recognised exchange; and (iii) persons defined as "professional investors" under SIBA, which is any person (a) whose ordinary business involves, whether for that person's own account or the account of others, the acquisition or disposal of property of the same kind as the property, or a substantial part of the property of the Company; or (b) who has signed a declaration that he, whether individually or jointly with his spouse, has net worth in excess of US$1,000,000 and that he consents to being treated as a professional investor.

Notice to prospective investors in China

This prospectus does not constitute a public offer of shares, whether by sale or subscription, in the People's Republic of China, or the PRC. The shares are not being offered or sold directly or indirectly in the PRC to or for the benefit of, legal or natural persons of the PRC.

Further, no legal or natural persons of the PRC may directly or indirectly purchase any of the shares or any beneficial interest therein without obtaining all prior PRC's governmental approvals that are required, whether statutorily or otherwise. Persons who come into possession of this document are required by the issuer and its representatives to observe these restrictions.

Notice to prospective investors in Korea

The shares have not been and will not be registered under the Financial Investments Services and Capital Markets Act of Korea and the decrees and regulations thereunder, or the FSCMA, and the shares have been and will be offered in Korea as a private placement under the FSCMA. None of the shares may be offered, sold or delivered directly or indirectly, or offered or sold to any person for re-offering or resale, directly or indirectly, in Korea or to any resident of Korea except pursuant to the applicable laws and regulations of Korea, including the FSCMA and the Foreign Exchange Transaction Law of Korea and the decrees and regulations thereunder, or the FETL. Furthermore, the purchaser of the shares shall comply with all applicable regulatory requirements (including but not limited to requirements under the FETL) in connection with the purchase of the shares. By the purchase of the shares, the relevant holder thereof will be deemed to represent and warrant that if it is in Korea or is a resident of Korea, it purchased the shares pursuant to the applicable laws and regulations of Korea.

Notice to prospective investors in Malaysia

No prospectus or other offering material or document in connection with the offer and sale of the shares has been or will be registered with the Securities Commission of Malaysia, or Commission for the Commission's approval pursuant to the Capital Markets and Services Act 2007. Accordingly, this prospectus and any other

document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Malaysia other than (i) a closed end fund approved by the Commission; (ii) a holder of a Capital Markets Services Licence; (iii) a person who acquires the shares, as principal, if the offer is on terms that the shares may only be acquired at a consideration of not less than RM250,000 (or its equivalent in foreign currencies) for each transaction; (iv) an individual whose total net personal assets or total net joint assets with his or her spouse exceeds RM3 million (or its equivalent in foreign currencies), excluding the value of the primary residence of the individual; (v) an individual who has a gross annual income exceeding RM300,000 (or its equivalent in foreign currencies) per annum in the preceding twelve months; (vi) an individual who, jointly with his or her spouse, has a gross annual income of RM400,000 (or its equivalent in foreign currencies), per annum in the preceding twelve months; (vii) a corporation with total net assets exceeding RM10 million (or its equivalent in a foreign currencies) based on the last audited accounts; (viii) a partnership with total net assets exceeding RM10 million (or its equivalent in foreign currencies); (ix) a bank licensee or insurance licensee as defined in the Labuan Financial Services and Securities Act 2010; (x) an Islamic bank licensee or takaful licensee as defined in the Labuan Financial Services and Securities Act 2010; and (xi) any other person as may be specified by the Commission; provided that, in the each of the preceding categories (i) to (xi), the distribution of the shares is made by a holder of a Capital Markets Services Licence who carries on the business of dealing in securities. The distribution in Malaysia of this prospectus is subject to Malaysian laws. This prospectus does not constitute and may not be used for the purpose of public offering or an issue, offer for subscription or purchase, invitation to subscribe for or purchase any securities requiring the registration of a prospectus with the Commission under the Capital Markets and Services Act 2007.

Notice to prospective investors in Taiwan

The shares have not been and will not be registered with the Financial Supervisory Commission of Taiwan pursuant to relevant securities laws and regulations and may not be sold, issued or offered within Taiwan through a public offering or in circumstances which constitutes an offer within the meaning of the Securities and Exchange Act of Taiwan that requires a registration or approval of the Financial Supervisory Commission of Taiwan. No person or entity in Taiwan has been authorised to offer, sell, give advice regarding or otherwise intermediate the offering and sale of the shares in Taiwan.

Notice to prospective investors in South Africa

Due to restrictions under the securities laws of South Africa, the shares are not offered, and the offer shall not be transferred, sold, renounced or delivered, in South Africa or to a person with an address in South Africa, unless one or other of the following exemptions applies:

a) the offer, transfer, sale, renunciation or delivery is to:

   i) persons whose ordinary business is to deal in securities, as principal or agent;

   ii) the South African Public Investment Corporation;

   iii) persons or entities regulated by the Reserve Bank of South Africa;

   iv) authorised financial service providers under South African law;

   v) financial institutions recognised as such under South African law;

vi) a wholly-owned subsidiary of any person or entity contemplated in (c), (d) or (e), acting as agent in the capacity of an authorised portfolio manager for a pension fund or collective investment scheme (in each case duly registered as such under South African law); or

vii) any combination of the person in (a) to (f); or

b) the total contemplated acquisition cost of the securities, for any single addressee acting as principal is equal to or greater than ZAR 1,000,000.

No “offer to the public” (as such term is defined in the South African Companies Act, No. 71 of 2008 (as amended or re-enacted), or the South African Companies Act) in South Africa is being made in connection with the issue of the shares. Accordingly, this document does not, nor is it intended to, constitute a “registered prospectus” (as that term is defined in the South African Companies Act) prepared and registered under the South African Companies Act and has not been approved by, and/or filed with, the South African Companies and Intellectual Property Commission or any other regulatory authority in South Africa. Any issue or offering of the shares in South Africa constitutes an offer of the shares in South Africa for subscription or sale in South Africa only to persons who fall within the exemption from “offers to the public” set out in section 96(1)(a) of the South African Companies Act. Accordingly, this document must not be acted on or relied on by persons in South Africa who do not fall within section 96(1)(a) of the South African Companies Act (such persons being referred to as “SA Relevant Persons”). Any investment or investment activity to which this document relates is available in South Africa only to SA Relevant Persons and will be engaged in South Africa only with SA relevant persons.

Legal matters

The validity of the issuance of our common stock offered in this prospectus will be passed upon for us by Orrick, Herrington & Sutcliffe LLP, 1000 Marsh Road, Menlo Park, California 94025. Latham & Watkins LLP, 140 Scott Drive, Menlo Park, California 94025, is acting as counsel for the underwriters in connection with this offering. Orrick, Herrington & Sutcliffe LLP and certain attorneys and investment funds affiliated with the firm own shares of our preferred stock which will be converted into an aggregate of 376,717 shares of common stock immediately prior to the completion of this offering.

Experts

The consolidated financial statements as of September 30, 2017 and 2016 and for each of the two years in the period ended September 30, 2017 included in this prospectus have been so included in reliance on the report (which contains an explanatory paragraph relating to the Company’s ability to continue as a going concern as described in Note 1 to the consolidated financial statements) of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

Where you can find more information

We have filed with the Securities and Exchange Commission a registration statement on Form S-1 under the Securities Act with respect to this offering of our common stock. This prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement, some items of which are contained in exhibits to the registration statement as permitted by the rules and regulations of the Securities and Exchange Commission. For further information with respect to us and our common stock, we refer you to the registration statement, including the exhibits and the financial statements and notes filed as a part of the registration statement. Statements contained in this prospectus concerning the contents of any

contract or any other document are not necessarily complete. If a contract or document has been filed as an exhibit to the registration statement, please see the copy of the contract or document that has been filed. Each statement in this prospectus relating to a contract or document filed as an exhibit is qualified in all respects by the filed exhibit. The exhibits to the registration statement should be referenced for the complete contents of these contracts and documents. You may obtain copies of this information by mail from the Public Reference Section of the Securities and Exchange Commission, 100 F Street, N.E., Room 1580, Washington, D.C. 20549, at prescribed rates. You may obtain information on the operation of the public reference rooms by calling the Securities and Exchange Commission at 1-800-SEC-0330. The Securities and Exchange Commission also maintains an Internet website that contains reports, proxy statements and other information about issuers, like us, that file electronically with the Securities and Exchange Commission. The address of that website is www.sec.gov.

As a result of this offering, we will become subject to the information and reporting requirements of the Exchange Act and, in accordance with this law, will file periodic reports, proxy statements and other information with the Securities and Exchange Commission. These periodic reports, proxy statements and other information will be available for inspection and copying at the Securities and Exchange Commission's public reference facilities and the website of the Securities and Exchange Commission referred to above.

Twist Bioscience Corporation
Index to consolidated financial statements

Report of Independent Registered Public Accounting Firm

The Company has adopted the provisions of ASC 606, *Revenue from Contracts with Customers*, on a full retrospective basis and the accompanying consolidated financial statements for the years ended September 30, 2017 and 2016 reflect the full retrospective adoption of ASC 606. Considering that the earliest adoption period allowed under ASC 606 is the three-month period ended December 31, 2017, the permissible adoption date of ASC 606 for the years ended September 30, 2017 and 2016 as described in Note 2 to the consolidated financial statements has not been consummated at February 8, 2018. When unaudited consolidated financial statements for the three-month period ended December 31, 2017 have been issued that reflect the adoption of ASC 606, we will be in a position to furnish the following report.

/s/ PricewaterhouseCoopers LLP
San Jose, California
February 8, 2018

“Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Twist Bioscience Corporation

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of operations and comprehensive loss, of redeemable convertible preferred stock and stockholders’ deficit and of cash flows present fairly, in all material respects, the financial position of Twist Bioscience Corporation and its subsidiaries as of September 30, 2017 and 2016 and the results of their operations and their cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with the standards of the Public Company Accounting Oversight Board (United States) and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company has generated net losses and negative cash flows since inception that raise substantial doubt about its ability to continue as a going concern. Management’s plans in regard to these matters are also described in Note 1. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

As discussed in Note 2 to the consolidated financial statements, the Company changed the manner in which it accounts for revenue from contracts with customers in 2018.

San Jose, California

February 8, 2018, except for the effects of the change in the manner in which the Company accounts for revenue from contracts with customers as discussed in Note 2 to the consolidated financial statements, as to which the date is [ ]”

Twist Bioscience Corporation
Consolidated balance sheets

(In thousands, except share and per share amounts)	September 30, 2016	September 30, 2017	Pro forma September 30, 2017 (unaudited)
Assets			
Current assets			
Cash and cash equivalents	$ 28,596	$ 31,227	$ 31,227
Short-term investments	27,324	30,977	30,977
Accounts receivable, net	723	2,346	2,346
Inventory	1,228	1,827	1,827
Prepaid expenses and other current assets	1,168	1,492	1,492
Total current assets	$ 59,039	$ 67,869	$ 67,869
Property and equipment, net	14,617	14,834	14,834
Goodwill	1,138	1,138	1,138
Intangible assets, net	1,133	920	920
Restricted cash, non-current	322	202	202
Other non-current assets	214	694	694
Total assets	$ 76,463	$ 85,657	$ 85,657
Liabilities, Redeemable Convertible Preferred Stock and Stockholders' Equity (Deficit)			
Current liabilities			
Accounts payable	$ 2,337	$ 2,849	$ 2,849
Accrued expenses	2,218	2,092	2,092
Accrued payroll	2,403	3,470	3,470
Current portion of long-term debt	1,367	—	—
Other current liabilities	353	1,066	1,066
Total current liabilities	$ 8,678	$ 9,477	$ 9,477
Redeemable convertible preferred stock warrant liability	383	644	—
Long-term debt, net of current portion	9,814	9,154	9,154
Other non-current liabilities	162	107	107
Total liabilities	$ 19,037	$ 19,382	$ 18,738
Commitments and contingencies (Note 8)			
Redeemable convertible preferred stock			
Series A redeemable convertible preferred stock, $0.00001 par value—28,263,133 shares authorized as of September 30, 2016 and 2017; 27,898,391 shares issued and outstanding as of September 30, 2016 and 2017. No shares authorized, issued or outstanding, pro forma as of September 30, 2017 (Liquidation preference of $9,111 as of September 30, 2016 and 2017)	$ 9,141	$ 9,141	$ —
Series B redeemable convertible preferred stock, $0.00001 par value—32,988,887 shares authorized as of September 30, 2016 and 2017; 32,828,281 shares issued and outstanding as of September 30, 2016 and 2017. No shares authorized, issued or outstanding, pro forma as of September 30, 2017 (Liquidation preference of $26,000 as of September 30, 2016 and 2017)	25,900	25,900	—
Series C redeemable convertible preferred stock, $0.00001 par value—24,854,989 shares authorized as of September 30, 2016 and 2017; 24,668,310 shares issued and outstanding as of September 30, 2016 and 2017. No shares authorized, issued or outstanding, pro forma as of September 30, 2017 (Liquidation preference of $37,000 as of September 30, 2016 and 2017)	36,726	36,726	—
Series D redeemable convertible preferred stock, $0.00001 par value—30,442,280 and 64,124,559 shares authorized as of September 30, 2016 and 2017, respectively; 29,096,365 and 59,743,942 shares issued and outstanding as of September 30, 2016 and 2017, respectively. No shares authorized, issued or outstanding, pro forma as of September 30, 2017. (Liquidation preference of $62,432 and $128,193 as of September 30, 2016 and 2017, respectively)	62,270	127,866	—
Total redeemable convertible preferred stock	$ 134,037	$ 199,633	$ —
Stockholders' equity (deficit)			
Common stock, $0.00001 par value—165,000,000 and 210,000,000 shares authorized at September 30, 2016 and September 30, 2017, respectively; 31,151,358 and 31,474,045 shares issued and outstanding at September 30, 2016 and 2017, respectively. 176,612,969 shares issued and outstanding at September 30, 2017 pro forma (unaudited)	$ —	$ —	$ 2
Additional paid-in capital	3,689	6,228	206,503
Accumulated other comprehensive income	9	33	33
Accumulated deficit	(80,309)	(139,619)	(139,619)
Total stockholders' equity (deficit)	$ (76,611)	$ (133,358)	$ 66,919
Total liabilities, redeemable convertible preferred stock and stockholders' equity (deficit)	$ 76,463	$ 85,657	$ 85,657

The accompanying notes are an integral part of these consolidated financial statements.

Twist Bioscience Corporation
Consolidated statements of operations and comprehensive loss

(In thousands, except share and per share amounts)	Year ended September 30, 2016	2017
Revenues	$ 2,269	$ 10,767
Operating expenses:		
Cost of revenues	$ 9,421	$ 24,020
Research and development	18,230	19,169
Selling, general and administrative	18,274	26,060
Total operating expenses	$ 45,925	$ 69,249
Loss from operations	$ (43,656)	$ (58,482)
Interest income	241	412
Interest expense	(746)	(905)
Other income (expense), net	73	(55)
Loss before income taxes	$ (44,088)	$ (59,030)
Provision for income taxes	—	(280)
Net loss attributable to common stockholders	$ (44,088)	$ (59,310)
Other comprehensive loss:		
Change in unrealized gain (loss) on investments	$ 9	$ (9)
Foreign currency translation adjustment	—	33
Comprehensive loss	$ (44,079)	$ (59,286)
Net loss per share attributable to common stockholders—basic and diluted	$ (2.38)	$ (2.47)
Weighted average shares used in computing net loss per share attributable to common stockholders—basic and diluted	18,511,202	23,982,605
Pro forma net loss per share—basic and diluted (unaudited)		$ (0.39)
Pro forma weighted-average shares used in computing pro forma net loss per share—basic and diluted (unaudited)		152,397,059

The accompanying notes are an integral part of these consolidated financial statements.

Twist Bioscience Corporation
Consolidated statements of redeemable convertible preferred stock and stockholders' deficit

(In thousands, except share data)	Series A convertible preferred stock		Series B convertible preferred stock		Series C convertible preferred stock		Series D convertible preferred stock		Common stock		Additional paid-in capital	Other comprehensive income	Accumulated deficit	stockhol d
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount				
Balances as of September 30, 2015	27,898,391	$ 9,141	32,828,281	$25,900	24,668,310	$36,726	—	$ —	23,665,455	$ —	$ 315	$ —	$ (36,221)	$ (3
Issuance of Series D redeemable convertible preferred stock, net of financing costs of $162	—	—	—	—	—	—	29,096,365	62,270	—	—	—	—	—	
Issuance of common stock to owners of Genome Compiler Corporation	—	—	—	—	—	—	—	—	3,990,593	—	2,400	—	—	2
Issuance of restricted common stock to employees	—	—	—	—	—	—	—	—	3,170,000	—	160	—	—	
Vesting of restricted common stock issued to member of the Board of Directors	—	—	—	—	—	—	—	—	—	—	7	—	—	
Exercise of stock options	—	—	—	—	—	—	—	—	390,727	—	110	—	—	
Repurchase of early exercised stock options	—	—	—	—	—	—	—	—	(65,417)	—	—	—	—	
Stock based compensation	—	—	—	—	—	—	—	—	—	—	697	—	—	
Other comprehensive income	—	—	—	—	—	—	—	—	—	—	—	9	—	
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	(44,088)	(4
Balances as of September 30, 2016	27,898,391	$ 9,141	32,828,281	$25,900	24,668,310	$36,726	29,096,365	$ 62,270	31,151,358	$ —	$ 3,689	$ 9	$ (80,309)	$ (7
Issuance of Series D redeemable convertible preferred stock, net of financing costs of $165	—	—	—	—	—	—	30,647,577	65,596	—	—	—	—	—	
Vesting of restricted common stock issued to member of the Board of Directors	—	—	—	—	—	—	—	—	—	—	4	—	—	
Exercise of stock options	—	—	—	—	—	—	—	—	322,687	—	162	—	—	
Issuance of common stock warrants	—	—	—	—	—	—	—	—	—	—	486	—	—	
Stock based compensation	—	—	—	—	—	—	—	—	—	—	1,887	—	—	
Other comprehensive income	—	—	—	—	—	—	—	—	—	—	—	24	—	
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	(59,310)	(5
Balances as of September 30, 2017	27,898,391	$ 9,141	32,828,281	$25,900	24,668,310	$36,726	59,743,942	$127,866	31,474,045	$ —	$ 6,228	$ 33	($ 139,619)	$ (13

The accompanying notes are an integral part of these consolidated financial statements.

Twist Bioscience Corporation
Consolidated statements of cash flows

(in thousands)	Year ended September 30, 2016	2017
Cash flows from operating activities		
Net loss attributable to common stockholders	$(44,088)	$(59,310)
Adjustments to reconcile net loss to net cash used in operating activities		
Depreciation and amortization	4,229	5,021
Loss on disposal of property and equipment	—	507
Stock-based compensation	857	1,891
Non-cash interest expense	160	363
Change in fair value of redeemable convertible preferred stock warrant liability	(68)	261
Amortization of debt discount	78	95
Changes in assets and liabilities, net of impact of business combination:		
Accounts receivable	(702)	(1,623)
Inventory	(1,228)	(599)
Prepaid expenses and other current assets	(318)	(324)
Other non-current assets	(221)	(481)
Accounts payable	466	560
Accrued expenses	1,016	621
Accrued payroll	982	1,067
Other liabilities	245	650
Net cash used in operating activities	(38,592)	(51,301)
Cash flows from investing activities		
Purchases of property and equipment	(6,229)	(6,594)
Proceeds from sale of property and equipment	—	266
Purchases of investments	(27,290)	(40,587)
Maturity of investments	—	36,925
Change in restricted cash	(80)	120
Cash acquired through business combination	254	—
Net cash used in investing activities	(33,345)	(9,870)
Cash flows from financing activities		
Proceeds from issuance of common stock and exercise of stock options	152	205
Proceeds from issuance of Series D redeemable convertible preferred stock, net of issuance costs	62,270	65,596
Borrowings of long-term debt	7,652	2,174
Repayments on long-term debt	(426)	(4,173)
Net cash provided by financing activities	69,648	63,802
Net increase (decrease) in cash and cash equivalents	(2,289)	2,631
Cash and cash equivalents at beginning of year	30,885	28,596
Cash and cash equivalents at end of period	$ 28,596	$ 31,227
Supplemental disclosure of cash flow information		
Interest paid	$ 391	$ 702
Income taxes paid	14	6
Non-cash investing and financing activities		
Property and equipment additions included in accrued liabilities and accounts payable	$ 1,079	$ 285
Fair value of warrants issued in connection with debt	182	486
Fair value of common stock issued to owners of Genome Compiler Corporation	2,400	—

The accompanying notes are an integral part of these consolidated financial statements.

Twist Bioscience Corporation
Notes to consolidated financial statements

1. The company

Twist Bioscience Corporation (the Company) was incorporated in the state of Delaware on February 4, 2013. The Company is a synthetic biology company that has developed a disruptive DNA synthesis platform.

DNA is used in many applications across different industries: industrial chemicals, academic, healthcare and agriculture. For the first two years of its existence, the Company focused on business planning, research, recruiting, raising capital, building prototypes, proving its technology, and preparing for commercial launch. The Company began generating revenues from the sale of synthetic DNA in April 2016.

In April 2016, the Company acquired Genome Compiler Corporation (GCC), a company with research and development operations in Israel, to supplement the Company's digital biology workflow. Aggregate consideration of 4.0 million shares of the Company's common stock were issued to the holders of the outstanding shares of the acquired company in connection with the acquisition. The Company is utilizing GCC's technology and expertise to grow its digital products portfolio, including its e-commerce solution with gene design capabilities.

The Company has a limited operating history and its prospects are subject to risks, expenses and uncertainties frequently encountered by companies in this industry. These risks include, but are not limited to, the uncertainty of availability of additional financing, market acceptance of its products, the ability to retain and attract new customers, and the uncertainty of achieving future profitability.

The Company has generated net losses in all periods since inception. As of September 30, 2017, the Company had an accumulated deficit of $139.6 million and has not generated positive cash flows from operations since inception. Losses are expected to continue as the Company continues to invest in product development, manufacturing, and sales and marketing. Based on its recurring losses from operations incurred since inception, expectation of continuing operating losses for the foreseeable future, and need to raise additional capital to finance its future operations, the Company has concluded that there is substantial doubt about its ability to continue as a going concern within one year after the date that the consolidated financial statements are issued.

The Company has raised multiple rounds of debt and equity financing, including an aggregate of $65.6 million from the sale of preferred stock between March and September of 2017. However, there can be no assurance that additional financing will be successful in raising additional capital or that such capital, if available, will be on terms which are acceptable to us.

If the Company is unable to obtain funding, the Company could be forced to delay, reduce or eliminate some or all of its research and development programs, product portfolio expansion or commercialization efforts, which could adversely affect its business prospects, or the Company may be unable to continue operations. Failure to raise additional capital or generate sufficient cash flows from operations could have a material adverse effect on the Company's ability to achieve its intended business objectives. Although management continues to pursue these plans, there is no assurance that the Company will be successful in obtaining sufficient funding on terms acceptable to the Company to fund continuing operations, if at all.

The accompanying consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty. Accordingly, the consolidated financial statements have been prepared on a basis

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that assumes the Company will continue as a going concern and which contemplates the realization of assets and satisfaction of liabilities and commitments in the ordinary course of business.

2. Summary of significant accounting policies

Basis of presentation and use of estimates

The presentation of consolidated financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the date of the consolidated financial statements and the reported amounts of revenue and expenses during the reporting period. Such estimates include the valuation of deferred tax assets, stock-based compensation expense, and the fair value of the Company's common stock and redeemable convertible preferred stock warrant liabilities. Actual results could differ from those estimates. The Company's consolidated financial statements include its wholly-owned subsidiaries. All intercompany balances and accounts are eliminated in consolidation.

Unaudited pro forma consolidated balance sheet information

Immediately prior to the completion of the initial public offering contemplated herein, all outstanding shares of convertible preferred stock will automatically convert into shares of common stock. The unaudited pro forma consolidated balance sheet information at September 30, 2017 gives effect to the conversion of all outstanding shares of the Company's convertible preferred stock into 145,138,924 shares of common stock. It also gives effect to an automatic conversion of warrants to purchase 786,594 shares of redeemable convertible preferred stock into warrants to purchase the same number of shares of common stock, which results in the reclassification of the redeemable convertible preferred stock warrant liability to additional paid-in capital. The unaudited pro forma consolidated balance sheet information does not give effect to the potential proceeds from the Company's contemplated initial public offering.

Risks and uncertainties

The Company relies on third parties for the supply and manufacture of its products, as well as third-party logistics providers. In instances where these parties fail to perform their obligations, the Company may be unable to find alternative suppliers to satisfactorily deliver its products to its customers on time, if at all.

The Company operates in a dynamic and highly competitive industry and believes that changes in any of the following areas could have a material adverse effect on the Company's future financial position, results of operations, or cash flows; ability to obtain future financing; advances and trends in new technologies and industry standards; market acceptance of the Company's products; development of sales channels; certain strategic relationships; litigation or claims against the Company regarding intellectual property, patent, product, regulatory, or other factors; and the ability to attract and retain employees necessary to support its growth.

The Company has expended and expects to continue to expend substantial funds to complete the research and development of its production process. The Company may require additional funds to commercialize its products and may be unable to entirely fund these efforts with its current financial resources. Additional funds may not be available on acceptable terms, if at all. If adequate funds are unavailable on a timely basis from operations or additional sources of financing, the Company may have to delay the sale of the Company's

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products and services which would materially and adversely affect its business, financial condition and operations.

Concentration of credit risk

Financial instruments that potentially subject the Company to a concentration of credit risk consist of cash and cash equivalents, short-term investments and accounts receivable. Substantially all of the Company's cash is held by one financial institution that management believes is of high credit quality. Such deposits may, at times, exceed federally insured limits. The Company's investment policy addresses the level of credit exposure by establishing a minimum allowable credit rating and by limiting the concentration in any one investment.

The Company's accounts receivable is derived from customers located principally in the United States. The Company maintains credit insurance for certain of its customer balances, performs ongoing credit evaluations of its customers, and maintains allowances for potential credit losses on customers' accounts when deemed necessary. The Company does not typically require collateral from its customers. Credit losses historically have not been material. The Company continuously monitors customer payments and maintains an allowance for doubtful accounts based on its assessment of various factors including historical experience, age of the receivable balances, and other current economic conditions or other factors that may affect customers' ability to pay.

Customer concentration

Customers that accounted for equal to or greater than 10% of total revenues were as follows:

	Years ended September 30,	
	2016	**2017**
Customer A	30%	40%
Customer B	11%	0%

One customer accounted for greater than 10% of net accounts receivable as follows:

	September 30,	
	2016	**2017**
Customer A	41%	35%

Cash and cash equivalents

Cash equivalents that are readily convertible to cash are stated at cost, which approximates fair value. The Company considers all highly liquid investments with an original or remaining maturity of three months or less at the time of purchase to be cash equivalents. Cash equivalents primarily consist of investments in money market funds as of September 30, 2016 and 2017.

Short-term investments

The Company invests in various types of securities, including United States government, commercial paper, and corporate debt securities. It classifies its investments as available-for-sale and records them at fair value based upon market prices at period end. Unrealized gains and losses that are deemed temporary in nature are

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recorded in accumulated other comprehensive income (loss) as a separate component of stockholders' equity (deficit). Dividend and interest income are recognized when earned. Realized gains and losses are included in earnings and are derived using the specific identification method for determining the cost of investments sold. The Company may sell these securities at any time for use in current operations.

Accounts receivable

Trade receivables include amounts billed and currently due from customers, recorded at the net invoice value and are not interest bearing. The amounts due are stated at their net estimated realizable value. The Company maintains an allowance for doubtful accounts to provide for the estimated amounts of receivables that will not be collected. The allowance is based upon an assessment of customer creditworthiness, historical payment experience, the age of outstanding receivables and collateral to the extent applicable. The Company re-evaluates such allowance on a regular basis and adjusts its allowance as needed. Once a receivable is deemed to be uncollectible, such balance is charged against the allowance.

The Company's accounts receivable balance consists of the following:

	September 30,	
(in thousands)	**2016**	**2017**
Trade Receivables	$ 664	$ 2,237
Other Receivables	59	109
Accounts Receivable	$ 723	$ 2,346

The Company has a short order-to-invoice lifecycle, as most products can be manufactured within one month. Upon delivery of the products to the customer, the Company invoices the customer. The typical timing of payment is net 30 days, with some customers having payment terms of net 90 days.

Fair value of financial instruments

The carrying amounts of the Company's financial instruments including cash equivalents, accounts payable and accrued liabilities approximate fair value due to their relatively short maturities. The carrying amounts of the redeemable convertible preferred stock warrant liability represent their fair values. Based on the borrowings rates currently available to the Company for loans with similar terms, the carrying value of the Company's long-term debt approximates its fair value (level 2 within the fair value hierarchy).

Inventory

Inventory is stated at the lower of cost or net realizable value. Cost is determined using the first-in, first-out method. Determining net realizable value of inventory involves judgments and assumptions, including projecting selling prices and costs to sell. Provisions are made to reduce excess and obsolete inventories to their estimated net realizable value based on forecasted demand, past experience, the age and nature of inventories.

Property and equipment

Property and equipment are stated at cost. Depreciation is computed using the straight-line method over the estimated useful lives of the assets or the remaining lease term of the respective leasehold improvements

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assets, if any. The Company recorded depreciation expense of $4.1 million and $4.8 million as of September 30, 2016 and 2017, respectively. Estimated lives of property and equipment are as follows:

Laboratory equipment	5 Years
Furniture, fixtures and other equipment	5 Years
Computer equipment	3 Years
Computer software	3 Years
Leasehold improvements	Lesser of useful life or facilities' lease term.

Maintenance and repairs are charged to expense as incurred, and improvements and betterments are capitalized and depreciated through the life of the lease. When assets are retired or otherwise disposed of, the cost and accumulated depreciation are removed from the balance sheet and any resulting gain or loss is reflected in operations in the period realized.

Capitalized software development costs

Costs associated with internal-use software systems, including those to improve e-commerce capabilities, during the application development stage are capitalized. Capitalization of costs begins when the preliminary project stage is completed, management has committed to funding the project, and it is probable that the project will be completed and the software will be used to perform the function intended. Capitalization ceases at the point when the project is substantially complete and is ready for its intended purpose. The capitalized amounts are included in property and equipment, net on the consolidated balance sheets.

Capitalized software development costs, net, were $1.3 million as of September 30, 2017. The Company did not have any capitalized software development costs in prior years. Capitalized costs are amortized using the straight-line method over an estimated useful life of the assets, which is three years.

Long-lived assets

The Company reviews property and equipment and intangibles for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability is measured by comparison of the carrying amount to the future undiscounted cash flows which the assets are expected to generate. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceeds the projected discounted future net cash flows arising from the asset. There have been no such impairments of long-lived assets during the years ended September 30, 2016 and 2017.

Business combinations

Assets acquired and liabilities assumed as part of a business combination are generally recorded at their fair value at the date of acquisition. The excess of purchase price over the fair value of assets acquired and liabilities assumed is recorded as goodwill. Determining the fair value of identifiable assets, particularly intangible assets acquired, and liabilities assumed requires management to make estimates, which are based on all available information and in some cases assumptions with respect to the timing and amount of future revenues and expenses associated with an asset. Costs to effect an acquisition are recorded in general and administrative expenses in the consolidated statements of operations and comprehensive loss as the expenses are incurred.

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Goodwill and purchased intangible assets

Goodwill is evaluated for impairment annually or more frequently if events or changes in circumstances indicate that the carrying value of the asset may not be recoverable. If, based on a qualitative assessment, the Company determines it is more likely than not that goodwill is impaired, a quantitative assessment is performed to determine if the fair value of the Company's sole reporting unit is less than its carrying value.

Purchased intangible assets with finite lives are generally amortized over their estimated useful lives using the straight-line method. The Company reviews intangible assets for impairment whenever events or changes in business circumstances indicate that the carrying amounts of the assets may not be fully recoverable. Impairment assessments inherently involve judgment as to assumptions about expected future cash flows and the impact of market conditions on those assumptions.

Segment information

The Company has one business activity, which is manufacturing of synthetic DNA using its semiconductor based silicon platform and operates as one reportable and operating segment. The Company's chief operating decision-maker, its Chief Executive Officer (CEO), reviews the Company's operating results on an aggregate basis for purposes of allocating resources and evaluating financial performance.

Revenue recognition

Effective October 1, 2017, the Company elected to early adopt the requirements of Accounting Standards Codification (ASC) 606, *Revenue from Contracts with Customers* using the full retrospective method. The Company evaluated the impact on revenues, loss from operations, net loss attributable to common stockholders and basic and diluted earnings per share for all periods presented and concluded that there was no material impact on the Company's consolidated financial statements for all periods presented.

The Company's revenue is generated through the sale of synthetic biology tools, such as synthetic genes, or clonal genes and fragments, oligonucleotides pools, or oligo pools, next generation sequencing, or NGS tools and DNA libraries. The Company accounts for a contract when it has approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable.

Contracts with customers are generally in the written form of a purchase order or a quotation, which outline the promised goods and the agreed upon price. Such orders are often accompanied by a Master Supply or Distribution Agreement that establishes the terms and conditions, rights of the parties, delivery terms, and pricing. The Company assesses collectability based on a number of factors, including past transaction history and creditworthiness of the customer.

For all of the Company's contracts to date, the customer orders a specified quantity of a synthetic DNA sequence; therefore, the delivery of the ordered quantity per the purchase order is accounted for as one performance obligation. Some contracts may contain prospective discounts when certain order quantities are exceeded; however, these future discounts are either not significant, not deemed to be incremental to the pricing offered to other customers, or not enforceable options to acquire additional goods. As a result, these discounts do not constitute a material right and do not meet the definition of a separate performance obligation. The Company does not offer retrospective discounts or rebates.

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The transaction price is determined based on the agreed upon rates in the purchase order or master supply agreements applied to the quantity of synthetic DNA that was manufactured and shipped to the customer. The Company's contracts include only one performance obligation – the delivery of the product to the customer. Accordingly, all of the transaction price, net of any discounts, is allocated to the one performance obligation. Therefore, upon delivery of the product, there are no remaining performance obligations. The Company's shipping and handling activities are considered a fulfillment cost. The Company has elected to exclude all sales and value added taxes from the measurement of the transaction price. The Company has not adjusted the transaction price for significant financing since the time period between the transfer of goods and payment is less than one year.

The Company recognizes revenue at a point in time when control of the products is transferred to the customer. Management applies judgment in evaluating when a customer obtains control of the promised good which is generally when the product is shipped or delivered to the customer. The Company's customer contracts generally include a standard assurance warranty to guarantee that its products comply with agreed specifications. The Company reduces revenue by the amount of expected returns which have been insignificant.

The Company has elected the practical expedient where the consideration allocated to the remaining performance obligations and an explanation of when those amounts are expected to be recognized as revenue are not disclosed for all reporting periods presented before the date of initial application.

Refer to Note 17 for the disaggregation of revenue by geography.

Revenues by industry were as follows:

	Years ended September 30,	
(in thousands)	**2016**	**2017**
Industrial chemicals	$ 960	$ 6,702
Academic research	830	2,709
Healthcare	461	1,226
Agricultural	18	130
Total revenues	$ 2,269	$ 10,767

The Company does not have any contract assets or contract liabilities as of September 30, 2016 and 2017. For all periods presented, the Company did not recognize revenue from amounts that were included in the contract liability balance at the beginning of each period. In addition, for all periods presented, there was no revenue recognized in a reporting period from performance obligations satisfied in previous periods.

Based on the nature of the Company's contracts with customers which are recognized over a term of less than 12 months, the Company has elected to use the practical expedient whereby costs to obtain a contract are expensed as they are incurred.

Research and development

Research and development expenses consist of compensation costs, employee benefits, subcontractors, research supplies, allocated facility related expenses and allocated depreciation and amortization. All research and development costs are expensed as incurred.

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Advertising costs

Costs related to advertising and promotions are expensed to sales and marketing as incurred. Advertising and promotion expenses for the years ended September 30, 2016 and 2017, were $0.2 million and $0.1 million, respectively.

Government contract payments

The Company recognizes payments received from its funded research and development agreement with Defense Advanced Research Projects Agency (DARPA) when milestones are achieved and records them as a reduction of research and development expenses. In the year ended September 30, 2016, milestones met and recorded as a reduction of research and development costs totaled $2.4 million. There were no DARPA payments received during the year ended September 30, 2017.

Redeemable convertible preferred stock warrant liability

Outstanding warrants that are related to the Company's redeemable convertible preferred stock are classified as liabilities on the balance sheet. As the warrants to purchase redeemable convertible preferred stock are exercisable into shares of convertible preferred stock, the Company has recognized a liability for the fair value of its warrants on the consolidated balance sheets upon issuance and subsequently remeasures the liability to fair value at the end of each reporting period until the earlier of the expiration or exercise of the warrants. In connection with the closing of an initial public offering, all of the outstanding warrants to purchase redeemable convertible preferred stock will automatically convert to warrants to purchase common stock, which qualify for equity classification and no further measurement will be required thereafter.

Common stock warrants

Warrants to purchase the Company's common stock issued in conjunction with debt are recorded as additional paid-in-capital and classified as equity on the consolidated balance sheets. During the year ended September 30, 2017, the Company recorded $0.5 million in additional paid-in-capital for the fair value of warrants to purchase common stock issued in connection with long-term debt.

Stock-based compensation

The Company maintains performance incentive plans under which incentive and nonqualified stock options are granted primarily to employees and may be granted to members of the Board of Directors and certain non-employee consultants.

The Company recognizes stock compensation in accordance with ASC 718, *Compensation — Stock Compensation*. ASC 718 requires the recognition of compensation expense, using a fair value based method, for costs related to all stock-based payments including stock options.

The Company recognizes fair value of stock options granted to non-employees as a stock-based compensation expense over the period in which the related services are received. The Company recognizes forfeitures as they occur. The Company believes that the estimated fair value of stock options is more readily measurable than the fair value of the services rendered.

Net loss per share attributable to common stockholders

The Company calculates its basic and diluted net loss per share attributable to common stockholders in conformity with the two-class method required for companies with participating securities. In computing

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diluted net loss attributable to common stockholders, undistributed earnings are re-allocated to reflect the potential impact of dilutive securities. The Company's basic net loss per share attributable to common stockholders is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of shares of common stock outstanding for the period. For purposes of the calculation of diluted net loss per share attributable to common stockholders, convertible preferred stock, unvested shares of common stock issued upon the early exercise of stock options, warrants to purchase redeemable convertible preferred stock, warrants to purchase common stock, unvested restricted common stock and stock options to purchase common stock are considered potentially dilutive securities but have been excluded from the calculation of diluted net loss per share attributable to common stockholders as their effect is antidilutive.

Basic and diluted net loss per share of common stock attributable to common stockholders is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of shares of common stock outstanding during the period, less shares subject to repurchase, and excludes any dilutive effects of employee stock-based awards and warrants. Because the Company has reported a net loss for the years ended September 30, 2016 and 2017, diluted net loss per common share is the same as the basic net loss per share for those years.

The Company considers all series of its convertible preferred stock to be participating securities as they are entitled to receive noncumulative dividends prior and in preference to any dividends on shares of common stock. Due to the Company's net losses, there is no impact on the loss per share calculation in applying the two-class method since the participating securities have no legal obligation to share in any losses.

Unaudited pro forma net loss per share

Pro forma net loss per share, basic and diluted was computed to give effect to the conversion of the Series A, Series B, Series C and Series D convertible preferred stock using the as-if converted method into common shares as though the conversion had occurred as of the beginning of the period or the original date of issuance, if later. Also, the numerator has been adjusted to reverse the fair value adjustments related to the redeemable convertible preferred stock warrants as they will become common stock warrants and at such time will no longer require periodic revaluation.

Income taxes

The Company accounts for income taxes using the asset and liability method whereby deferred tax asset and liability accounts are determined based on differences between financial reporting and tax bases of assets and liabilities and are measured using the enacted tax rates and laws that are currently in effect. Valuation allowances are established where necessary to reduce deferred tax assets to the amounts expected to be realized.

Recent accounting pronouncements

In May 2014, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2014-09, *Revenue from Contracts with Customers (Topic 606)*, which provides accounting guidance for all revenue arising from contracts with customers, and supersedes most current revenue recognition guidance. The core principle of the new standard is that a company should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. The two permitted transition methods under the

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new standard are the full retrospective method, in which case the standard would be applied to each prior reporting period presented and the cumulative effect of applying the standard would be recognized at the earliest period shown, or the modified retrospective method, in which case the cumulative effect of applying the standard would be recognized at the date of initial application. The Company has adopted the new revenue standard using the full retrospective method.

In August 2014, the FASB issued ASU 2014-15, *Presentation of Financial Statements—Going Concern* which requires an entity's management to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the entity's ability to continue as a going concern within one year after the date that the financial statements are issued or available to be issued and requires disclosure of those conditions and management's plans. This standard is effective for the annual period ending after December 15, 2016, with early adoption permitted. The Company has adopted this standard for the year ended September 30, 2017.

In April 2015, the FASB issued ASU 2015-03, *Simplifying the Presentation of Debt Issuance Costs*. The standard requires that debt issuance costs be presented in the balance sheet as a direct deduction from the carrying amount of the related debt liability, similar to debt discounts. The standard will be effective for financial statements issued for annual periods beginning after December 15, 2015, and interim periods within those annual periods. Adoption of this new standard did not have a material impact on the Company's consolidated financial statements.

In September 2015, the FASB issued ASU 2015-16, *Business Combinations*, to simplify accounting for adjustments made to provisional amounts recognized in a business combination by eliminating the requirement to retrospectively account for those adjustments. This ASU is effective for financial statements issued for fiscal years beginning after December 15, 2015, and interim periods within those fiscal years with early adoption permitted. The amendments in this ASU require that the acquirer record, in the same period's financial statements, the effect on earnings of changes in depreciation, amortization or other income effects as a result of changes to provisional amounts, calculated as if the accounting had been completed at the acquisition date. The adoption of this standard did not have a material impact on the Company's consolidated financial statements.

In November 2015, the FASB issued ASU 2015-17, *Balance Sheet Classification of Deferred Taxes*. The new standard requires that the Company classify all deferred tax assets and liabilities as non-current. The new standard is effective for fiscal years beginning after December 15, 2016, though early adoption is permitted as of the beginning of an earlier interim or annual reporting period. The adoption of this standard did not have a material impact on the Company's consolidated financial statements.

In February 2016, the FASB issued new lease accounting guidance in ASU 2016-02, *Leases*. Under the new guidance, lessees will be required to recognize for all leases (with the exception of short-term leases) at the commencement date: (1) a lease liability, which is a lessee's obligation to make lease payments arising from a lease, measured on a discounted basis; and (2) a right-of-use asset, which is an asset that represents the lessee's right to use, or control the use of, a specified asset for the lease term. The new lease guidance is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. Early application is permitted. The Company is currently evaluating the impact that the adoption of this standard will have on its consolidated financial statements.

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In March 2016, the FASB issued ASU 2016-09, *Improvements to Employee Share-Based Payment Accounting*, which impacts the accounting for stock-based payment transactions, including income tax consequences. The standard requires the tax impacts of stock-based awards to be reflected in the income statement and also requires excess tax benefits to be classified as an operating cash flow. The standard also allows an entity to elect to account for forfeitures of stock-based awards as they occur. The standard is effective for the annual period beginning after December 15, 2017, with early adoption permitted. The Company early adopted this standard for the year ended September 30, 2016 with no material impact on its consolidated financial statements.

In August 2016, the FASB issued ASU 2016-15, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments*, which was intended to reduce diversity in practice in how certain cash receipts and payments are presented and classified in the statement of cash flows. The standard provides guidance in a number of situations including, among others, settlement of zero-coupon bonds, contingent consideration payments made after a business combination, proceeds from the settlement of insurance claims, and distributions received from equity method investees. The ASU also provides guidance for classifying cash receipts and payments that have aspects of more than one class of cash flows. The ASU is effective for fiscal years beginning after December 15, 2017, and interim period within those fiscal years, with early adoption permitted. The amendments in this update should be applied in retrospective transition for each period presented. The Company is currently evaluating the impact that the adoption of this standard will have on its consolidated financial statements.

In November 2016, the FASB has issued ASU 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash*. This ASU applies to all entities that have restricted cash or restricted cash equivalents and are required to present a statement of cash flows. The ASU requires that a statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. As a result, amounts generally described as restricted cash and restricted cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. This ASU is effective for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years with early adoption is permitted. The Company is currently evaluating the impact that the adoption of this standard will have on its consolidated financial statements.

In January 2017, the FASB has issued ASU 2017-01, *Business Combinations (Topic 805)*: *Clarifying the Definition of a Business*, clarifying the definition of a business. The ASU affects all companies and other reporting organizations that must determine whether they have acquired or sold a business. The definition of a business affects many areas of accounting including acquisitions, disposals, goodwill, and consolidation. The ASU is effective for annual periods beginning after December 15, 2017, including interim periods within those periods. The Company is currently evaluating the impact that the adoption of this standard will have on its consolidated financial statements.

In January 2017, the FASB issued ASU 2017-04, *Intangibles — Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment.* This ASU simplifies the subsequent measurement of goodwill. The ASU eliminates step 2 from the goodwill impairment test, including for reporting units with a zero or negative carrying amount that fail a qualitative test. An entity still has the option to perform the qualitative assessment for a reporting unit to determine if the quantitative impairment test is necessary. This ASU should be applied on a prospective basis. This ASU is effective for annual or any interim goodwill impairment tests in fiscal years beginning after

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December 15, 2019. Early adoption is permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. The Company has not yet determined whether it will early adopt this ASU.

In May 2017, the FASB issued ASU 2017-09, *Compensation — Stock Compensation (Topic 718): Scope of Modification Accounting*, which clarifies when to account for a change to the terms or conditions of a stock-based payment award as a modification. Under ASU 2017-09, modification accounting is required only if the fair value, the vesting conditions, or the classification of the award (as equity or liability) changes as a result of the change in terms or conditions. This standard is effective for all entities for annual reporting periods beginning after December 15, 2017, including interim periods within that reporting period. Early adoption is permitted. The Company is evaluating the impact that this standard will have on its consolidated financial statements.

3. Acquisition

In April 2016, pursuant to the terms of an agreement and plan of merger, the Company acquired 100% of the outstanding shares of GCC. GCC was incorporated in Delaware with one subsidiary (Genome Compiler Israel Ltd.) in Tel Aviv, Israel. GCC provided software for genetic engineers and molecular and synthetic biologists. The acquisition of GCC provided the Company with a gene design tool as well as an experienced and highly skilled workforce to complement the Company's operations and develop a digital products portfolio, including an e-commerce solution with synthetic DNA design capabilities.

The results of GCC's operations from the acquisition date forward and the fair values of the acquired assets and liabilities assumed have been included in the consolidated financial statements.

The acquisition was completed in exchange for 4.0 million shares of common stock of the Company which were valued at $2.4 million at the time of the closing of the acquisition. The following table summarizes the fair values of assets acquired, liabilities assumed and goodwill.

(in thousands)	
Cash and cash equivalents	$ 254
Other assets	137
Property and equipment	7
Goodwill	1,138
Intangible assets	1,240
Total assets acquired	2,776
Accounts payable	(180)
Accrued expenses	(173)
Other liabilities	(23)
Net assets acquired	**$2,400**

The fair value of the intangible assets was estimated by determining the present value of estimated future operating cash flows generated from existing technology. The fair values of the intangible assets were estimated by applying the income approach. The income approach is used to estimate fair value based on the income stream, such as cash flows or earnings that an asset can be expected to generate over its useful life. Refer to Note 6 for further discussion on intangible assets acquired from the acquisition.

Goodwill is not deductible for tax purposes and represents the excess of the purchase price over the fair value of the net tangible and intangible assets acquired. The goodwill is attributable to the workforce of the acquired

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business and the synergies expected from the acquisition. Goodwill will not be amortized and will be tested for impairment at least annually. The pro forma effect of this acquisition as if it had occurred at the beginning of the year was not material to the consolidated financial statements.

4. Fair value measurement

The Company assesses the fair value of financial instruments based on the provisions of ASC 820, *Fair Value Measurements*. ASC 820 defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. ASC 820 also establishes a fair value hierarchy which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The standard describes three levels of inputs that may be used to measure fair value:

Level 1—Quoted prices in active markets for identical assets or liabilities.

Level 2—Observable inputs other than Level 1 prices such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities. The Company short-term investments primarily utilizes broker quotes in a non-active market for valuation of its short term investments.

Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

In determining fair value, the Company utilizes valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible as well as considers counterparty credit risk in its assessment of fair value.

The following table sets forth the cash, cash equivalents, and short-term investments as of September 30, 2016:

(in thousands)	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value
Cash and cash equivalents	$ 28,596	$ —	$ —	$28,596
Short-term investments	27,315	9	—	27,324
Total	$ 55,911	$ 9	$ —	$55,920

The following table sets forth the cash, cash equivalents, and short-term investments as of September 30, 2017:

(in thousands)	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value
Cash and cash equivalents	$ 31,227	$ —	$ —	$31,227
Short-term investments	30,977	—	—	30,977
Total	$ 62,204	$ —	$ —	$62,204

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As of September 30, 2016, financial assets and liabilities measured and recognized at fair value are as follows:

(in thousands)	Level 1	Level 2	Level 3	Fair value
Assets				
Money market funds	$28,596	$ —	$ —	$ 28,596
Corporate bonds	—	10,004	—	10,004
Commercial paper	—	3,500	—	3,500
U.S. government treasury bonds	—	13,820	—	13,820
Total	$28,596	$27,324	$ —	$ 55,920
Liabilities				
Redeemable convertible preferred stock warrant liability	$ —	$ —	$ 383	$ 383

As of September 30, 2017, financial assets and liabilities measured and recognized at fair value are as follows:

(in thousands)	Level 1	Level 2	Level 3	Fair value
Assets				
Cash and cash equivalents	$ 3,793	$ –	$ –	$ 3,793
Money market funds	21,494	–	–	21,494
Corporate bonds	–	1,707	–	1,707
Commercial paper	–	22,742	–	22,742
U.S. government treasury bills	12,468	–	–	12,468
Total	$37,755	$24,449	$ –	$ 62,204
Liabilities				
Redeemable convertible preferred stock warrant liability	$ –	$ –	$ 644	$ 644

Unrealized losses on cash equivalents and available–for–sale securities, which have been in an unrealized loss position for greater than twelve months, were not material as of September 30, 2016 and 2017.

Contractual maturities of short–term investments held at September 30, 2017 consists of amounts due within one year with an average maturity of 5.5 months.

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Redeemable convertible preferred stock warrants

The following table provides a reconciliation of beginning and ending balances of the Level 3 instruments during the years ended September 30, 2016 and 2017:

(in thousands)	Series A	Series B	Series C	Series D	Total
Redeemable convertible preferred stock warrant liability:					
Fair value at September 30, 2015	$ 214	$ 55	$ –	$ –	$ 269
Fair value related to issuance of redeemable convertible preferred stock warrants in connection with a loan agreement	–	–	141	41	182
Changes in fair value recorded in other income (expense), net	(30)	2	(33)	(7)	(68)
Fair value as of September 30, 2016	184	57	108	34	383
Change in fair value recorded in other income (expense), net	147	53	44	17	261
Fair value as of September 30, 2017	$ 331	$ 110	$ 152	$ 51	$ 644

5. Balance sheet components

Inventory consists of the following:

	September 30,	
(in thousands)	2016	2017
Raw Materials	$ 847	$1,243
Work-in-process	266	385
Finished Goods	115	199
	$1,228	$1,827

Property and Equipment, net consists of the following:

	September 30,	
(in thousands)	2016	2017
Laboratory equipment	$15,062	$ 16,652
Furniture, fixtures and other equipment	398	553
Computer equipment	1,839	2,018
Computer software	1,082	1,171
Leasehold improvements	2,441	3,301
Construction in progress	1,136	3,080
	21,958	26,775
Less: Accumulated depreciation and amortization	(7,341)	(11,941)
	$14,617	$ 14,834

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6. Goodwill and intangible assets

The Company's goodwill and intangible assets balances are the result of the acquisition of GCC (see Note 3). The Company recorded goodwill of $1.1 million during the year ended September 30, 2016 and there were no changes to the carrying value of goodwill during the year ended September 30, 2017. Total amortization expense related to intangible assets was $0.1 million for the year ended September 30, 2016 and $0.2 million for the year ended September 30, 2017.

The intangible assets balances are presented below:

			September 30, 2016	
(in thousands, except for years)	Useful lives in years	Gross carrying amount	Accumulated amortization	Net book value
Developed Technology	6	$ 1,220	$ (102)	$ 1,118
Tradenames & Trademarks	2	20	(5)	15
Total indefinite-lived intangible assets		$ 1,240	$ (107)	$ 1,133

			September 30, 2017	
	Useful lives in years	Gross carrying amount	Accumulated amortization	Net book value
Developed Technology	6	$ 1,220	$ (305)	$ 915
Tradenames & Trademarks	2	20	(15)	5
Total indefinite-lived intangible assets		$ 1,240	$ (320)	$ 920

Future annual amortization expense is as follows (in thousands):

2018	$ 208
2019	203
2020	203
2022	203
Thereafter	103
	$920

7. Long-term debt

In October 2013, the Company entered into a Loan and Security Agreement (the First Loan) with Silicon Valley Bank (SVB) for loan amounts aggregating up to $3.0 million in a series of up to three advances. The first advance was $2.0 million and the remaining two advances were $0.5 million, each upon achieving the milestone of receiving a minimum of an additional $4.0 million in Series A convertible preferred stock financing through September 30, 2014. Each loan bore interest at a fixed rate equal to 2.25% plus the Prime Rate as published by the Wall Street Journal but not less than 5.5% at the funding date of each advance. The debt provided interest-only payments from October 2013 through September 2014. A final payment fee of $0.2 million was due the earlier of the maturity date of March 2017 or the prepayment, acceleration demand by SVB, or termination of the loan. As part of the agreement, the Company issued a warrant to SVB to purchase 364,742 shares of

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Series A redeemable convertible preferred stock at an exercise price of $0.329 per share. In October 2013, the Company drew down $2.0 million of the loan at an interest rate of 5.5% as the prime rate was 3.25% at the time. In February 2014, the Company drew down the remaining $1.0 million of the First Loan, also at an interest rate of 5.5% as the prime rate was 3.25% at the time.

In September 2014, the Company entered into an Amended and Restated Loan and Security Agreement (the Second Loan) with SVB for loan amounts aggregating up to $10.0 million in a series of up to three advances. The first advance was in the amount of $3.2 million. The second advance was up to $3.8 million at any time after the Company achieved a specified product launch through December 31, 2015. The third advance was up to $3.0 million at any time after the Company achieved cumulative revenue of $5.0 million. Each loan bore interest at the greater of the Prime Rate as published by the Wall Street Journal at the time or 3.25%. The debt provided interest-only payments during the first twelve months. A final payment fee of 3.75% of the aggregate amount loaned was due the earlier of 42 months after the final tranche or the prepayment, acceleration demand by SVB, or termination of the loan. The Second Loan contained a subjective acceleration clause under which the loan could become due and payable to SVB in the event of a material adverse change in the Company's business, as determined by SVB.

At the time of the Second Loan, the Company drew down $3.2 million to refinance the First Loan balance of $3.0 million and the final payment fee of $0.2 million. The Prime Rate and interest rate of the loan was 3.25%. As part of the Second Loan agreement, the Company issued a warrant to SVB to purchase 160,606 shares of Series B redeemable convertible preferred stock at an exercise price of $0.792 per share. The Company accounted for this transaction as a debt modification. The Company did not incur any gains or losses relating to the debt modification.

In April 2015, the Company entered into a Master Loan and Security Agreement with a separate lender for loan amounts not to exceed $3.0 million. In May 2015, the Company borrowed $0.9 million using certain computer equipment as collateral. The term of the loan was 24 months and carried an interest rate of 4.44% with a final payment amount representing 10% of the principal amount of the loan. The loan was paid-off in 2017.

In December 2015, the Company entered into a Second Amended and Restated Loan and Security Agreement with SVB (the Third Loan), for loan amounts aggregating up to $15.0 million in a series of three advances. The Third Loan contained an acceleration clause under which the loan could become due and payable to SVB in certain events of default, including in the event of a material adverse change in the Company's business. The term of the loan was 41 months with an interest rate equal to the greater of (i) the prime rate or (ii) 3.25%, and a final payment fee of 6% of the principal amount loaned. In addition, the Company obtained a revolving loan facility from SVB of up to $5.0 million for which the principal amount outstanding under the revolving line would accrue interest at a floating per annum rate equal to 1.00% above the Prime Rate, which interest was payable monthly.

The first advance, totaling $7.0 million, was drawn in December 2015 and comprised $3.3 million to refinance the Second Loan and a new advance of $3.7 million. The debt provided interest-only payments through December 31, 2016 at which time monthly principal payments become due. In connection with this advance, the Company issued a warrant to purchase 186,679 shares of Series C redeemable convertible preferred stock at an exercise price of $1.4999 per share. The Company accounted for this transaction as a debt modification and did not incur any gains or losses relating to the modification. The second advance, totaling $4.0 million, was drawn in March 2016. In connection with this advance, the Company issued a warrant to purchase 74,567 shares of Series D redeemable convertible preferred stock at an exercise price of $2.1457 per share.

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In April 2016, the Company entered into a Third Amended and Restated Loan and Security Agreement to include GCC as co-borrower on the loan.

In September 2017, the Company entered into a Fourth Amended and Restated Loan and Security Agreement (the Fourth Loan) with SVB for loan amounts aggregating up to $20.0 million in a series of three advances. The first advance provides a principal amount of $10.0 million, the second advance provides a principal amount of $5.0 million and the third advance provides a principal amount of $5.0 million during their respective draw down periods. In connection with the first advance the Company issued a warrant to purchase 634,921 shares of common stock at an exercise price of $0.63 per share. If the Company draws down the second and third advances, the warrants would become exercisable for an additional 634,920 shares of common stock at an exercise price of $0.63 per share. The Fourth Loan contains a subjective acceleration clause under which the Fourth Loan could become due and payable to SVB in the event of a material adverse change in the Company's business. The term of the loan was 51 months with an interest rate of prime plus 3.00% and a final payment fee of $0.7 million.

The first advance, totaling $10.0 million, was drawn in September 2017 and comprised $7.8 million to refinance the Third Loan and a new advance of $2.2 million. The debt provides for interest only payments through December 31, 2018 at which time monthly principal payments become due. In addition, the Company obtained a revolving loan facility for a principal amount of up to $10.0 million for which the principal amount outstanding under the revolving line would accrue interest at a floating per annum rate equal to one percentage point (1.00%) above the prime rate, which interest shall be payable monthly. The Company accounted for this transaction as a debt modification and did not incur any gain or loss relating to the modification.

The Company's credit facilities contain customary representations and warranties and customary affirmative and negative covenants applicable to the Company and its subsidiaries, including, among other things, restrictions on changes in business, management, ownership or business locations, indebtedness, encumbrances, investments, mergers or acquisitions, dispositions, maintenance of collateral accounts, prepayment of other indebtedness, distributions and transactions with affiliates. The credit facilities contain customary events of default subject in certain cases to grace periods and notice requirements, including (a) failure to pay principal, interest and other obligations when due, (b) material misrepresentations, (c) breach of covenants, conditions or agreements in the credit facilities, (d) default under material indebtedness, (e) certain bankruptcy events, (f) a material adverse change; (g) attachment, levy or restraint on business, (h) default with respect to subordinated debt, (i) cross default under the Company's credit facilities, and (j) government approvals being revoked. As of September 30, 2017, all rights, title and interest to the Company's personal property with the exception of the Company's intellectual property, have been pledged as collateral, including cash and cash equivalents, short-term investments, accounts receivable, contractual rights to payment, license agreements, general intangibles, inventory and equipment. The Company was in compliance with all covenants under the loan and security agreement with SVB as of September 30, 2016 and September 30, 2017.

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Future maturities of the loan as of September 30, 2017 are as follows:

(in thousands)	Principal	Interest	Total
Year ending September 30,			
2018	$ —	$ 715	$ 715
2019	2,500	673	3,173
2020	3,333	440	3,773
2021	3,333	194	3,527
2022	834	10	844
	10,000	2,032	12,032
Less: Interest			(2,032)
Total amount of loan principal			10,000
Less unamortized debt discount			(860)
Add accretion of final payment fee			14
			$ 9,154

8. Commitments and contingencies

Litigation

In February 2016, a complaint was filed in the Superior Court of the State of California (County of Santa Clara), dated February 3, 2016 on behalf of Agilent Technologies, Inc. (Agilent), against the Company and its CEO (the Complaint) alleging (i) breach of contract against the CEO, (ii) breach of duty of loyalty against the CEO, and (iii) misappropriation of trade secrets by the Company and the CEO. The Company believes that the complaint is without merit, and intends to vigorously defend itself. The Company is currently unable to predict the ultimate outcome of this matter or estimate a reasonably possible loss or range of loss, and no amounts have been accrued in the consolidated financial statements.

Indemnifications

In the ordinary course of business, the Company enters into agreements that may include indemnification provisions. Pursuant to such agreements, the Company may indemnify, hold harmless and defend the indemnified parties for losses suffered or incurred by the indemnified party. Some of the provisions will limit losses to those arising from third-party actions. In some cases, the indemnification will continue after the termination of the agreement. The maximum potential amount of future payments the Company could be required to make under these provisions is not determinable. To date, the Company has not incurred material costs to defend lawsuits or settle claims related to these indemnification provisions. The Company has also entered into indemnification agreements with its directors and officers that may require it to indemnify its directors and officers against liabilities that may arise by reason of their status or service as directors or officers to the fullest extent permitted by corporate law. The Company also has directors' and officers' insurance.

Leases

In July 2013, the Company entered into a non-cancelable operating lease agreement for office space in San Francisco that expired in September 2016. In May 2015, the Company entered into an amendment for additional

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space in San Francisco to increase the square footage to 8,000 square feet. In September 2015, the Company amended the lease to increase the square footage from 8,000 square feet to 12,979 square feet. In January 2016, the Company extended the term of the lease for an additional three years with the new expiration date of September 2019.

In July 2014, the Company entered into two non-cancelable operating sublease agreements for additional space, both in San Francisco. One sublease agreement required a letter of credit in the amount of less than $0.1 million, which is included within restricted cash on the balance sheet. The Company extended the term of the lease for three years with the expiration date of April 2019. The other sublease agreement required a letter of credit of $0.1 million, which is included within restricted cash on the balance sheet. The Company extended the term of this lease by three years with the expiration date of September 2019.

In May 2016, the Company entered into a non-cancelable operating lease agreement for additional space in South San Francisco that expires in May 2019. Future minimum lease payments under all non-cancelable operating leases as of September 30, 2017 are as follows:

(in thousands)	Operating leases
Years ended September 30,	
2018	$ 2,133
2019	1,322
2020	143
Total minimum lease payments	$ 3,598

Rent expense was $1.6 million and $2.2 million for the years ended September 30, 2016 and 2017, respectively. Rent expense is measured based upon amortizing minimum lease payments, including rent escalations under the lease term, using the straight-line method over the term of the lease.

The deferred rent liability was $0.1 million as of September 30, 2016 and 2017.

9. Related party transactions

During the year ended September 30, 2016, the Company sold 1,252,176 shares of Series D redeemable convertible preferred stock. The Company also purchased raw materials from a related party investor in the amount of $1.0 million. Payable balances and receipts and receivable balances with the related party were immaterial as of September 30, 2016.

During the year ended September 30, 2017, the Company sold 1,684,018 shares of Series D redeemable convertible preferred stock. The Company also purchased raw materials from a related party investor in the amount of $2.0 million. Payable balances and receipts and receivable balances with the related party were immaterial as of September 30, 2017.

10. Government research agreement

In April 2014, the Company entered into a fixed fee research agreement with DARPA to develop the capability for large-scale, high-throughput construction of genetic designs. The total initial value of the agreement is

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$2.4 million which is comprised of eight base milestones with each milestone assigned a certain fixed fee over a 12-month period. The agreement also includes an additional ten optional milestones totaling $2.8 million to be completed over a 12-month period.

In July 2015, the DARPA agreement was amended to extend the project through the option period of an additional year. In June 2016, the DARPA agreement was amended to remove two remaining milestones from the project reducing the value of the project by $0.6 million.

For the year ended September 30, 2016 a total of $2.4 million was recorded as a reduction in research and development costs. There were no DARPA payments received during the year ended September 30, 2017.

11. Income taxes

The Company recorded an immaterial provision for income taxes during the year ended September 30, 2016 and $0.3 million for the year ended September 30, 2017.

The significant components of the Company's deferred tax assets and liabilities are as follows:

	September 30,	
(in thousands)	**2016**	**2017**
Net operating loss carryforwards	$ 28,854	$ 50,312
Research and development credit carryforwards	1,581	3,050
Accruals	436	724
Other	307	819
Sub-total	31,178	54,905
Less: Valuation allowance	(30,324)	(54,273)
Net deferred tax assets	854	632
Fixed assets	(444)	(274)
Intangible assets	(410)	(358)
Net deferred tax liabilities	(854)	(632)
Total net deferred tax assets	$ —	$ —

The following is a reconciliation of the statutory federal income tax rate to the Company's effective tax rate:

	Years ended September 30,	
	2016	**2017**
Tax expense computed at the federal statutory rate	35%	35%
Change in valuation allowance	(34)%	(35)%
Research and development credit benefit	0%	1%
Other expenses	(1)%	(1)%
Total income tax expense	—%	—%

Based on the available objective evidence, management believes it is more likely than not that the deferred tax assets will not be fully realizable. Accordingly, the Company has provided a full valuation allowance against its

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deferred tax assets at September 30, 2016 and 2017. For the year ended September 30, 2016, the valuation allowance increased by $14.7 million due to increases in the Company's deferred tax assets against which the Company records a full valuation allowance. The increase is comprised primarily of a $14.6 million increase related to net operating loss carryforwards and a $0.4 million increase in research and development credits offset by an increase in deferred tax liabilities for intangible assets and fixed assets of $0.5 million. For the year ended September 30, 2017, the valuation allowance increased by $24.0 million due to increases in the Company's deferred tax assets against which the Company records a full valuation allowance. The increase is comprised primarily of a $21.5 million increase related to net operating loss carryforwards and a $1.5 million increase in research and development credits.

As of September 30, 2016, the Company had net operating loss carryforwards of approximately $77.9 million and $32.0 million available to reduce future taxable income, if any, for federal and state income tax purposes, respectively. As of September 30, 2017, the Company had net operating loss carryforwards of approximately $134.9 million and $81.2 million available to reduce future taxable income, if any, for federal and state income tax purposes, respectively. The net operating losses will begin to expire in 2033.

The Company also had federal and state research and development credit carryforwards of approximately $2.6 million and $2.7 million, respectively, at September 30, 2017 and $1.3 million and $1.4 million, respectively, at September 30, 2016. The federal credits will expire starting in 2033 if not utilized. The California research and development credits have no expiration date. Utilization of the net operating losses and tax credits is subject to annual limitation due to the ownership change limitations provided by the Internal Revenue Code and similar state provisions. Such annual limitations may result in the expiration of the net operating losses and tax credits before utilization.

The provisions of ASC 740-10, *Accounting for Uncertainty in Income Taxes*, prescribe a comprehensive model for the recognition, measurement, and presentation and disclosure in financial statements of any uncertain tax positions that have been taken or expected to be taken on a tax return. The Company has identified uncertain tax positions related to federal and state research and development credits. It is unlikely that the amount of unrecognized tax benefits will materially change over the next year.

The aggregate changes in the balance of gross unrecognized tax benefits are as follows:

(in thousands)	Federal and state
Balance as of September 30, 2015	$ 626
Increases related to tax positions taken during 2016	196
Balance as of September 30, 2016	822
Increases related to tax positions taken during 2017	562
Increases related to tax positions in prior years	241
Balance as of September 30, 2017	$ 1,625

It is the Company's policy to include penalties and interest expense related to income taxes as a component of other expense and interest expense, respectively, as necessary. The Company's management determined that no accrual for interest and penalties was required as of September 30, 2016 and 2017 due to the availability of net operating losses to offset any tax adjustment. The Company's tax years from 2013 through 2016 will remain open for examination by the federal and state authorities for three and four years, respectively, from the date

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of utilization of any net operating loss or tax credits. The Company does not have federal or state tax examinations in progress.

12. Warrants

In connection with its long-term debt agreements, the Company issued warrants for its redeemable convertible preferred stock and common stock as follows:

(in thousands, except share and per share data)	Number of shares underlying warrants	Fair value			
Warrant class/series:	September 30, 2017		Issuance date	Expiration date	Exercise price per share
Series A	364,742	$ 331	October 8, 2013	October 8, 2023	$ 0.329
Series B	160,606	110	September 2, 2014	September 2, 2024	$ 0.792
Series C	186,679	152	December, 22, 2015	December 22, 2025	$ 1.500
Series D	74,567	51	March 28, 2016	March 28, 2026	$ 2.146
Total preferred stock warrants	786,594	$ 644			
Common stock warrants	634,921	$ 486	September 6, 2017	September 6, 2027	$ 0.630

The fair value of the Company's warrant to purchase redeemable convertible preferred stocks was derived from values as determined by management and approved by the Board of Directors. Management has determined the fair value based primarily on analyses performed by the Company's third-party valuation specialists under a hybrid valuation method which incorporates the per share values calculated under the Option Pricing Method (OPM) and the Probability-Weighted Expected Return Method (PWERM) weighted appropriately to arrive at a fair market value of the warrants. Valuations performed by third-party valuation specialists were done contemporaneously and used the methodologies, approaches, and assumptions consistent with the American Institute of Certified Public Accountants (AICPA) Accounting and Valuation Guide: *Valuation of Privately-Held-Company Equity Securities Issued as Compensation* and Company specific factors.

On October 8, 2013, in connection with a debt financing arrangement, the Company issued a warrant to purchase 364,742 shares of Series A redeemable convertible preferred stock. The warrant was fully vested and immediately exercisable upon issuance and has an expiration date of October 8, 2023. The Company determined the fair value of the warrant granted was less than $0.1 million on the date of issuance. For the years ending September 30, 2016 and 2017, the Company used a hybrid method and determined the change in fair value of the warrant which was recorded in other income (expense), net.

On September 2, 2014, in connection with a debt financing arrangement, the Company issued a warrant to purchase 160,606 shares of Series B redeemable convertible preferred stock. The warrant was fully vested and immediately exercisable upon issuance and has an expiration date of September 2, 2024. The Company determined the fair value of the warrant granted was less than $0.1 million on the date of issuance. For the years ending September 30, 2016 and 2017, the Company used a hybrid method and determined the change in fair value of the warrant which was recorded in other income (expense), net.

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On December 22, 2015, in connection with a debt financing arrangements, the Company issued a warrant to purchase 186,679 shares of Series C redeemable convertible preferred stock. The warrant was fully vested and immediately exercisable upon issuance and has an expiration date of December 22, 2025. The Company determined the fair value of the warrant granted was $0.1 million on the date of issuance. For the years ending September 30, 2016 and 2017, the Company used a hybrid method and determined the change in fair value of the warrant which was recorded in other income (expense), net.

On March 28, 2016, in connection with a debt financing arrangement, the Company issued a warrant to purchase 74,567 shares of Series D redeemable convertible preferred stock. The warrant was fully vested and immediately exercisable upon issuance and has an expiration date of March 28, 2026. The Company determined the fair value of the warrant granted was less than $0.1 million on the date of issuance. For the years ending September 30, 2016 and 2017, the Company used a hybrid method and determined the change in fair value of the warrant which was recorded in other income (expense), net.

As these warrants to acquire redeemable convertible preferred stock are classified as liabilities, any potential beneficial conversion feature related to those underlying shares of convertible preferred would not be recognized until such time as the warrant is exercised. At that point, any excess of the fair value of the Company's common stock into which the shares of redeemable convertible preferred are convertible over the effective conversion price, measured as the sum of the carrying amount of the warrant liability and the exercise price of the warrant, would be recognized as a beneficial conversion feature and would reduce earnings available to common stockholders in the calculation of earnings per share.

On September 6, 2017, in connection with the September 2017 debt refinancing, the Company issued a warrant to purchase 634,921 shares of common stock. The warrants were fully vested and immediately exercisable upon issuance and has an expiration date of September 6, 2027. The Company determined the fair value of the warrant granted was $0.5 million.

The fair values of the warrants to purchase common stock were determined using the Black-Scholes option pricing model with the following valuation assumptions:

Expected term (years)	6.25
Expected volatility	65.5%
Risk-free interest rate	2.02%
Dividend yield	0%

13. Redeemable convertible preferred stock

Redeemable convertible preferred stock as of September 30, 2016 and 2017 consists of the following:

(in thousands, except share and per share data)					September 30, 2016
Series	Shares authorized	Outstanding	Price per share	Liquidation amount	Proceeds, net*
A	28,263,133	27,898,391	$ 0.329	$ 9,111	$ 9,141
B	32,988,887	32,828,281	0.792	26,000	25,900
C	24,854,989	24,668,310	1.500	37,000	36,726
D	30,442,280	29,096,365	2.146	62,432	62,270
	116,549,289	114,491,347		$ 134,543	$ 134,037

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(in thousands, except share and per share data) **September 30, 2017**

Series	Shares authorized	Outstanding	Price per share	Liquidation amount	Proceeds, net*
A	28,263,133	27,898,391	$ 0.329	$ 9,111	$ 9,141
B	32,988,887	32,828,281	0.792	26,000	25,900
C	24,854,989	24,668,310	1.500	37,000	36,726
D	64,124,559	59,743,942	2.146	128,193	127,866
	150,231,568	145,138,924		$ 200,304	$ 199,633

* Net of issuance costs.

The holders of preferred stock have various rights and preferences as follows:

Voting rights

The holders of redeemable convertible preferred stock shares are entitled to vote on all matters on which the common stockholders are entitled to vote. Holders of redeemable convertible preferred stock and common stock vote together as a single class, not as separate classes. Each holder of Redeemable convertible preferred stock is entitled to the number of votes equal to the number of common stock shares into which the shares held by such holder are convertible.

Dividends

The holders of shares of Series D redeemable convertible preferred stock are entitled to receive, if declared by the board of directors, noncumulative dividends at the rate of 8% per share of the Series D issue price per annum. After dividends on the Series D redeemable convertible preferred stock have been paid, then the Company may declare and distribute in such year dividends among the holders of shares of Series A, Series B, and Series C redeemable convertible preferred stock on a pari passu basis. No dividends have been declared for any period through September 30, 2017.

Liquidation preference

The holders of redeemable convertible preferred stock are entitled to have their shares redeemed upon the occurrence of certain redemption events. A liquidation or winding up of the Company, a greater than 50% change in control, or a sale of substantially all of its assets, sales or exclusive licenses of all or substantially all of the Company's intellectual property would constitute a redemption event. As the redemption event is outside the control of the Company, all shares of preferred stock have been presented outside of permanent equity. Further, the Company has not adjusted the carrying values of the Series A, Series B, Series C and Series D redeemable convertible preferred stock to the redemption value of such shares, since it is uncertain whether or when a redemption event will occur. Adjustments to increase the carrying value to the redemption values will be made when it becomes probable that such redemption will occur.

In a liquidation, dissolution, or winding-up of the Company, either voluntary or involuntary, each holder of Series D redeemable convertible preferred stock is entitled to be paid in cash before any amount is paid or distributed to the holders of the Series A, Series B or Series C redeemable convertible preferred stock or common stock at an amount per share equal to the greater of $2.146 plus an amount equal to all accrued and declared but unpaid dividends on such share of Series D redeemable convertible preferred stock (adjusted for stock splits, stock dividends, combinations, recapitalizations and the like) and the amount payable on shares of

Twist Bioscience Corporation
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Series D redeemable convertible preferred stock had such shares been converted to shares of common stock immediately prior to such liquidation. If the amounts available for distribution by the Company to holders of Series D redeemable convertible preferred stock upon a liquidation are not sufficient to pay the Series D amount due, holders of Series D redeemable convertible preferred stock share ratably in any distribution.

Upon the completion of the initial Series D liquidation amount described above, the remaining assets and funds of the Company available for distribution to its stockholders shall be distributed to each holder of outstanding shares of Series A, Series B and Series C redeemable convertible preferred stock, who shall be entitled to paid in cash, on a pari passu basis based on the relative initial liquidation amount of each series, before any amount shall be paid or distributed to the holders of common stock, an amount per share equal to (i) $0.329, in the case of Series A redeemable convertible preferred stock, (ii) $0.792, in the case of Series B redeemable convertible preferred stock, and (iii) $1.500, in the case of Series C redeemable convertible preferred stock plus an amount equal to all accrued and declared but unpaid dividends on such share of Preferred Stock. Should the Company's legally available assets be insufficient to satisfy the liquidation preferences, the funds will be distributed ratably among the holders of Series A, Series B and Series C redeemable convertible preferred stock in proportion to the preferential amount each holder is otherwise entitled to receive.

Conversion

Each share of Series A, Series B, Series C and Series D redeemable convertible preferred stock is convertible, at the option of the holder, into the number of shares of common stock into which such shares are convertible at the then-effective conversion ratio. The initial conversion price per share for Series A, Series B, Series C and Series D redeemable convertible preferred stock is $0.329, $0.792, $1.500 and $2.146 per share, respectively. The initial conversion price or ratio is subject to adjustment due to securities issued by the Company subject to certain limited exceptions, including securities issued in the acquisition of another entity, lending or equipment leasing transactions, and stock purchases, stock splits, stock dividends, reorganizations and public offerings. The current conversion ratio for each series of redeemable convertible preferred stock is 1:1.

Each share of Series A, Series B, Series C and Series D redeemable convertible preferred stock is convertible into common stock immediately prior to the completion of an initial public offering at a per share price of not less than $2.65 (as adjusted for stock splits, stock dividends, reclassification and the like) in which the Company receives aggregate net proceeds not less than $40,000,000, and the common stock is listed for trading on the New York Stock Exchange or The NASDAQ Global or Global Select Markets. Each share of preferred stock is also convertible into common stock upon the written election of the holders of at least 60% of the then outstanding (i) Series A, Series B, Series C and Series D redeemable convertible preferred stock, voting together as a class on an as-converted to common stock basis and (ii) Series C and Series D redeemable convertible preferred stock voting together as a single class on as-converted to common stock basis.

14. Common stock

The fair value of the shares of common stock underlying the Company's stock options has historically been determined by management and approved by the board of directors. Because there has been no public market for the Company's common stock, management and the board of directors have determined the fair value of the common stock at the time of grant of any options by considering a number of objective and subjective factors, including valuations performed by an independent third-party specialists, valuations of comparable companies, operating and financial performance, the lack of liquidity of the common stock, recent private stock

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sale transactions and general and industry-specific economic outlooks. Valuations performed by third-party valuation specialists were completed and used the methodologies, approaches, and assumptions consistent with the AICPA, Accounting and Valuation Guide: *Valuation of Privately-Held-Company Equity Securities Issued as Compensation* and Company specific factors.

As of September 30, 2017, the Company reserved sufficient shares of common stock for issuance upon conversion of preferred stock and exercise of stock options and warrants. Each share of common stock is entitled to one vote. The holders of shares of common stock are also entitled to receive dividends whenever funds are legally available and when declared by the board of directors, subject to prior rights of the holders of preferred stock.

In February 2013, the Company issued a total of 18,000,000 shares of restricted common stock to Emily Leproust, William Banyai and Bill Peck, or the Founders. The shares were issued at par value of $0.00001 per share in exchange for intellectual property and other assets. Of the shares issued, 20% were vested upon issuance and the remaining 80% were subject to repurchase at par value if the holder was no longer an employee of, or service provider to, the Company. The number of shares subject to repurchase decreases ratably over 48 months starting on February 1, 2013. As of September 30, 2017, all 18,000,000 shares have vested and are no longer subject to a right of repurchase.

In September 2013, the Company issued an additional 1,013,171 shares of restricted common stock to each Founder. The purchase price for the shares was $0.04 per share of common stock. The purchase agreements for the shares stipulate that no shares would vest until the first commercial sale of synthetic biology products or synthetic oligos, or the Milestone. Following the achievement of the Milestone, 100% of the total shares would vests on the 3rd anniversary from the date of the Milestone, subject to the founders' continuous service status. During the year ended September 30, 2015, the Milestone was achieved and vesting commenced. All shares are expected to be fully vested on May 8, 2018, which is the 3rd anniversary of the Milestone. As of September 30, 2017, the total unrecognized compensation cost related to this award that is expected to be recognized over a weighted-average period 0.7 years was immaterial.

The Company issued 523,421 shares of restricted common stock to a board member in March 2014 at a purchase price of $0.04 per share. The shares vest over a 72-month period on a monthly pro-rata basis over the vesting period at the date of grant. Further, upon appointment to the board of directors, the vesting would be over a 36-month period on a monthly pro-rata basis over the vesting period beginning at date of appointment to the board of directors which occurred in July 2014. The agreement includes a repurchase option for the Company whereby, in the event of a voluntary or involuntary termination of the purchaser's continuous service, for any reason, the Company has an irrevocable, exclusive option for a period of three months from such date to repurchase all or any portion of the unvested shares at the termination date at a value of the lesser of the original purchase price per share and the fair market value of the shares. All shares were initially subject to the repurchase option. As of September 30, 2017, all 523,421 shares of common stock had vested under this agreement.

In May 2016, the Company issued 3,170,000 shares of restricted common stock to employees. The purchase price was $0.60 per share. The shares vest monthly over a period of 48 months from the date of issuance and the Company recognized $0.5 million of compensation expense related to the restricted stock during the year ended September 30, 2017. As of September 30, 2017, there was $1.2 million of total unrecognized compensation cost related to this issuance that is expected to be recognized over a weighted-average period of 2.7 years.

Twist Bioscience Corporation
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15. Stock option plan

In 2013, the Company established the Twist Bioscience Corporation 2013 Stock Plan (the Plan), which provides for the granting of stock options to employees, consultants and directors of the Company. Options granted under the Plan may be either incentive stock options, or ISOs, or nonqualified stock options, or NSOs. ISOs may be granted only to Company employees (including officers and directors who are also employees). NSOs may be granted to Company employees, consultants and directors. As of September 30, 2017, the Company has reserved 34,306,102 shares of common stock for issuance under the Plan.

The exercise price of an ISO and NSO shall not be less than 100% of the estimated fair value of the shares on the date of grant, respectively, as determined by the board of directors. The exercise price of an ISO granted to an employee who at the time of grant is a 10% shareholder shall not be less than 110% of the estimated fair value of the shares on the date of grant, respectively, as determined by the board of directors. Options granted under the Plan have a term of ten years and generally vest over a four-year period with 25% of the shares vesting on the first anniversary of the option and the remaining vesting ratably on a monthly basis over the remaining thirty-six months.

Activity under the Plan from during the years ended September 30, 2016 and September 30, 2017 is summarized below:

	Shares available	Options outstanding	Weighted average exercise price per share	Weighted average remaining contractual term	Aggregate intrinsic value
Outstanding at September 30, 2015	6,377,752	8,711,502	$ 0.47	8.88	$1,138,150
Additional shares authorized	3,299,510	—	—		
Stock options granted	(2,441,000)	2,441,000	0.60		
Stock options exercised	—	(390,727)	0.39		
Stock options forfeited	527,980	(527,980)	0.51		
Restricted shares granted	(3,170,000)	—	—		
Early exercised options repurchased	65,417	—	—		
Outstanding at September 30, 2016	4,659,659	10,233,795	$ 0.50	8.81	$1,343,301
Additional shares authorized	10,251,883	—	—		
Stock options granted	(8,486,040)	8,486,040	0.87		
Stock options exercised	—	(322,687)	0.56		
Stock options forfeited	379,837	(379,837)	0.56		
Outstanding at September 30, 2017	6,805,339	18,017,311	$ 0.67	9.14	$7,147,115
Vested or expected to vest and exercisable at September 30, 2017		18,017,311	$ 0.67	9.14	$7,147,115

Twist Bioscience Corporation
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The following table summarizes information about stock options outstanding at September 30, 2017:

	Options outstanding			Options exercisable	
Exercise price	Total outstanding	Weighted average remaining contractual life	Total exercisable		Weighted average exercise price
0.04	902,000	5.26	902,000	$	0.04
0.12	1,023,479	6.20	1,023,479		0.12
0.60	7,681,792	9.30	7,681,792		0.60
0.63	315,000	7.18	315,000		0.63
0.74	264,000	9.59	264,000		0.74
0.89	7,831,040	9.89	7,831,040		0.89
	18,017,311	9.14	18,017,311	$	0.67

Stock-based compensation

During the year ended September 30, 2016, the Company granted stock options to employees and non-employees to purchase 2,441,000 shares of common stock with a weighted-average grant date fair value of $0.35. During the year ending September 30, 2017, the Company granted stock options to employees and non-employees to purchase 8,486,040 of common stock with a weighted average grant date fair value of $0.67. The Company recognized stock-based compensation expense of $0.9 million and $1.9 million, for the years ended September 30, 2016 and 2017, respectively. As of September 30, 2017, there was $6.7 million of total unrecognized compensation cost related to non-vested stock options under the Plan that is expected to be recognized over a weighted-average period of 3.9 years.

Total stock-based compensation expense recognized was as follows:

	Years ended September 30,	
(in thousands)	2016	2017
Cost of revenues	$ 112	$ 202
Research and development	261	575
Selling, general and administrative	484	1,114
Total stock-based compensation	$ 857	$ 1,891

The Company uses the Black-Scholes option pricing model to calculate the grant date fair value of a stock option. The Black-Scholes model requires various assumptions, including the fair value of the Company's common stock, expected term, expected dividend yield and expected volatility.

The expected volatility of the Company's stock options is estimated from the historical volatility of selected public companies with comparable characteristics to it, including similarity in size and lines of business. The expected term of stock options represents the period that the Company's stock-options are expected to be outstanding before being exercised. The risk-free interest rate is based on the implied yield currently available on U.S. treasury notes with terms approximately equal to the expected life of the option. The expected dividend rate is zero as the Company currently has no history or expectation of declaring cash dividends on the Company's common stock.

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The fair value of options granted during the years ended September 30, 2016 and 2017, respectively, were calculated using the weighted average assumptions set forth below:

	Years ended September 30,	
	2016	2017
Expected term (years)	6.25	6.25
Expected volatility	64.4%	65.5%
Risk-free interest rate	1.44%	2.02%
Dividend yield	0%	0%

Shares subject to repurchase

The Company has a right of repurchase with respect to unvested shares issued upon early exercise of options at an amount equal to the original exercise price of each unvested share being repurchased. The Company's right to repurchase these shares lapses pursuant to the vesting schedule of the original grant, which is generally 25% on the first anniversary of the original grant and ratably on a monthly basis over the remaining 36 months. As of September 30, 2017, 442,561 shares remain subject to the Company's right of repurchase.

16. Net loss per share attributable to common stockholders and unaudited pro forma net loss per share

The following table sets forth the computation of the Company's basic and diluted net loss per share attributable to common stockholders:

(in thousands, except share and per share data)	Years ended September 30, 2016	2017
Numerator:		
Net loss attributable to common stockholders	$ (44,088)	$ (59,310)
Denominator:		
Weighted-average shares used in computing net loss per share, basic and diluted	18,511,202	23,982,605
Net loss per share attributable to common stockholders, basic and diluted	$ (2.38)	$ (2.47)

Twist Bioscience Corporation
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The potentially dilutive common shares that were excluded from the calculation of diluted net loss per share because their effect would have been antidilutive for the periods presented are as follows:

	Years ended September 30,	
	2016	2017
Shares subject to options to purchase common stock	10,233,795	18,017,311
Unvested restricted shares of common stock	7,518,559	5,086,804
Unvested shares of common stock issued upon early exercise of stock options	770,379	442,561
Shares subject to warrants to purchase redeemable convertible preferred stock	786,594	786,594
Shares of redeemable convertible preferred stock	114,491,347	145,138,924
Total	133,800,674	169,472,194

Unaudited pro forma loss per share

The table presents the calculation of basic and diluted pro forma net loss per share for the year ended September 30, 2017 (in thousands, except share and per share data):

Numerator:	
Net loss attributable to common stockholders, basic and diluted	$ (59,310)
Add: Change in fair value of redeemable convertible preferred stock warrant liability	261
Net loss used in computing pro forma net loss per share, basic and diluted	$ (59,049)
Denominator:	
Weighted-average shares used in computing net loss per share, basic and diluted	23,982,605
Add: Pro forma adjustments to reflect assumed conversion of redeemable convertible preferred stock	128,414,454
Weighted-average shares used in computing pro forma net loss per share, basic and diluted	152,397,059
Pro forma net loss per share, basic and diluted (unaudited)	$ (0.39)

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17. Geographic information

The table below sets forth revenues by geographic region, based on ship-to destinations. North America consists of Canada and Mexico; EMEA consists of Europe, Middle East, and Africa; and APAC consists of Japan, China, South Korea, Singapore, Malaysia and Australia.

	Years ended September 30,	
(in thousands)	**2016**	**2017**
United States	$1,769	$ 8,243
EMEA	459	2,023
APAC	41	274
North America	—	227
Total	$2,269	$10,767

Long lived assets located in the United States are $14.5 million and $14.4 million as of September 30, 2016 and 2017. Long lived assets located outside of the United States were $0.1 million and $0.4 million as of September 30, 2016 and 2017.

18. Subsequent events

On October 20, 2017, the Company issued 1,398,145 shares of Series D redeemable convertible preferred stock for an aggregate purchase price of $3.0 million.

On December 22, 2017, the Tax Cuts and Jobs Act of 2017, or Tax Act, was signed into law. The effect of the Tax Act will be recorded discretely as a component of the Company's provision for income taxes related to continuing operations in the period of enactment. The Tax Act reduced the corporate tax rate from 35% to 21% for tax years beginning after December 31, 2017. A blended rate will apply for non-calendar year companies for the fiscal periods that include the effective date of rate change. Changes in the deferred tax asset valuation allowance assessment due to the Tax Act will also be recorded as part of the Company's provision for income taxes related to continuing operations. The Tax Act repeals the Alternative Minimum Tax for tax years beginning after December 31, 2017. For net operating losses arising after December 31, 2017, utilization is limited to 80% of taxable income with an unlimited carryforward period. The Tax Act allows companies to expense 100% of the cost of qualified property placed in service after September 27, 2017 and before January 1, 2023, with normal depreciation rules applying after that period. Deductions for net interest expense are limited to 30% of adjusted taxable income. The Tax Act also introduces new international tax provisions, including a mandatory deemed repatriation tax and the implementation of a territorial system by providing a 100% dividends received deduction. The Tax Act also contains new provisions intended to prevent the erosion of the United States tax base. The Company is in the process of evaluating the impact of the Tax Act on its consolidated financial statements and expects the most significant impact to be a reduction of its deferred tax assets for net operating loss carryforwards offset by a corresponding reduction of the deferred tax asset valuation allowance.

On December 28, 2017, the Company issued 2,884,602 shares of Series D redeemable convertible preferred stock for an aggregate purchase price of $6.2 million.

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The Company has performed an evaluation of subsequent events through February 8, 2018, which is the date the audited annual consolidated financial statements were available for issuance.

* * * * *

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Joint book running managers

J.P. Morgan **Cowen**

Co-managers

Allen & Company LLC **Baird**

, 2018

Through and including , 2018 (the 25th day after the date of this prospectus), all dealers that buy, sell or trade in our common shares, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealers' obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

Part II

Information not required in prospectus

Item 13. Other expenses of issuance and distribution

The following table sets forth the costs and expenses, other than underwriting discounts and commissions, payable by us in connection with the sale of common stock being registered. All amounts are estimates except the Securities and Exchange Commission registration fee and the FINRA filing fee and the Nasdaq Global Market listing fee.

	Amount to be paid
Securities and Exchange Commission registration fee	*
FINRA filing fee	*
Initial Nasdaq Global Market listing fee	*
Printing and engraving expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
Blue Sky qualification fees and expenses	*
Transfer Agent and Registrar fees	*
Miscellaneous fees and expenses	*
Total	*

* to be provided by amendment

Item 14. Indemnification of directors and officers

Section 145 of the Delaware General Corporation Law, or the Delaware Law authorizes a court to award, or a corporation's Board of Directors to grant, indemnity to directors and officers in terms sufficiently broad to permit such indemnification under certain circumstances for liabilities (including reimbursement for expenses incurred) arising under the Securities Act of 1933, as amended, or the Securities Act. Article of our Amended and Restated Certificate of Incorporation (Exhibit 3.2 hereto) and Article . of our Bylaws (Exhibit 3.3 hereto) provide for indemnification of our directors, officers, employees and other agents to the maximum extent permitted by Delaware Law. In addition, we have entered into Indemnification Agreements (Exhibit 10.1 hereto) with our officers and directors. These indemnification agreements also generally require us to advance any expenses incurred by the directors or officers as a result of any proceeding against them as to which they could be indemnified. In addition, we have purchased a policy of directors' and officers' liability insurance that insures our directors and officers against the cost of defense, settlement or payment of a judgment in some circumstances. The Underwriting Agreement (Exhibit 1.1) also provides for cross-indemnification among us, and the Underwriters with respect to certain matters, including matters arising under the Securities Act.

Item 15. Recent sales of unregistered securities

Since January 1, 2015, we have issued and sold the following unregistered securities:

- From February 4, 2015 to December 26, 2017, we issued stock options to certain of our service providers, executive officers and directors to purchase an aggregate of 24,259,417 shares of the Company's common stock under our 2013 Stock Plan, with exercise prices ranging from $0.12 to $1.07 per share. No consideration

was received for such stock options. Such issuances were deemed to be exempt from registration under the Securities Act pursuant to benefit plans and contract relating to compensation as provided under Rule 701 promulgated under Section 3(b) of the Securities Act.

- On May 23, 2016, we issued an aggregate of 3,176,000 shares of common stock and stock purchase rights to certain of our service providers, executive officers and directors pursuant to exercises of then-outstanding stock purchase rights under our 2013 Plan, with a purchase price of $0.60 per share. Such issuances were deemed to be exempt from registration under the Securities Act pursuant to benefit plans and contracts relating to compensation as provided under Rule 701 promulgated under Section 3(b) of the Securities Act.
- In May and June 2015, we sold an aggregate of 24,668,310 shares of our Series C convertible preferred stock at a purchase price of $1.4999 per share for an aggregate purchase price of approximately $37 million to 28 investors, each of whom represented to us that it was an accredited investor. Such issuances were deemed to be exempt from registration under the Securities Act in reliance upon Regulation D promulgated under the Securities Act.
- From December 22, 2015 through September 6, 2017, we issued warrants to investors to purchase 634,921 shares of our common stock and 261,246 shares of our Series C and D convertible preferred stock, with exercise prices ranging from approximately $0.63 per share to $2.1457 per share. An additional warrant to purchase 634,920 shares of common stock at an exercise price of $0.63 per share and would be exercisable upon the drawing down of additional loans under our amended and restated loan and security agreement with Silicon Valley Bank dated September 6, 2017. No consideration was received for such warrants. Such issuances were deemed to be exempt from registration under the Securities Act in reliance on Section 4(a)(2) of the Securities Act as by an issuer not involving a public offering.
- Between April and September 2016, we issued an aggregate of 3,990,593 shares of the Company's common stock in connection with our acquisition of Genome Compiler Corporation. This transaction was exempt from the registration requirements of the Securities Act in reliance upon Regulation D promulgated under the Securities Act.
- Since January 2016, we sold an aggregate of 64,026,689 shares of our Series D convertible preferred stock at a purchase price of $2.1457 per share for an aggregate purchase price of approximately $137 million to 72 investors, each of whom represented to us that it was an accredited investor and it intended to acquire the securities for investment only and not with a view to the distribution thereof. Such issuances were deemed to be exempt from registration under the Securities Act in reliance upon Regulation D promulgated under the Securities Act.

None of the foregoing transactions involved any underwriters, underwriting discounts or commissions or any public offering, and we believes each transaction was exempt from the registration requirements of the Securities Act as stated above. All recipients of the foregoing transactions either received adequate information about the Company or had access, through their relationships with the Company, to such information. Furthermore, the Company affixed appropriate legends to the share certificates and instruments issued in each foregoing transaction setting forth that the securities had not been registered and the applicable restrictions on transfer.

Item 16. Exhibits and financial statement schedules

(a) *Exhibits.*

The exhibits to the registration statement of which this prospectus is a part are listed in the Exhibit Index attached hereto and incorporated by reference herein.

(b) *Financial statements schedules**.***

No financial statement schedules are provided because the information required to be set forth therein is not applicable or is shown in the consolidated financial statements or notes thereto.

Item 17. Undertakings

The undersigned registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreements certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act, and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer, or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

The undersigned registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

Exhibit index

Number	Description
1.1*	Form of Underwriting Agreement.
3.1*	Amended and Restated Certificate of Incorporation of Twist Bioscience Corporation, as amended, as currently in effect.
3.2*	Form of Amended and Restated Certificate of Incorporation of Twist Bioscience Corporation, to be in effect upon the completion of this offering.
3.3	Bylaws of Twist Bioscience Corporation, as currently in effect.
3.4*	Form of Amended and Restated Bylaws of Twist Bioscience Corporation, to be in effect upon the completion of this offering.
4.1*	Specimen Common Stock Certificate.
4.2*	Amended and Restated Stockholders Agreement by and among Twist Bioscience Corporation and certain holders of its capital stock, dated as of January 8, 2016, as amended as of March 9, 2017.
4.3*	Amended and Restated Registration Rights Agreement by and among Twist Bioscience Corporation and certain holders of its capital stock, dated as of January 8, 2016, as amended as of March 9, 2017.
4.4	Warrant to Purchase Stock by and between Twist Bioscience Corporation and Silicon Valley Bank dated October 8, 2013.
4.5	Warrant to Purchase Stock by and between Twist Bioscience Corporation and Silicon Valley Bank dated September 2, 2014.
4.6	Warrant to Purchase Stock by and between Twist Bioscience Corporation and Silicon Valley Bank dated December 22, 2015.
4.7	Warrant to Purchase Stock by and between Twist Bioscience Corporation and Silicon Valley Bank dated March 28, 2016.
4.8	Warrant to Purchase Common Stock by and between Twist Bioscience Corporation and Life Science Loans II, LLC dated September 6, 2017.
4.9	Warrant to Purchase Common Stock by and between Twist Bioscience Corporation and Silicon Valley Bank dated September 6, 2017.
5.1*	Opinion of Orrick, Herrington & Sutcliffe LLP.
10.1+	2013 Stock Plan and forms of agreement thereunder.
10.2*+	2018 Equity Incentive Plan and forms of agreement thereunder.
10.3*+	2018 Employee Stock Purchase Plan.
10.4*+	Executive Incentive Bonus Plan.
10.5*+	Form of Executive Change in Control and Severance Agreement.
10.6*+	Amended and Restated Employment Agreement, dated , by and between Twist Bioscience Corporation and Emily M. Leproust.
10.7*+	Amended and Restated Employment Agreement, dated , by and between Twist Bioscience Corporation and William Banyai.
10.8*+	Employment Agreement, dated , by and between Twist Bioscience Corporation and Patrick Weiss.

Number	Description
10.9*+	Form of Indemnification Agreement between Twist Bioscience Corporation and each of its Officers and Directors.
10.10	Fourth Amended and Restated Loan and Security Agreement, dated September 6, 2017, by and between Silicon Valley Bank, Twist Bioscience Corporation and certain other co-borrowers.
10.11*	Lease Agreement, dated July 26, 2013, by and between ARE—San Francisco No. 19, LLC and Twist Bioscience Corporation.
10.11.1*	First Amendment to Lease, dated August 7, 2013 by and between ARE—San Francisco No. 19, LLC and Twist Bioscience Corporation.
10.11.2*	Second Amendment to Lease, dated May 19, 2015, by and between ARE—San Francisco No. 19, LLC and Twist Bioscience Corporation.
10.11.3*	Third Amendment to Lease, dated September 23, 2015, by and between ARE—San Francisco No. 19, LLC and Twist Bioscience Corporation.
10.11.4*	Fourth Amendment to Lease, dated January 6, 2016, by and between ARE—San Francisco No. 19, LLC and Twist Bioscience Corporation.
10.11.5*	Fifth Amendment to Lease, dated April 12, 2016 by and between ARE—San Francisco No. 19, LLC and Twist Bioscience Corporation.
10.12*†	Amended and Restated Supply Agreement, dated April 24, 2017, and effective as of September 1, 2016, by and between Twist Bioscience Corporation and Ginkgo Bioworks, Inc.
10.13*†	End User Supply Agreement and attached Schedules, dated as of November 5, 2015, by and between Twist Bioscience Corporation and FUJIFILM Dimatix, Inc.
10.14*†	Internal Use License Agreement, dated September 1, 2016, by and Twist Bioscience Corporation and Novici Biotech, LLC.
21.1	List of Subsidiaries.
23.1*	Consent of PricewaterhouseCoopers LLP.
23.2*	Consent of Orrick, Herrington & Sutcliffe LLP (included in Exhibit 5.1).
24.1	Power of Attorney (included in signature page).

* To be filed by amendment.

\+ Indicates a management or compensatory plan.

† Portions of this exhibit (indicated by asterisks) will be omitted pursuant to a request for confidential treatment that will be separately filed with the Securities and Exchange Commission.

Signatures

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of San Francisco, State of California on , .

TWIST BIOSCIENCE CORPORATION

By: _____
Emily M. Leproust
President and Chief Executive Officer

Power of attorney

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints, jointly and severally, Emily M. Leproust and Mark Daniels, and each of them, as his attorney-in-fact, with full power of substitution, for him in any and all capacities, to sign any and all amendments to this Registration Statement (including post-effective amendments), and any and all Registration Statements filed pursuant to Rule 462 under the Securities Act of 1933, as amended, in connection with or related to the offering contemplated by this Registration Statement and its amendments, if any, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming our signatures as they may be signed by our said attorney to any and all amendments to said Registration Statement.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated:

Signature	Title	Date
Emily M. Leproust	President, Chief Executive Officer and Director (principal executive officer)	,
Kenton D. Chow	Interim Chief Financial Officer (principal financial officer and accounting officer)	,
William Banyai	Director	,
Robert Chess	Director	,
Paul A. Conley	Director	,
Keith Crandell	Director	,

Signature	Title	Date
Fredrick Craves	Director	,
Robert Ragusa	Director	,

BYLAWS
OF
TWIST BIOSCIENCE CORPORATION

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BYLAWS

OF

TWIST BIOSCIENCE CORPORATION

ARTICLE I

CORPORATE OFFICES

1.1 **Registered Office.**

The registered office of the corporation shall be in the City of Dover, County of Kent, State of Delaware. The name of the registered agent of the corporation at such location is Incorporating Services, Ltd.

1.2 **Other Offices.**

The Board of Directors may at any time establish other offices at any place or places where the corporation is qualified to do business.

ARTICLE II

MEETINGS OF STOCKHOLDERS

2.1 **Place Of Meetings.**

Meetings of stockholders shall be held at any place, within or outside the state of Delaware, designated by the Board of Directors. In the absence of any such designation, stockholders' meetings shall be held at the registered office of the corporation.

2.2 **Annual Meeting.**

The annual meeting of stockholders shall be held on such date, time and place, either within or without the state of Delaware, as may be designated by resolution of the Board of Directors each year. At the meeting, directors shall be elected and any other proper business may be transacted.

2.3 **Special Meeting.**

A special meeting of the stockholders may be called at any time by the Board of Directors, the chairman of the board, the chief executive officer, the president or by one or more stockholders holding shares in the aggregate entitled to cast not less than ten percent of the votes at that meeting.

If a special meeting is called by any person or persons other than the Board of Directors, the chairman of the board, the chief executive officer or the president, the request shall be in writing, specifying the time of such meeting and the general nature of the business proposed to be transacted, and shall be delivered personally or sent by registered mail or by telegraphic or other facsimile transmission to the chairman of the board, the chief executive officer, the president, any vice president, or the secretary of the corporation. No business may be transacted at such special meeting otherwise than specified in such notice. The officer receiving the request shall cause notice to be promptly given to the stockholders entitled to vote, in accordance with the provisions of Sections 2.4 and 2.5 of this Article II, that a meeting will be held at the time requested by the person or persons calling the meeting, not less than thirty-five (35) nor more than sixty (60) days after the receipt of the request. If the notice is not given within twenty (20) days after the receipt of the request, the person or persons requesting the meeting may give the notice. Nothing contained in this paragraph of this Section 2.3 shall be construed as limiting, fixing, or affecting the time when a meeting of stockholders called by action of the Board of Directors may be held.

2.4 **Notice Of Stockholders' Meetings.**

All notices of meetings with stockholders shall be in writing and shall be sent or otherwise given in accordance with Section 2.5 of these Bylaws not less than ten (10) nor more than sixty (60) days before the date of the meeting to each stockholder entitled to vote at such meeting. The notice shall specify the place (if any), date and hour of the meeting, and in the case of a special meeting, the purpose or purposes for which the meeting is called.

2.5 **Manner Of Giving Notice; Affidavit Of Notice.**

Written notice of any meeting of stockholders, if mailed, is given when deposited in the United States mail, postage prepaid, directed to the stockholder at his address as it appears on the records of the corporation. Without limiting the manner by which notice otherwise may be given effectively to stockholders, any notice to stockholders may be given by electronic mail or other electronic transmission, in the manner provided in Section 232 of the Delaware General Corporation Law. An affidavit of the secretary or an assistant secretary or of the transfer agent of the corporation that the notice has been given shall, in the absence of fraud, be prima facie evidence of the facts stated therein.

2.6 **Quorum.**

The holders of a majority of the shares of stock issued and outstanding and entitled to vote thereat, present in person or represented by proxy, shall constitute a quorum at all meetings of the stockholders for the transaction of business except as otherwise provided by statute or by the certificate of incorporation. If, however, such quorum is not present or represented at any meeting of the stockholders, then either (a) the chairman of the meeting or (b) holders of a majority of the shares of stock entitled to vote who are present, in person or by proxy, shall have power to adjourn the meeting to another place (if any), date or time.

2.7 **Adjourned Meeting; Notice.**

When a meeting is adjourned to another place (if any), date or time, unless these Bylaws otherwise require, notice need not be given of the adjourned meeting if the time and place (if any), thereof and the means of remote communications, if any, by which stockholders

and proxyholders may be deemed to be present and vote at such adjourned meeting, are announced at the meeting at which the adjournment is taken. At the adjourned meeting the corporation may transact any business that might have been transacted at the original meeting. If the adjournment is for more than 30 days, or if after the adjournment a new record date is fixed for the adjourned meeting, notice of the place (if any), date and time of the adjourned meeting and the means of remote communications, if any, by which stockholders and proxy holders may be deemed to be present in person and vote at such adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting.

2.8 **Organization; Conduct of Business.**

(a) Such person as the Board of Directors may have designated or, in the absence of such a person, the chief executive officer, or in his or her absence, the president or, in his or her absence, such person as may be chosen by the holders of a majority of the shares entitled to vote who are present, in person or by proxy, shall call to order any meeting of the stockholders and act as chairman of the meeting. In the absence of the secretary of the corporation, the secretary of the meeting shall be such person as the chairman of the meeting appoints.

(b) The chairman of any meeting of stockholders shall determine the order of business and the procedure at the meeting, including the manner of voting and the conduct of business. The date and time of opening and closing of the polls for each matter upon which the stockholders will vote at the meeting shall be announced at the meeting.

2.9 **Voting.**

The stockholders entitled to vote at any meeting of stockholders shall be determined in accordance with the provisions of Section 2.12 of these Bylaws, subject to the provisions of Sections 217 and 218 of the General Corporation Law of Delaware (relating to voting rights of fiduciaries, pledgors and joint owners of stock and to voting trusts and other voting agreements).

Except as may be otherwise provided in the certificate of incorporation, each stockholder shall be entitled to one vote for each share of capital stock held by such stockholder. All elections shall be determined by a plurality of the votes cast, and except as otherwise required by law, all other matters shall be determined by a majority of the votes cast affirmatively or negatively.

2.10 **Waiver Of Notice.**

Whenever notice is required to be given under any provision of the General Corporation Law of Delaware or of the certificate of incorporation or these Bylaws, a written waiver thereof, signed by the person entitled to notice, or waiver by electronic mail or other electronic transmission by such person, whether before or after the time stated therein, shall be deemed equivalent to notice. Attendance of a person at a meeting shall constitute a waiver of notice of such meeting, except when the person attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the stockholders need be specified in any written waiver of notice, or any waiver of notice by electronic transmission, unless so required by the certificate of incorporation or these Bylaws.

2.11 **Stockholder Action By Written Consent Without A Meeting.**

Unless otherwise provided in the certificate of incorporation, any action required to be taken at any annual or special meeting of stockholders of the corporation, or any action that may be taken at any annual or special meeting of such stockholders, may be taken without a meeting, without prior notice, and without a vote if a consent in writing, setting forth the action so taken, is (i) signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted, and (ii) delivered to the corporation in accordance with Section 228(a) of the Delaware General Corporation Law.

Every written consent shall bear the date of signature of each stockholder who signs the consent and no written consent shall be effective to take the corporate action referred to therein unless, within 60 days of the date the earliest dated consent is delivered to the corporation, a written consent or consents signed by a sufficient number of holders to take action are delivered to the corporation in the manner prescribed in this Section. A telegram, cablegram, electronic mail or other electronic transmission consenting to an action to be taken and transmitted by a stockholder or proxyholder, or by a person or persons authorized to act for a stockholder or proxyholder, shall be deemed to be written, signed and dated for purposes of this Section to the extent permitted by law. Any such consent shall be delivered in accordance with Section 228(d)(1) of the Delaware General Corporation Law.

Any copy, facsimile or other reliable reproduction of a consent in writing may be substituted or used in lieu of the original writing for any and all purposes for which the original writing could be used, provided that such copy, facsimile or other reproduction shall be a complete reproduction of the entire original writing.

Prompt notice of the taking of the corporate action without a meeting by less than unanimous written consent shall be given to those stockholders who have not consented in writing (including by electronic mail or other electronic transmission as permitted by law). If the action which is consented to is such as would have required the filing of a certificate under any section of the General Corporation Law of Delaware if such action had been voted on by stockholders at a meeting thereof, then the certificate filed under such section shall state, in lieu of any statement required by such section concerning any vote of stockholders, that written notice and written consent have been given as provided in Section 228 of the General Corporation Law of Delaware.

2.12 **Record Date For Stockholder Notice; Voting; Giving Consents.**

In order that the corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, or entitled to express consent to corporate action in writing without a meeting, or entitled to receive payment of any dividend or other distribution or allotment of any rights, or entitled to exercise any rights in

respect of any change, conversion or exchange of stock or for the purpose of any other lawful action, the Board of Directors may fix, in advance, a record date, which shall not be more than 60 nor less than 10 days before the date of such meeting, nor more than 60 days prior to any other action.

If the Board of Directors does not so fix a record date:

(a) The record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held.

(b) The record date for determining stockholders entitled to consent to corporate action in writing without a meeting, when no prior action by the Board of Directors is necessary, shall be the day on which the first written consent (including consent by electronic mail or other electronic transmission as permitted by law) is delivered to the corporation.

(c) The record date for determining stockholders for any other purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting, if such adjournment is for thirty (30) days or less; provided, however, that the Board of Directors may fix a new record date for the adjourned meeting.

2.13 **Proxies.**

Each stockholder entitled to vote at a meeting of stockholders or to express consent or dissent to corporate action in writing without a meeting may authorize another person or persons to act for such stockholder by an instrument in writing or by an electronic transmission permitted by law filed with the secretary of the corporation, but no such proxy shall be voted or acted upon after three years from its date, unless the proxy provides for a longer period. A proxy shall be deemed signed if the stockholder's name is placed on the proxy (whether by manual signature, typewriting, facsimile, electronic or telegraphic transmission or otherwise) by the stockholder or the stockholder's attorney-in-fact. The revocability of a proxy that states on its face that it is irrevocable shall be governed by the provisions of Section 212(e) of the General Corporation Law of Delaware.

ARTICLE III

DIRECTORS

3.1 **Powers.**

Subject to the provisions of the General Corporation Law of Delaware and any limitations in the certificate of incorporation or these Bylaws relating to action required to be approved by the stockholders or by the outstanding shares, the business and affairs of the corporation shall be managed and all corporate powers shall be exercised by or under the direction of the Board of Directors.

3.2 **Number Of Directors.**

Upon the adoption of these Bylaws, the number of directors constituting the entire Board of Directors shall be two. Thereafter, this number may be changed by a resolution of the Board of Directors or of the stockholders, subject to Section 3.4 of these Bylaws. No reduction of the authorized number of directors shall have the effect of removing any director before such director's term of office expires.

3.3 **Election, Qualification And Term Of Office Of Directors.**

Except as provided in Section 3.4 of these Bylaws, and unless otherwise provided in the certificate of incorporation, directors shall be elected at each annual meeting of stockholders to hold office until the next annual meeting. Directors need not be stockholders unless so required by the certificate of incorporation or these Bylaws, wherein other qualifications for directors may be prescribed. Each director, including a director elected to fill a vacancy, shall hold office until his or her successor is elected and qualified or until his or her earlier resignation or removal.

Unless otherwise specified in the certificate of incorporation, elections of directors need not be by written ballot.

3.4 **Resignation And Vacancies.**

Any director may resign at any time upon written notice to the attention of the Secretary of the corporation. When one or more directors so resigns and the resignation is effective at a future date, a majority of the directors then in office, including those who have so resigned, shall have power to fill such vacancy or vacancies, the vote thereon to take effect when such resignation or resignations shall become effective, and each director so chosen shall hold office as provided in this section in the filling of other vacancies.

Unless otherwise provided in the certificate of incorporation or these Bylaws:

(a) Vacancies and newly created directorships resulting from any increase in the authorized number of directors elected by all of the stockholders having the right to vote as a single class may be filled by a majority of the directors then in office, although less than a quorum, or by a sole remaining director.

(b) Whenever the holders of any class or classes of stock or series thereof are entitled to elect one or more directors by the provisions of the certificate of incorporation, vacancies and newly created directorships of such class or classes or series may be filled by a majority of the directors elected by such class or classes or series thereof then in office, or by a sole remaining director so elected, or if no such director is in office, by a majority of all directors then in office, although less than a quorum, or by a sole remaining director.

If at any time, by reason of death or resignation or other cause, the corporation should have no directors in office, then any officer or any stockholder or an executor, administrator, trustee or guardian of a stockholder, or other fiduciary entrusted with like responsibility for the person or estate of a stockholder, may call a special meeting of stockholders in accordance with the provisions of the certificate of incorporation or these Bylaws, or may apply to the Court of Chancery for a decree summarily ordering an election as provided in Section 211 of the General Corporation Law of Delaware.

If, at the time of filling any vacancy or any newly created directorship, the directors then in office constitute less than a majority of the whole board (as constituted immediately prior to any such increase), then the Court of Chancery may, upon application of any stockholder or stockholders holding at least 10% of the total number of the shares at the time outstanding having the right to vote for such directors, summarily order an election to be held to fill any such vacancies or newly created directorships, or to replace the directors chosen by the directors then in office as aforesaid, which election shall be governed by the provisions of Section 211 of the General Corporation Law of Delaware as far as applicable.

3.5 **Place Of Meetings; Meetings By Telephone.**

The Board of Directors of the corporation may hold meetings, both regular and special, either within or outside the state of Delaware.

Unless otherwise restricted by the certificate of incorporation or these Bylaws, members of the Board of Directors, or any committee designated by the Board of Directors, may participate in a meeting of the Board of Directors, or any committee, by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and such participation in a meeting shall constitute presence in person at the meeting.

3.6 **Regular Meetings.**

Regular meetings of the Board of Directors may be held without notice at such time and at such place as shall from time to time be determined by the board.

3.7 **Special Meetings; Notice.**

Special meetings of the Board of Directors for any purpose or purposes may be called at any time by the chairman of the board, the chief executive officer, the president, any vice president, the secretary or any two directors.

Notice of the time and place of special meetings shall be delivered personally or by telephone to each director or sent by first-class mail, facsimile, electronic transmission, or telegram, charges prepaid, addressed to each director at that director's address as it is shown on the records of the corporation. If the notice is mailed, it shall be deposited in the United States mail at least four days before the time of the holding of the meeting. If the notice is delivered personally or by facsimile, electronic transmission, telephone or telegram, it shall be delivered at least 48 hours before the time of the holding of the meeting. Any oral notice given personally or by telephone may be communicated either to the director or to a person at the office of the

director who the person giving the notice has reason to believe will promptly communicate it to the director. The notice need not specify the purpose of the meeting. The notice need not specify the place of the meeting, if the meeting is to be held at the principal executive office of the corporation. Unless otherwise indicated in the notice thereof, any and all business may be transacted at a special meeting.

3.8 **Quorum.**

At all meetings of the Board of Directors, a majority of the total number of directors shall constitute a quorum for the transaction of business and the act of a majority of the directors present at any meeting at which there is a quorum shall be the act of the Board of Directors, except as may be otherwise specifically provided by statute or by the certificate of incorporation. If a quorum is not present at any meeting of the Board of Directors, then the directors present thereat may adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum is present.

A meeting at which a quorum is initially present may continue to transact business notwithstanding the withdrawal of directors, if any action taken is approved by at least a majority of the required quorum for that meeting.

3.9 **Waiver Of Notice.**

Whenever notice is required to be given under any provision of the General Corporation Law of Delaware or of the certificate of incorporation or these Bylaws, a written waiver thereof, signed by the person entitled to notice, or waiver by electronic mail or other electronic transmission by such person, whether before or after the time stated therein, shall be deemed equivalent to notice. Attendance of a person at a meeting shall constitute a waiver of notice of such meeting, except when the person attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the directors, or members of a committee of directors, need be specified in any written waiver of notice unless so required by the certificate of incorporation or these Bylaws.

3.10 **Board Action By Written Consent Without A Meeting.**

Unless otherwise restricted by the certificate of incorporation or these Bylaws, any action required or permitted to be taken at any meeting of the Board of Directors, or of any committee thereof, may be taken without a meeting if all members of the board or committee, as the case may be, consent thereto in writing or by electronic transmission, and the writing or writings or electronic transmission or transmissions are filed with the minutes of proceedings of the board or committee. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

Any copy, facsimile or other reliable reproduction of a consent in writing may be substituted or used in lieu of the original writing for any and all purposes for which the original writing could be used, provided that such copy, facsimile or other reproduction shall be a complete reproduction of the entire original writing.

3.11 **Fees And Compensation Of Directors.**

Unless otherwise restricted by the certificate of incorporation or these Bylaws, the Board of Directors shall have the authority to fix the compensation of directors. No such compensation shall preclude any director from serving the corporation in any other capacity and receiving compensation therefor.

3.12 **Approval Of Loans To Officers.**

The corporation may lend money to, or guarantee any obligation of, or otherwise assist any officer or other employee of the corporation or of its subsidiary, including any officer or employee who is a director of the corporation or its subsidiary, whenever, in the judgment of the directors, such loan, guaranty or assistance may reasonably be expected to benefit the corporation. The loan, guaranty or other assistance may be with or without interest and may be unsecured, or secured in such manner as the Board of Directors shall approve, including, without limitation, a pledge of shares of stock of the corporation. Nothing in this section shall be deemed to deny, limit or restrict the powers of guaranty or warranty of the corporation at common law or under any statute.

3.13 **Removal Of Directors.**

Unless otherwise restricted by statute, by the certificate of incorporation or by these Bylaws, any director or the entire Board of Directors may be removed, with or without cause, by the holders of a majority of the shares then entitled to vote at an election of directors; provided, however, that if the stockholders of the corporation are entitled to cumulative voting, if less than the entire Board of Directors is to be removed, no director may be removed without cause if the votes cast against his removal would be sufficient to elect him if then cumulatively voted at an election of the entire Board of Directors.

No reduction of the authorized number of directors shall have the effect of removing any director prior to the expiration of such director's term of office.

3.14 **Chairman Of The Board Of Directors.**

The corporation may also have, at the discretion of the Board of Directors, a chairman of the Board of Directors who shall not be considered an officer of the corporation.

ARTICLE IV

COMMITTEES

4.1 **Committees Of Directors.**

The Board of Directors may designate one or more committees, each committee to consist of one or more of the directors of the corporation. The Board may designate 1 or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. In the absence or disqualification of a member of a committee, the member or members present at any meeting and not disqualified from voting,

whether or not such member or members constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member. Any such committee, to the extent provided in the resolution of the Board of Directors, or in these Bylaws, shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the corporation, and may authorize the seal of the corporation to be affixed to all papers which may require it; but no such committee shall have the power or authority in reference to the following matters: (i) approving or adopting, or recommending to the stockholders, any action or matter expressly required by the General Corporate Law of Delaware to be submitted to stockholders for approval or (ii) adopting, amending or repealing any Bylaw of the corporation.

4.2 **Committee Minutes.**

Each committee shall keep regular minutes of its meetings and report the same to the Board of Directors when required.

4.3 **Meetings And Action Of Committees.**

Meetings and actions of committees shall be governed by, and held and taken in accordance with, the provisions of Section 3.5 (place of meetings and meetings by telephone), Section 3.6 (regular meetings), Section 3.7 (special meetings and notice), Section 3.8 (quorum), Section 3.9 (waiver of notice), and Section 3.10 (action without a meeting) of these Bylaws, with such changes in the context of such provisions as are necessary to substitute the committee and its members for the Board of Directors and its members; provided, however, that the time of regular meetings of committees may be determined either by resolution of the Board of Directors or by resolution of the committee, that special meetings of committees may also be called by resolution of the Board of Directors and that notice of special meetings of committees shall also be given to all alternate members, who shall have the right to attend all meetings of the committee. The Board of Directors may adopt rules for the government of any committee not inconsistent with the provisions of these Bylaws.

ARTICLE V

OFFICERS

5.1 **Officers.**

The officers of the corporation shall be a president, a secretary, and a chief financial officer. The corporation may also have, at the discretion of the Board of Directors, a chief executive officer, one or more vice presidents, one or more assistant secretaries, one or more assistant treasurers, and any such other officers as may be appointed in accordance with the provisions of Section 5.3 of these Bylaws. Any number of offices may be held by the same person.

5.2 **Appointment Of Officers.**

The officers of the corporation, except such officers as may be appointed in accordance with the provisions of Sections 5.3 or 5.5 of these Bylaws, shall be appointed by the Board of Directors, subject to the rights, if any, of an officer under any contract of employment.

5.3 **Subordinate Officers.**

The Board of Directors may appoint, or empower the chief executive officer or the president to appoint, such other officers and agents as the business of the corporation may require, each of whom shall hold office for such period, have such authority, and perform such duties as are provided in these Bylaws or as the Board of Directors may from time to time determine.

5.4 **Removal And Resignation Of Officers.**

Subject to the rights, if any, of an officer under any contract of employment, any officer may be removed, either with or without cause, by an affirmative vote of the majority of the Board of Directors at any regular or special meeting of the board or, except in the case of an officer chosen by the Board of Directors, by any officer upon whom the power of removal is conferred by the Board of Directors.

Any officer may resign at any time by giving written notice to the corporation. Any resignation shall take effect at the date of the receipt of that notice or at any later time specified in that notice; and, unless otherwise specified in that notice, the acceptance of the resignation shall not be necessary to make it effective. Any resignation is without prejudice to the rights, if any, of the corporation under any contract to which the officer is a party.

5.5 **Vacancies In Offices.**

Any vacancy occurring in any office of the corporation shall be filled by the Board of Directors.

5.6 **Chief Executive Officer.**

Subject to such supervisory powers, if any, as may be given by the Board of Directors to the chairman of the board, if any, the chief executive officer of the corporation (if such an officer is appointed) shall, subject to the control of the Board of Directors, have general supervision, direction, and control of the business and the officers of the corporation and shall have the general powers and duties of management usually vested in the office of chief executive officer of a corporation and shall have such other powers and duties as may be prescribed by the Board of Directors or these Bylaws.

The person serving as chief executive officer shall also be the acting President of the corporation whenever no other person is then serving in such capacity.

5.7 **President.**

Subject to such supervisory powers, if any, as may be given by the Board of Directors to the chairman of the board (if any) or the chief executive officer, the president shall have general supervision, direction, and control of the business and other officers of the corporation. He or she shall have the general powers and duties of management usually vested in the office of president of a corporation and such other powers and duties as may be prescribed by the Board of Directors or these Bylaws.

The person serving as president shall also be the acting chief executive officer of the corporation whenever no other person is then serving in such capacity.

5.8 **Vice Presidents.**

In the absence or disability of the chief executive officer and president, the vice presidents, if any, in order of their rank as fixed by the Board of Directors or, if not ranked, a vice president designated by the Board of Directors, shall perform all the duties of the president and when so acting shall have all the powers of, and be subject to all the restrictions upon, the president. The vice presidents shall have such other powers and perform such other duties as from time to time may be prescribed for them respectively by the Board of Directors, these Bylaws, the president or the chairman of the board.

5.9 **Secretary.**

The secretary shall keep or cause to be kept, at the principal executive office of the corporation or such other place as the Board of Directors may direct, a book of minutes of all meetings and actions of directors, committees of directors, and stockholders. The minutes shall show the time and place of each meeting, the names of those present at directors' meetings or committee meetings, the number of shares present or represented at stockholders' meetings, and the proceedings thereof.

The secretary shall keep, or cause to be kept, at the principal executive office of the corporation or at the office of the corporation's transfer agent or registrar, as determined by resolution of the Board of Directors, a share register, or a duplicate share register, showing the names of all stockholders and their addresses, the number and classes of shares held by each, the number and date of certificates evidencing such shares, and the number and date of cancellation of every certificate surrendered for cancellation.

The secretary shall give, or cause to be given, notice of all meetings of the stockholders and of the Board of Directors required to be given by law or by these Bylaws. He or she shall keep the seal of the corporation, if one be adopted, in safe custody and shall have such other powers and perform such other duties as may be prescribed by the Board of Directors or by these Bylaws.

5.10 **Chief Financial Officer.**

The chief financial officer shall keep and maintain, or cause to be kept and maintained, adequate and correct books and records of accounts of the properties and business transactions of the corporation, including accounts of its assets, liabilities, receipts, disbursements, gains, losses, capital, retained earnings and shares. The books of account shall at all reasonable times be open to inspection by any member of the Board of Directors.

The chief financial officer shall render to the chief executive officer, the president, or the Board of Directors, upon request, an account of all his or her transactions as chief financial officer and of the financial condition of the corporation. He or she shall have the general powers and duties usually vested in the office of chief financial officer of a corporation and shall have such other powers and perform such other duties as may be prescribed by the Board of Directors or these Bylaws.

The person serving as the chief financial officer shall also be the acting treasurer of the corporation whenever no other person is then serving in such capacity. Subject to such supervisory powers, if any, as may be given by the Board of Directors to another officer of the corporation, the chief financial officer shall supervise and direct the responsibilities of the treasurer whenever someone other than the chief financial officer is serving as treasurer of the corporation.

5.11 **Treasurer.**

The treasurer shall keep and maintain, or cause to be kept and maintained, adequate and correct books and records with respect to all bank accounts, deposit accounts, cash management accounts and other investment accounts of the corporation. The books of account shall at all reasonable times be open to inspection by any member of the Board of Directors.

The treasurer shall deposit, or cause to be deposited, all moneys and other valuables in the name and to the credit of the corporation with such depositories as may be designated by the Board of Directors. He or she shall disburse the funds of the corporation as may be ordered by the Board of Directors and shall render to the chief financial officer, the chief executive officer, the president or the Board of Directors, upon request, an account of all his or her transactions as treasurer. He or she shall have the general powers and duties usually vested in the office of treasurer of a corporation and shall have such other powers and perform such other duties as may be prescribed by the Board of Directors or these Bylaws.

The person serving as the treasurer shall also be the acting chief financial officer of the corporation whenever no other person is then serving in such capacity.

5.12 **Representation Of Shares Of Other Corporations.**

The chairman of the board, the chief executive officer, the president, any vice president, the chief financial officer, the secretary or assistant secretary of this corporation, or any other person authorized by the Board of Directors or the chief executive officer or the president or a vice president, is authorized to vote, represent, and exercise on behalf of this corporation all rights incident to any and all shares of any other corporation or corporations standing in the name of this corporation. The authority granted herein may be exercised either by such person directly or by any other person authorized to do so by proxy or power of attorney duly executed by the person having such authority.

5.13 **Authority And Duties Of Officers.**

In addition to the foregoing authority and duties, all officers of the corporation shall respectively have such authority and perform such duties in the management of the business of the corporation as may be designated from time to time by the Board of Directors or the stockholders.

ARTICLE VI

INDEMNIFICATION OF DIRECTORS, OFFICERS, EMPLOYEES, AND OTHER AGENTS

6.1 **Indemnification Of Directors And Officers.**

The corporation shall, to the maximum extent and in the manner permitted by the General Corporation Law of Delaware, indemnify each of its directors and officers against expenses (including attorneys' fees), judgments, fines, settlements and other amounts actually and reasonably incurred in connection with any proceeding, arising by reason of the fact that such person is or was an agent of the corporation. For purposes of this Section 6.1, a "director" or "officer" of the corporation includes any person (a) who is or was a director or officer of the corporation, (b) who is or was serving at the request of the corporation as a director or officer of another corporation, partnership, joint venture, trust or other enterprise, or (c) who was a director or officer of a corporation which was a predecessor corporation of the corporation or of another enterprise at the request of such predecessor corporation.

6.2 **Indemnification Of Others.**

The corporation shall have the power, to the maximum extent and in the manner permitted by the General Corporation Law of Delaware, to indemnify each of its employees and agents (other than directors and officers) against expenses (including attorneys' fees), judgments, fines, settlements and other amounts actually and reasonably incurred in connection with any proceeding, arising by reason of the fact that such person is or was an agent of the corporation. For purposes of this Section 6.2, an "employee" or "agent" of the corporation (other than a director or officer) includes any person (a) who is or was an employee or agent of the corporation, (b) who is or was serving at the request of the corporation as an employee or agent of another corporation, partnership, joint venture, trust or other enterprise, or (c) who was an employee or agent of a corporation which was a predecessor corporation of the corporation or of another enterprise at the request of such predecessor corporation.

6.3 **Payment Of Expenses In Advance.**

Expenses incurred in defending any action or proceeding for which indemnification is required pursuant to Section 6.1 or for which indemnification is permitted pursuant to Section 6.2 following authorization thereof by the Board of Directors shall be paid by the corporation in advance of the final disposition of such action or proceeding upon receipt of an undertaking by or on behalf of the indemnified party to repay such amount if it shall ultimately be determined by final judicial decision from which there is no further right to appeal that the indemnified party is not entitled to be indemnified as authorized in this Article VI.

6.4 **Indemnity Not Exclusive.**

The indemnification provided by this Article VI shall not be deemed exclusive of any other rights to which those seeking indemnification may be entitled under any Bylaw, agreement, vote of stockholders or disinterested directors or otherwise, both as to action in an official capacity and as to action in another capacity while holding such office, to the extent that such additional rights to indemnification are authorized in the certificate of incorporation

6.5 **Insurance.**

The corporation may purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against any liability asserted against him or her and incurred by him or her in any such capacity, or arising out of his or her status as such, whether or not the corporation would have the power to indemnify him or her against such liability under the provisions of the General Corporation Law of Delaware.

6.6 **Conflicts.**

No indemnification or advance shall be made under this Article VI, except where such indemnification or advance is mandated by law or the order, judgment or decree of any court of competent jurisdiction, in any circumstance where it appears:

(a) That it would be inconsistent with a provision of the certificate of incorporation, these Bylaws, a resolution of the stockholders or an agreement in effect at the time of the accrual of the alleged cause of the action asserted in the proceeding in which the expenses were incurred or other amounts were paid, which prohibits or otherwise limits indemnification; or

(b) That it would be inconsistent with any condition expressly imposed by a court in approving a settlement.

ARTICLE VII

RECORDS AND REPORTS

7.1 **Maintenance And Inspection Of Records.**

The corporation shall, either at its principal executive offices or at such place or places as designated by the Board of Directors, keep a record of its stockholders listing their names and addresses and the number and class of shares held by each stockholder, a copy of these Bylaws as amended to date, accounting books, and other records.

Any stockholder of record, in person or by attorney or other agent, shall, upon written demand under oath stating the purpose thereof, have the right during the usual hours for business to inspect for any proper purpose the corporation’s stock ledger, a list of its stockholders, and its other books and records and to make copies or extracts therefrom. A proper

purpose shall mean a purpose reasonably related to such person's interest as a stockholder. In every instance where an attorney or other agent is the person who seeks the right to inspection, the demand under oath shall be accompanied by a power of attorney or such other writing that authorizes the attorney or other agent to so act on behalf of the stockholder. The demand under oath shall be directed to the corporation at its registered office in Delaware or at its principal place of business.

A complete list of stockholders entitled to vote at any meeting of stockholders, arranged in alphabetical order for each class of stock and showing the address of each such stockholder and the number of shares registered in each such stockholder's name, shall be open to the examination of any such stockholder for a period of at least ten (10) days prior to the meeting in the manner provided by law. The stock list shall also be open to the examination of any stockholder during the whole time of the meeting as provided by law. This list shall presumptively determine the identity of the stockholders entitled to vote at the meeting and the number of shares held by each of them.

7.2 **Inspection By Directors.**

Any director shall have the right to examine the corporation's stock ledger, a list of its stockholders, and its other books and records for a purpose reasonably related to his or her position as a director. The Court of Chancery is hereby vested with the exclusive jurisdiction to determine whether a director is entitled to the inspection sought. The Court may summarily order the corporation to permit the director to inspect any and all books and records, the stock ledger, and the stock list and to make copies or extracts therefrom. The Court may, in its discretion, prescribe any limitations or conditions with reference to the inspection, or award such other and further relief as the Court may deem just and proper.

ARTICLE VIII

GENERAL MATTERS

8.1 **Checks.**

From time to time, the Board of Directors shall determine by resolution which person or persons may sign or endorse all checks, drafts, other orders for payment of money, notes or other evidences of indebtedness that are issued in the name of or payable to the corporation, and only the persons so authorized shall sign or endorse those instruments.

8.2 **Execution Of Corporate Contracts And Instruments.**

The Board of Directors, except as otherwise provided in these Bylaws, may authorize any officer or officers, or agent or agents, to enter into any contract or execute any instrument in the name of and on behalf of the corporation; such authority may be general or confined to specific instances. Unless so authorized or ratified by the Board of Directors or within the agency power of an officer, no officer, agent or employee shall have any power or authority to bind the corporation by any contract or engagement or to pledge its credit or to render it liable for any purpose or for any amount.

8.3 **Stock Certificates; Partly Paid Shares.**

The shares of a corporation shall be represented by certificates, provided that the Board of Directors of the corporation may provide by resolution or resolutions that some or all of any or all classes or series of its stock shall be uncertificated shares. Any such resolution shall not apply to shares represented by a certificate until such certificate is surrendered to the corporation. Any or all of the signatures on the certificate may be a facsimile. In case any officer, transfer agent or registrar who has signed or whose facsimile signature has been placed upon a certificate has ceased to be such officer, transfer agent or registrar before such certificate is issued, it may be issued by the corporation with the same effect as if he or she were such officer, transfer agent or registrar at the date of issue.

The corporation may issue the whole or any part of its shares as partly paid and subject to call for the remainder of the consideration to be paid therefor. Upon the face or back of each stock certificate issued to represent any such partly paid shares, upon the books and records of the corporation in the case of uncertificated partly paid shares, the total amount of the consideration to be paid therefor and the amount paid thereon shall be stated. Upon the declaration of any dividend on fully paid shares, the corporation shall declare a dividend upon partly paid shares of the same class, but only upon the basis of the percentage of the consideration actually paid thereon.

8.4 **Special Designation On Certificates.**

If the corporation is authorized to issue more than one class of stock or more than one series of any class, then the powers, the designations, the preferences, and the relative, participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights shall be set forth in full or summarized on the face or back of the certificate that the corporation shall issue to represent such class or series of stock; provided, however, that, except as otherwise provided in Section 202 of the General Corporation Law of Delaware, in lieu of the foregoing requirements there may be set forth on the face or back of the certificate that the corporation shall issue to represent such class or series of stock a statement that the corporation will furnish without charge to each stockholder who so requests the powers, the designations, the preferences, and the relative, participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights.

8.5 **Lost Certificates.**

Except as provided in this Section 8.5, no new certificates for shares shall be issued to replace a previously issued certificate unless the latter is surrendered to the corporation and cancelled at the same time. The corporation may issue a new certificate of stock or uncertificated shares in the place of any certificate previously issued by it, alleged to have been lost, stolen or destroyed, and the corporation may require the owner of the lost, stolen or destroyed certificate, or the owner’s legal representative, to give the corporation a bond sufficient to indemnify it against any claim that may be made against it on account of the alleged loss, theft or destruction of any such certificate or the issuance of such new certificate or uncertificated shares.

8.6 **Construction; Definitions.**

Unless the context requires otherwise, the general provisions, rules of construction, and definitions in the Delaware General Corporation Law shall govern the construction of these Bylaws. Without limiting the generality of this provision, the singular number includes the plural, the plural number includes the singular, and the term "person" includes both a corporation and a natural person.

8.7 **Dividends.**

The directors of the corporation, subject to any restrictions contained in (a) the General Corporation Law of Delaware or (b) the certificate of incorporation, may declare and pay dividends upon the shares of its capital stock. Dividends may be paid in cash, in property, or in shares of the corporation's capital stock.

The directors of the corporation may set apart out of any of the funds of the corporation available for dividends a reserve or reserves for any proper purpose and may abolish any such reserve. Such purposes shall include but not be limited to equalizing dividends, repairing or maintaining any property of the corporation, and meeting contingencies.

8.8 **Fiscal Year.**

The fiscal year of the corporation shall be fixed by resolution of the Board of Directors and may be changed by the Board of Directors.

8.9 **Seal.**

The corporation may adopt a corporate seal, which may be altered at pleasure, and may use the same by causing it or a facsimile thereof, to be impressed or affixed or in any other manner reproduced.

8.10 **Transfer Of Stock.**

Upon surrender to the corporation or the transfer agent of the corporation of a certificate for shares duly endorsed or accompanied by proper evidence of succession, assignation or authority to transfer, it shall be the duty of the corporation to issue a new certificate to the person entitled thereto, cancel the old certificate, and record the transaction in its books.

8.11 **Stock Transfer Agreements.**

The corporation shall have power to enter into and perform any agreement with any number of stockholders of any one or more classes of stock of the corporation to restrict the transfer of shares of stock of the corporation of any one or more classes owned by such stockholders in any manner not prohibited by the General Corporation Law of Delaware.

8.12 **Registered Stockholders.**

The corporation shall be entitled to recognize the exclusive right of a person registered on its books as the owner of shares to receive dividends and to vote as such owner, shall be entitled to hold liable for calls and assessments the person registered on its books as the owner of shares, and shall not be bound to recognize any equitable or other claim to or interest in such share or shares on the part of another person, whether or not it shall have express or other notice thereof, except as otherwise provided by the laws of Delaware.

8.13 **Facsimile Signature.**

In addition to the provisions for use of facsimile signatures elsewhere specifically authorized in these Bylaws, facsimile signatures of any officer or officers of the corporation may be used whenever and as authorized by the Board of Directors or a committee thereof.

ARTICLE IX

AMENDMENTS

The Bylaws of the corporation may be adopted, amended or repealed by the stockholders entitled to vote; provided, however, that the corporation may, in its certificate of incorporation, confer the power to adopt, amend or repeal Bylaws upon the directors. The fact that such power has been so conferred upon the directors shall not divest the stockholders of the power, nor limit their power to adopt, amend or repeal Bylaws.

THIS WARRANT AND THE SHARES ISSUABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT**"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN SECTIONS 5.3 AND 5.4 BELOW, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR IN FORM AND SUBSTANCE SATISFACTORY TO THE COMPANY, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

WARRANT TO PURCHASE STOCK

Company: Twist Bioscience Corporation
Number of Shares: 364,742
Type/Series of Stock: Series A Preferred
Warrant Price: $0.329 per share
Issue Date: October 8, 2013
Expiration Date: October 8, 2023 See also Section 5.1(b).
Credit Facility: This Warrant to Purchase Stock ("**Warrant**") is issued in connection with that certain Loan and Security Agreement of even date herewith between Silicon Valley Bank and the Company (the "**Loan Agreement**").

THIS WARRANT CERTIFIES THAT, for good and valuable consideration, SILICON VALLEY BANK (together with any successor or permitted assignee or transferee of this Warrant or of any shares issued upon exercise hereof, "**Holder**") is entitled to purchase the number of fully paid and non-assessable shares (the "**Shares**") of the above-stated Type/Series of Stock (the "**Class**") of the above-named company (the "**Company**") at the above-stated Warrant Price, all as set forth above and as adjusted pursuant to Section 2 of this Warrant, subject to the provisions and upon the terms and conditions set forth in this Warrant. Reference is made to Section 5.4 of this Warrant whereby Silicon Valley Bank shall transfer this Warrant to its parent company, SVB Financial Group.

SECTION 1. EXERCISE.

1.1. Method of Exercise. Holder may at any time and from time to time exercise this Warrant, in whole or in part, by delivering to the Company the original of this Warrant together with a duly executed Notice of Exercise in substantially the form attached hereto as Appendix 1 and, unless Holder is exercising this Warrant pursuant to a cashless exercise set forth in Section 1.2, a check, wire transfer of same-day funds (to an account designated by the Company), or other form of payment acceptable to the Company for the aggregate Warrant Price for the Shares being purchased.

1.2. Cashless Exercise. On any exercise of this Warrant, in lieu of payment of the aggregate Warrant Price in the manner as specified in Section 1.1 above, but otherwise in accordance with the requirements of Section 1.1, Holder may elect to receive Shares equal to the value of this Warrant, or portion hereof as to which this Warrant is being exercised. Thereupon, the Company shall issue to the Holder such number of fully paid and non-assessable Shares as are computed using the following formula:

$$X = Y(A-B)/A$$

where:

X = the number of Shares to be issued to the Holder;

Y = the number of Shares with respect to which this Warrant is being exercised (inclusive of the Shares surrendered to the Company in payment of the aggregate Warrant Price);

A = the fair market value (as determined pursuant to Section 1.3 below) of one Share; and

B = the Warrant Price.

1.3. Fair Market Value. If the Company's common stock is then traded or quoted on a nationally recognized securities exchange, inter-dealer quotation system or over-the-counter market (a "**Trading Market**") and the Class is common stock, the fair market value of a Share shall be the closing price or last sale price of a share of common stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company. If the Company's common stock is then traded in a Trading Market and the Class is a series of the Company's convertible preferred stock, the fair market value of a Share shall be the closing price or last sale price of a share of the Company's common stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company multiplied by the number of shares of the Company's common stock into which a Share is then convertible. If the Company's common stock is not traded in a Trading Market, the Board of Directors of the Company shall determine the fair market value of a Share in its reasonable good faith judgment.

1.4. Delivery of Certificate and New Warrant. Within a reasonable time after Holder exercises this Warrant in the manner set forth in Section 1.1 or 1.2 above, the Company shall deliver to Holder a certificate representing the Shares issued to Holder upon such exercise and, if this Warrant has not been fully exercised and has not expired, a new warrant of like tenor representing the Shares not so acquired.

1.5. Replacement of Warrant. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of loss, theft or destruction, on delivery of an indemnity agreement reasonably satisfactory in form, substance and amount to the Company or, in the case of mutilation, on surrender of this Warrant to the Company for cancellation, the Company shall, within a reasonable time, execute and deliver to Holder, in lieu of this Warrant, a new warrant of like tenor and amount.

1.6. Treatment of Warrant Upon Acquisition of Company.

(a) For the purpose of this Warrant, "**Acquisition**" means any Liquidation Event, as defined in the Company's Amended and Restated Certificate of Incorporation, as amended from time to time.

(b) In the event of an Acquisition in which the consideration to be received by the Company's stockholders consists solely of cash, solely of Marketable Securities or a combination of cash and Marketable Securities (a "**Cash/Public Acquisition**"), either (i) Holder shall exercise this Warrant pursuant to Section 1.1 and/or 1.2 and such exercise will be deemed effective immediately prior to and contingent upon the consummation of such Acquisition or (ii) if Holder elects not to exercise the Warrant, this Warrant will expire immediately prior to the consummation of such Acquisition.

(c) The Company shall provide Holder with written notice of its request relating to the Cash/Public Acquisition (together with such reasonable information as Holder may reasonably require regarding the treatment of this Warrant in connection with such contemplated Cash/Public Acquisition giving rise to such notice), which is to be delivered to Holder not less than seven (7) Business Days prior to the closing of the proposed Cash/Public Acquisition. In the event the Company does not provide such notice, then if, immediately prior to the Cash/Public Acquisition, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above would be greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall promptly notify the Holder of the number of Shares (or such other securities) issued upon such exercise to the Holder and Holder shall be deemed to have restated each of the representations and warranties in Section 4 of the Warrant as the date thereof.

(d) Upon the closing of any Acquisition other than a Cash/Public Acquisition defined above, the acquiring, surviving or successor entity shall assume the obligations of this Warrant, and this Warrant shall thereafter be exercisable for the same securities and/or other property as would have been paid for the Shares issuable upon exercise of the unexercised portion of this Warrant as if such Shares were outstanding on and as of the closing of such Acquisition, subject to further adjustment from time to time in accordance with the provisions of this Warrant.

(e) As used in this Warrant, "**Marketable Securities**" means securities meeting all of the following requirements: (i) the issuer thereof is then subject to the reporting requirements of Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), and is then current in its filing of all required reports and other information under the Act and the Exchange Act; (ii) the class and series of shares or other security of the issuer that would be received by Holder in connection with the Acquisition were Holder to exercise this Warrant on or prior to the closing thereof is then traded in Trading Market, and (iii) following the closing of such Acquisition, Holder would not be restricted from publicly re-selling all of the issuer's shares and/or other securities that would be received by Holder in such Acquisition were Holder to exercise or convert this Warrant in full on or prior to the closing of such Acquisition, except to the extent that any such restriction (x) arises solely under federal or state securities laws, rules or regulations, and (y) does not extend beyond six (6) months from the closing of such Acquisition.

SECTION 2. ADJUSTMENTS TO THE SHARES AND WARRANT PRICE.

2.1. Stock Dividends, Splits, Etc. If the Company declares or pays a dividend or distribution on the outstanding shares of the Class payable in common stock or other securities or property (other than cash), then upon exercise of this Warrant, for each Share acquired, Holder shall receive, without additional cost to Holder, the total number and kind of securities and property which Holder would have received had Holder owned the Shares of record as of the date the dividend or distribution occurred. If the Company subdivides the outstanding shares of the Class by reclassification or otherwise into a greater number of shares, the number of Shares purchasable hereunder shall be proportionately increased and the Warrant Price shall be proportionately decreased. If the outstanding shares of the Class are combined or consolidated, by reclassification or otherwise, into a lesser number of shares, the Warrant Price shall be proportionately increased and the number of Shares shall be proportionately decreased.

2.2. Reclassification, Exchange, Combinations or Substitution. Upon any event whereby all of the outstanding shares of the Class are reclassified, exchanged, combined, substituted, or replaced for, into, with or by Company securities of a different class and/or series, then from and after the consummation of such event, this Warrant will be exercisable for the number, class and series of Company securities that Holder would have received had the Shares been outstanding on and as of the consummation of such event, and subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant. The provisions of this Section 2.2 shall similarly apply to successive reclassifications, exchanges, combinations substitutions, replacements or other similar events.

2.3. Conversion of Preferred Stock. If the Class is a class and series of the Company's convertible preferred stock, in the event that all outstanding shares of the Class are converted, automatically or by action of the holders thereof, into common stock pursuant to the provisions of the Company's Certificate of Incorporation, including, without limitation, in connection with the Company's initial, underwritten public offering and sale of its common stock pursuant to an effective registration statement under the Act (the "**IPO**"), then from and after the date on which all outstanding shares of the Class have been so converted, this Warrant shall be exercisable for such number of shares of common stock into which the Shares would have been converted had the Shares been outstanding on the date of such conversion, and the Warrant Price shall equal the Warrant Price in effect as of immediately prior to such conversion divided by the number of shares of common stock into which one Share would have been converted, all subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant.

2.4. Adjustments for Diluting Issuances. Without duplication of any adjustment otherwise provided for in this Section 2, the number of shares of common stock issuable upon conversion of the Shares shall be subject to anti-dilution adjustment from time to time in the manner set forth in the Company's Articles or Certificate of Incorporation as if the Shares were issued and outstanding on and as of the date of any such required adjustment.

2.5. No Fractional Share. No fractional Share shall be issuable upon exercise of this Warrant and the number of Shares to be issued shall be rounded down to the nearest whole Share. If a fractional Share interest arises upon any exercise of the Warrant, the Company shall eliminate such fractional Share interest by paying Holder in cash the amount computed by multiplying the fractional interest by (i) the fair market value (as determined in accordance with Section 1.3 above) of a full Share, less (ii) the then-effective Warrant Price.

2.6. Notice/Certificate as to Adjustments. Upon each adjustment of the Warrant Price, Class and/or number of Shares, the Company, at the Company's expense, shall notify Holder in writing within a reasonable time setting forth the adjustments to the Warrant Price, Class and/or number of Shares and facts upon which such adjustment is based. The Company shall, upon written request from Holder, furnish Holder with a certificate of its Chief Financial Officer, including computations of such adjustment and the Warrant Price, Class and number of Shares in effect upon the date of such adjustment.

SECTION 3. REPRESENTATIONS AND COVENANTS OF THE COMPANY.

3.1. Representations and Warranties. The Company represents and warrants to, and agrees with, the Holder as follows:

(a) The initial Warrant Price referenced on the first page of this Warrant is not greater than the price per share at which shares of the Class were last sold and issued prior to the Issue Date hereof in an arms-length transaction in which at least $500,000 of such shares were sold.

(b) All Shares which may be issued upon the exercise of this Warrant, and all securities, if any, issuable upon conversion of the Shares, shall, upon issuance, be duly authorized, validly issued, fully paid and non-assessable, and free of any liens and encumbrances except for those in favor of Holder and for restrictions on transfer provided for herein or under applicable federal and state securities laws. The Company covenants that it shall at all times cause to be reserved and kept available out of its authorized and unissued capital stock such number of shares of the Class, common stock and other securities as will be sufficient to permit the exercise in full of this Warrant and the conversion of the Shares into common stock or such other securities.

(c) The Company's capitalization table attached hereto as Schedule 1 is true and complete, in all material respects, as of the Issue Date.

3.2. Notice of Certain Events. If the Company proposes at any time to:

(a) declare any dividend or distribution upon the outstanding shares of the Class or common stock, whether in cash, property, stock, or other securities and whether or not a regular cash dividend;

(b) offer for subscription or sale pro rata to the holders of the outstanding shares of the Class any additional shares of any class or series of the Company's stock (other than pursuant to contractual pre-emptive rights);

(c) effect any reclassification, exchange, combination, substitution, reorganization or recapitalization of the outstanding shares of the Class;

(d) effect an Acquisition or to liquidate, dissolve or wind up; or

(e) effect an IPO;

then, in connection with each such event, the Company shall give Holder:

(1) at least seven (7) Business Days prior written notice of the date on which a record will be taken for such dividend, distribution, or subscription rights (and specifying the date on which the holders of outstanding shares of the Class will be entitled thereto) or for determining rights to vote, if any, in respect of the matters referred to in (a) and (b) above;

(2) in the case of the matters referred to in (c) and (d) above at least seven (7) Business Days prior written notice of the date when the same will take place (and specifying the date on which the holders of outstanding shares of the Class will be entitled to exchange their shares for the securities or other property deliverable upon the occurrence of such event); and

(3) with respect to the IPO, at least seven (7) Business Days prior written notice of the effective date of the Company's registration statement in connection therewith.

Reference is made to Section 1.6(c) whereby this Warrant will be deemed to be exercised pursuant to Section 1.2 hereof if the Company does not give written notice to Holder of a Cash/Public Acquisition as required by the terms hereof. Company will also provide information requested by Holder that is reasonably necessary to enable Holder to comply with Holder's accounting or reporting requirements; provided that any such information provided in connection with this Warrant shall be the confidential information of the Company and subject to Section 9 of the Loan Agreement.

SECTION 4. REPRESENTATIONS, WARRANTIES OF THE HOLDER.

The Holder represents and warrants to the Company as follows:

4.1. Purchase for Own Account. This Warrant and the securities to be acquired upon exercise of this Warrant by Holder are being acquired for investment for Holder's account, not as a nominee or agent, and not with a view to the public resale or distribution within the meaning of the Act. Holder also represents that it has not been formed for the specific purpose of acquiring this Warrant or the Shares.

4.2. Disclosure of Information. Holder is aware of the Company's business affairs and financial condition and has received or has had full access to all the information it considers necessary or appropriate to make an informed investment decision with respect to the acquisition of this Warrant and its underlying securities. Holder further has had an opportunity to ask questions and receive answers from the Company regarding the terms and conditions of the offering of this Warrant and its underlying securities and to obtain additional information (to the extent the Company possessed such information or could acquire it without unreasonable effort or expense) necessary to verify any information furnished to Holder or to which Holder has access.

4.3. Investment Experience. Holder understands that the purchase of this Warrant and its underlying securities involves substantial risk. Holder has experience as an investor in securities of companies in the development stage and acknowledges that Holder can bear the economic risk of such Holder's investment in this Warrant and its underlying securities and has such knowledge and experience in financial or business matters that Holder is capable of evaluating the merits and risks of its investment in this Warrant and its underlying securities and/or has a preexisting personal or business relationship with the Company and certain of its officers, directors or controlling persons of a nature and duration that enables Holder to be aware of the character, business acumen and financial circumstances of such persons.

4.4. Accredited Investor Status. Holder is an "accredited investor" within the meaning of Regulation D promulgated under the Act.

4.5. The Act. Holder understands that this Warrant and the Shares issuable upon exercise hereof have not been registered under the Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of the Holder's investment intent as expressed herein. Holder understands that this Warrant and the Shares issued upon any exercise hereof must be held indefinitely unless subsequently registered under the Act and qualified under applicable state securities laws, or unless exemption from such registration and qualification are otherwise available. Holder is aware of the provisions of Rule 144 promulgated under the Act.

4.6. Market Stand Off Agreement. The Holder agrees that the Shares shall be subject to the Market Stand Off provisions in Section 12 of the Registration Rights Agreement, dated July 1, 2013 (as amended from time to time) (the "**Market Stand Off Agreement**").

4.7. No Voting or Other Stockholder Rights. Holder, as a Holder of this Warrant, will not have any voting rights or other rights as a stockholder of the Company until the exercise of this Warrant.

SECTION 5. MISCELLANEOUS.

5.1. Term and Automatic Conversion Upon Expiration.

(a) Term. Subject to the provisions of Section 1.6 above, this Warrant is exercisable in whole or in part at any time and from time to time on or before 6:00 PM, Pacific Time, on the Expiration Date and shall be void thereafter.

(b) Automatic Cashless Exercise upon Expiration. In the event that, upon the Expiration Date, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above is greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall, within a reasonable time, deliver a certificate representing the Shares (or such other securities) issued upon such exercise to Holder.

5.2. Legends. The Shares (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) shall be imprinted with a legend in substantially the following form:

> THE SHARES EVIDENCED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT**"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN THAT CERTAIN WARRANT TO PURCHASE STOCK ISSUED BY THE ISSUER TO SILICON VALLEY BANK DATED OCTOBER 8, 2013 MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

5.3. Compliance with Securities Laws on Transfer. This Warrant and the Shares issuable upon exercise of this Warrant (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) may not be transferred or assigned in whole or in part except in compliance with applicable federal and state securities laws by the transferor and the transferee (including, without limitation, the delivery of investment representation letters and legal opinions reasonably satisfactory to the Company, as reasonably requested by the Company). The Company shall not require Holder to provide an opinion of counsel if the transfer is to SVB Financial Group (Silicon Valley Bank's parent company) or any other

Affiliate of Holder, provided that any such transferee is an "accredited investor" as defined in Regulation D promulgated under the Act. Additionally, the Company shall also not require an opinion of counsel if there is no material question as to the availability of Rule 144 promulgated under the Act. As used herein, an "**Affiliate**" means, with respect to any Holder, any other entity which, directly or indirectly, controls, is controlled by, or is under common control with such Holder.

5.4. Transfer Procedure. After receipt by Silicon Valley Bank of the executed Warrant, Silicon Valley Bank will transfer all of this Warrant to its parent company, SVB Financial Group. By its acceptance of this Warrant, SVB Financial Group hereby makes to the Company each of the representations and warranties set forth in Section 4 hereof and agrees to be bound by all of the terms and conditions of this Warrant as if the original Holder hereof, including without limitation, the provisions of the Market Stand Off Agreement. Subject to the provisions of Section 5.3 and upon providing the Company with written notice, SVB Financial Group and any subsequent Holder may transfer all or part of this Warrant or the Shares issuable upon exercise of this Warrant (or the securities issuable directly or indirectly, upon conversion of the Shares, if any) to any transferee, provided, however, in connection with any such transfer, SVB Financial Group or any subsequent Holder will give the Company notice of the portion of the Warrant being transferred with the name, address and taxpayer identification number of the transferee and Holder will surrender this Warrant to the Company for reissuance to the transferee(s) (and Holder if applicable); and provided further, that any subsequent transferee other than SVB Financial Group shall agree in writing with the Company to be bound by all of the terms and conditions of this Warrant, including without limitation, the provisions of the Market Stand Off Agreement. Notwithstanding any contrary provision herein, at all times prior to the IPO, Holder may not, without the Company's prior written consent, transfer this Warrant or any portion hereof, or any Shares issued upon any exercise hereof, or any shares or other securities issued upon any conversion of any Shares issued upon any exercise hereof, to any person or entity who directly competes with the Company, except in connection with an Acquisition of the Company by such a direct competitor.

5.5. Notices. All notices and other communications hereunder from the Company to the Holder, or vice versa, shall be deemed delivered and effective (i) when given personally, (ii) on the third (3rd) Business Day after being mailed by first-class registered or certified mail, postage prepaid, (iii) if given by facsimile, upon confirmation of facsimile transfer, or if sent via electronic mail, upon transmission when directed to the relevant electronic mail address, or (iv) on the first Business Day following delivery to a reliable overnight courier service, courier fee prepaid, in any case at such address as may have been furnished to the Company or Holder, as the case may be, in writing by the Company or such Holder from time to time in accordance with the provisions of this Section 5.5. All notices to Holder shall be addressed as follows until the Company receives notice of a change of address in connection with a transfer or otherwise:

SVB Financial Group
Attn: Treasury Department
3003 Tasman Drive, HC 215
Santa Clara, CA 95054
Telephone: (408) 654-7400
Facsimile: (408) 988-8317
Email address: derivatives@svb.com

Notice to the Company shall be addressed as follows until Holder receives notice of a change in address:

Twist Bioscience Corporation
Attn: Emily LeProust
455 Mission Bay Boulevard, Suite 545
Telephone: _____
Facsimile: _____
Email: _____

5.6. Waiver. This Warrant and any term hereof may be changed, waived, discharged or terminated (either generally or in a particular instance and either retroactively or prospectively) only by an instrument in writing signed by the party against which enforcement of such change, waiver, discharge or termination is sought.

5.7. Attorney's Fees. In the event of any dispute between the parties concerning the terms and provisions of this Warrant, the party prevailing in such dispute shall be entitled to collect from the other party all costs incurred in such dispute, including reasonable attorneys' fees.

5.8. Counterparts; Facsimile/Electronic Signatures. This Warrant may be executed in counterparts, all of which together shall constitute one and the same agreement. Any signature page delivered electronically or by facsimile shall be binding to the same extent as an original signature page with regards to any agreement subject to the terms hereof or any amendment thereto.

5.9. Governing Law. This Warrant shall be governed by and construed in accordance with the laws of the State of California, without giving effect to its principles regarding conflicts of law.

5.10. Headings. The headings in this Warrant are for purposes of reference only and shall not limit or otherwise affect the meaning of any provision of this Warrant.

5.11. Business Days. "**Business Day**" is any day that is not a Saturday, Sunday or a day on which Silicon Valley Bank is closed.

[Remainder of page left blank intentionally]
[Signature page follows]

IN WITNESS WHEREOF, the parties have caused this Warrant to Purchase Stock to be executed by their duly authorized representatives effective as of the Issue Date written above.

"COMPANY"

TWIST BIOSCIENCE CORPORATION

By: /s/ Emily Leproust

Name: Emily Leproust
(Print)

Title: CEO

"HOLDER"

SILICON VALLEY BANK

By: /s/ Damian A. Augustyn

Name: Damian A. Augustyn
(Print)

Title: VP

THIS WARRANT AND THE SHARES ISSUABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT**"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN SECTIONS 5.3 AND 5.4 BELOW, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR IN FORM AND SUBSTANCE SATISFACTORY TO THE COMPANY, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

WARRANT TO PURCHASE STOCK

Company: Twist Bioscience Corporation
Number of Shares: See Paragraph A below
Type/Series of Stock: Series B Preferred
Warrant Price: $0.7920 per share
Issue Date: September 2, 2014
Expiration Date: September 2, 2024 See also Section 5.1(b).
Credit Facility: This Warrant to Purchase Stock ("**Warrant**") is issued in connection with that certain Amended and Restated Loan and Security Agreement of even date herewith between Silicon Valley Bank and the Company (the "**Loan Agreement**").

THIS WARRANT CERTIFIES THAT, for good and valuable consideration, SILICON VALLEY BANK (together with any successor or permitted assignee or transferee of this Warrant or of any shares issued upon exercise hereof, "**Holder**") is entitled to purchase the number of fully paid and non-assessable shares (the "**Shares**") of the above-stated Type/Series of Stock (the "**Class**") of the above-named company (the "**Company**") at the above-stated Warrant Price, all as set forth above and as adjusted pursuant to Section 2 of this Warrant, subject to the provisions and upon the terms and conditions set forth in this Warrant. Reference is made to Section 5.4 of this Warrant whereby Silicon Valley Bank shall transfer this Warrant to its parent company, SVB Financial Group.

A. The number of Shares for which this Warrant shall be exercisable shall equal the quotient derived by dividing (a) 4.0% of the aggregate amount of Growth Capital II Advances advanced by Bank to Borrower, by (b) the Warrant Price.

SECTION 1. EXERCISE.

1.1 Method of Exercise. Holder may at any time and from time to time exercise this Warrant, in whole or in part, by delivering to the Company the original of this Warrant together with a duly executed Notice of Exercise in substantially the form attached hereto as Appendix 1 and, unless Holder is exercising this Warrant pursuant to a cashless exercise set forth in Section 1.2, a check, wire transfer of same-day funds (to an account designated by the Company), or other form of payment acceptable to the Company for the aggregate Warrant Price for the Shares being purchased.

1.2 Cashless Exercise. On any exercise of this Warrant, in lieu of payment of the aggregate Warrant Price in the manner as specified in Section 1.1 above, but otherwise in accordance with the requirements of Section 1.1, Holder may elect to receive Shares equal to the value of this Warrant, or portion hereof as to which this Warrant is being exercised. Thereupon, the Company shall issue to the Holder such number of fully paid and non-assessable Shares as are computed using the following formula:

$$X = Y(A-B)/A$$

where:

X = the number of Shares to be issued to the Holder;

Y = the number of Shares with respect to which this Warrant is being exercised (inclusive of the Shares surrendered to the Company in payment of the aggregate Warrant Price);

A = the fair market value (as determined pursuant to Section 1.3 below) of one Share; and

B = the Warrant Price.

1.3 Fair Market Value. If the Company's common stock is then traded or quoted on a nationally recognized securities exchange, inter-dealer quotation system or over-the-counter market (a "**Trading Market**") and the Class is common stock, the fair market value of a Share shall be the closing price or last sale price of a share of common stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company. If the Company's common stock is then traded in a Trading Market and the Class is a series of the Company's convertible preferred stock, the fair market value of a Share shall be the closing price or last sale price of a share of the Company's common stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company multiplied by the number of shares of the Company's common stock into which a Share is then convertible. If the Company's common stock is not traded in a Trading Market, the Board of Directors of the Company shall determine the fair market value of a Share in its reasonable good faith judgment.

1.4 Delivery of Certificate and New Warrant. Within a reasonable time after Holder exercises this Warrant in the manner set forth in Section 1.1 or 1.2 above, the Company shall deliver to Holder a certificate representing the Shares issued to Holder upon such exercise and, if this Warrant has not been fully exercised and has not expired, a new warrant of like tenor representing the Shares not so acquired.

1.5 Replacement of Warrant. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of loss, theft or destruction, on delivery of an indemnity agreement reasonably satisfactory in form, substance and amount to the Company or, in the case of mutilation, on surrender of this Warrant to the Company for cancellation, the Company shall, within a reasonable time, execute and deliver to Holder, in lieu of this Warrant, a new warrant of like tenor and amount.

1.6 Treatment of Warrant Upon Acquisition of Company.

(a) For the purpose of this Warrant, "**Acquisition**" means any Liquidation Event, as defined in the Company's Amended and Restated Certificate of Incorporation, as amended from time to time.

(b) In the event of an Acquisition in which the consideration to be received by the Company's stockholders consists solely of cash, solely of Marketable Securities or a combination of cash and Marketable Securities (a "**Cash/Public Acquisition**"), either (i) Holder shall exercise this Warrant pursuant to Section 1.1 and/or 1.2 and such exercise will be deemed effective immediately prior to and contingent upon the consummation of such Acquisition or (ii) if Holder elects not to exercise the Warrant, this Warrant will expire immediately prior to the consummation of such Acquisition.

(c) The Company shall provide Holder with written notice of its request relating to the Cash/Public Acquisition (together with such reasonable information as Holder may reasonably require regarding the treatment of this Warrant in connection with such contemplated Cash/Public Acquisition giving rise to such notice), which is to be delivered to Holder not less than seven (7) Business Days prior to the closing of the proposed Cash/Public Acquisition. In the event the Company does not provide such notice, then if, immediately prior to the Cash/Public Acquisition, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above would be greater

than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall promptly notify the Holder of the number of Shares (or such other securities) issued upon such exercise to the Holder and Holder shall be deemed to have restated each of the representations and warranties in Section 4 of the Warrant as the date thereof.

(d) Upon the closing of any Acquisition other than a Cash/Public Acquisition defined above, the acquiring, surviving or successor entity shall assume the obligations of this Warrant, and this Warrant shall thereafter be exercisable for the same securities and/or other property as would have been paid for the Shares issuable upon exercise of the unexercised portion of this Warrant as if such Shares were outstanding on and as of the closing of such Acquisition, subject to further adjustment from time to time in accordance with the provisions of this Warrant.

(e) As used in this Warrant, "**Marketable Securities**" means securities meeting all of the following requirements: (i) the issuer thereof is then subject to the reporting requirements of Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), and is then current in its filing of all required reports and other information under the Act and the Exchange Act; (ii) the class and series of shares or other security of the issuer that would be received by Holder in connection with the Acquisition were Holder to exercise this Warrant on or prior to the closing thereof is then traded in Trading Market, and (iii) following the closing of such Acquisition, Holder would not be restricted from publicly re-selling all of the issuer's shares and/or other securities that would be received by Holder in such Acquisition were Holder to exercise or convert this Warrant in full on or prior to the closing of such Acquisition, except to the extent that any such restriction (x) arises solely under federal or state securities laws, rules or regulations, and (y) does not extend beyond six (6) months from the closing of such Acquisition.

SECTION 2. ADJUSTMENTS TO THE SHARES AND WARRANT PRICE.

2.1 Stock Dividends, Splits, Etc. If the Company declares or pays a dividend or distribution on the outstanding shares of the Class payable in common stock or other securities or property (other than cash), then upon exercise of this Warrant, for each Share acquired, Holder shall receive, without additional cost to Holder, the total number and kind of securities and property which Holder would have received had Holder owned the Shares of record as of the date the dividend or distribution occurred. If the Company subdivides the outstanding shares of the Class by reclassification or otherwise into a greater number of shares, the number of Shares purchasable hereunder shall be proportionately increased and the Warrant Price shall be proportionately decreased. If the outstanding shares of the Class are combined or consolidated, by reclassification or otherwise, into a lesser number of shares, the Warrant Price shall be proportionately increased and the number of Shares shall be proportionately decreased.

2.2 Reclassification, Exchange, Combinations or Substitution. Upon any event whereby all of the outstanding shares of the Class are reclassified, exchanged, combined, substituted, or replaced for, into, with or by Company securities of a different class and/or series, then from and after the consummation of such event, this Warrant will be exercisable for the number, class and series of Company securities that Holder would have received had the Shares been outstanding on and as of the consummation of such event, and subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant. The provisions of this Section 2.2 shall similarly apply to successive reclassifications, exchanges, combinations substitutions, replacements or other similar events.

2.3 Conversion of Preferred Stock. If the Class is a class and series of the Company's convertible preferred stock, in the event that all outstanding shares of the Class are converted, automatically or by action of the holders thereof, into common stock pursuant to the provisions of the Company's Certificate of Incorporation, including, without limitation, in connection with the Company's initial, underwritten public offering and sale of its common stock pursuant to an effective registration statement under the Act (the "**IPO**"), then from and after the date on which all outstanding shares of the Class have been so converted, this Warrant shall be exercisable for such number of shares of common stock into which

the Shares would have been converted had the Shares been outstanding on the date of such conversion, and the Warrant Price shall equal the Warrant Price in effect as of immediately prior to such conversion divided by the number of shares of common stock into which one Share would have been converted, all subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant.

2.4 Adjustments for Diluting Issuances. Without duplication of any adjustment otherwise provided for in this Section 2, the number of shares of common stock issuable upon conversion of the Shares shall be subject to anti-dilution adjustment from time to time in the manner set forth in the Company's Articles or Certificate of Incorporation as if the Shares were issued and outstanding on and as of the date of any such required adjustment.

2.5 No Fractional Share. No fractional Share shall be issuable upon exercise of this Warrant and the number of Shares to be issued shall be rounded down to the nearest whole Share. If a fractional Share interest arises upon any exercise of the Warrant, the Company shall eliminate such fractional Share interest by paying Holder in cash the amount computed by multiplying the fractional interest by (i) the fair market value (as determined in accordance with Section 1.3 above) of a full Share, less (ii) the then-effective Warrant Price.

2.6 Notice/Certificate as to Adjustments. Upon each adjustment of the Warrant Price, Class and/or number of Shares, the Company, at the Company's expense, shall notify Holder in writing within a reasonable time setting forth the adjustments to the Warrant Price, Class and/or number of Shares and facts upon which such adjustment is based. The Company shall, upon written request from Holder, furnish Holder with a certificate of its Chief Financial Officer, including computations of such adjustment and the Warrant Price, Class and number of Shares in effect upon the date of such adjustment.

SECTION 3. REPRESENTATIONS AND COVENANTS OF THE COMPANY.

3.1 Representations and Warranties. The Company represents and warrants to, and agrees with, the Holder as follows:

(a) The initial Warrant Price referenced on the first page of this Warrant is not greater than the price per share at which shares of the Class were last sold and issued prior to the Issue Date hereof in an arms-length transaction in which at least $500,000 of such shares were sold.

(b) All Shares which may be issued upon the exercise of this Warrant, and all securities, if any, issuable upon conversion of the Shares, shall, upon issuance, be duly authorized, validly issued, fully paid and non-assessable, and free of any liens and encumbrances except for those in favor of Holder and for restrictions on transfer provided for herein or under applicable federal and state securities laws. The Company covenants that it shall at all times cause to be reserved and kept available out of its authorized and unissued capital stock such number of shares of the Class, common stock and other securities as will be sufficient to permit the exercise in full of this Warrant and the conversion of the Shares into common stock or such other securities.

(c) The Company's capitalization table attached hereto as Schedule 1 is true and complete, in all material respects, as of the Issue Date.

3.2 Notice of Certain Events. If the Company proposes at any time to:

(a) declare any dividend or distribution upon the outstanding shares of the Class or common stock, whether in cash, property, stock, or other securities and whether or not a regular cash dividend;

(b) offer for subscription or sale pro rata to the holders of the outstanding shares of the Class any additional shares of any class or series of the Company's stock (other than pursuant to contractual pre-emptive rights);

(c) effect any reclassification, exchange, combination, substitution, reorganization or recapitalization of the outstanding shares of the Class;

(d) effect an Acquisition or to liquidate, dissolve or wind up; or

(e) effect an IPO;

then, in connection with each such event, the Company shall give Holder:

(1) at least seven (7) Business Days prior written notice of the date on which a record will be taken for such dividend, distribution, or subscription rights (and specifying the date on which the holders of outstanding shares of the Class will be entitled thereto) or for determining rights to vote, if any, in respect of the matters referred to in (a) and (b) above;

(2) in the case of the matters referred to in (c) and (d) above at least seven (7) Business Days prior written notice of the date when the same will take place (and specifying the date on which the holders of outstanding shares of the Class will be entitled to exchange their shares for the securities or other property deliverable upon the occurrence of such event); and

(3) with respect to the IPO, at least seven (7) Business Days prior written notice of the effective date of the Company's registration statement in connection therewith.

Reference is made to Section 1.6(c) whereby this Warrant will be deemed to be exercised pursuant to Section 1.2 hereof if the Company does not give written notice to Holder of a Cash/Public Acquisition as required by the terms hereof. Company will also provide information requested by Holder that is reasonably necessary to enable Holder to comply with Holder's accounting or reporting requirements; provided that any such information provided in connection with this Warrant shall be the confidential information of the Company and subject to Section 9 of the Loan Agreement.

SECTION 4. REPRESENTATIONS, WARRANTIES OF THE HOLDER.

The Holder represents and warrants to the Company as follows:

4.1 Purchase for Own Account. This Warrant and the securities to be acquired upon exercise of this Warrant by Holder are being acquired for investment for Holder's account, not as a nominee or agent, and not with a view to the public resale or distribution within the meaning of the Act. Holder also represents that it has not been formed for the specific purpose of acquiring this Warrant or the Shares.

4.2 Disclosure of Information. Holder is aware of the Company's business affairs and financial condition and has received or has had full access to all the information it considers necessary or appropriate to make an informed investment decision with respect to the acquisition of this Warrant and its underlying securities. Holder further has had an opportunity to ask questions and receive answers from the Company regarding the terms and conditions of the offering of this Warrant and its underlying securities and to obtain additional information (to the extent the Company possessed such information or could acquire it without unreasonable effort or expense) necessary to verify any information furnished to Holder or to which Holder has access.

4.3 Investment Experience. Holder understands that the purchase of this Warrant and its underlying securities involves substantial risk. Holder has experience as an investor in securities of companies in the development stage and acknowledges that Holder can bear the economic risk of such Holder's investment in this Warrant and its underlying securities and has such knowledge and experience in financial or business matters that Holder is capable of evaluating the merits and risks of its investment in this Warrant and its underlying securities and/or has a preexisting personal or business relationship with the Company and certain of its officers, directors or controlling persons of a nature and duration that enables Holder to be aware of the character, business acumen and financial circumstances of such persons.

4.4 Accredited Investor Status. Holder is an "accredited investor" within the meaning of Regulation D promulgated under the Act.

4.5 The Act. Holder understands that this Warrant and the Shares issuable upon exercise hereof have not been registered under the Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of the Holder's investment intent as expressed herein. Holder understands that this Warrant and the Shares issued upon any exercise hereof must be held indefinitely unless subsequently registered under the Act and qualified under applicable state securities laws, or unless exemption from such registration and qualification are otherwise available. Holder is aware of the provisions of Rule 144 promulgated under the Act.

4.6 Market Stand Off Agreement. The Holder agrees that the Shares shall be subject to the Market Stand Off provisions in Section 12 of the Amended and Restated Registration Rights Agreement, dated May 13, 2014 (as amended from time to time) (the "Market Stand Off Agreement").

4.7 No Voting or Other Stockholder Rights. Holder, as a Holder of this Warrant, will not have any voting rights or other rights as a stockholder of the Company until the exercise of this Warrant.

SECTION 5. MISCELLANEOUS.

5.1 Term and Automatic Conversion Upon Expiration.

(a) Term. Subject to the provisions of Section 1.6 above, this Warrant is exercisable in whole or in part at any time and from time to time on or before 6:00 PM, Pacific Time, on the Expiration Date and shall be void thereafter.

(b) Automatic Cashless Exercise upon Expiration. In the event that, upon the Expiration Date, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above is greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall, within a reasonable time, deliver a certificate representing the Shares (or such other securities) issued upon such exercise to Holder.

5.2 Legends. The Shares (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) shall be imprinted with a legend in substantially the following form:

THE SHARES EVIDENCED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT**"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN THAT CERTAIN WARRANT TO PURCHASE STOCK ISSUED BY THE ISSUER TO SILICON VALLEY BANK DATED SEPTEMBER 2, 2014 MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

5.3 Compliance with Securities Laws on Transfer. This Warrant and the Shares issuable upon exercise of this Warrant (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) may not be transferred or assigned in whole or in part except in compliance with applicable federal and state securities laws by the transferor and the transferee (including, without limitation,

the delivery of investment representation letters and legal opinions reasonably satisfactory to the Company, as reasonably requested by the Company). The Company shall not require Holder to provide an opinion of counsel if the transfer is to SVB Financial Group (Silicon Valley Bank's parent company) or any other Affiliate of Holder, provided that any such transferee is an "accredited investor" as defined in Regulation D promulgated under the Act. Additionally, the Company shall also not require an opinion of counsel if there is no material question as to the availability of Rule 144 promulgated under the Act. As used herein, an "Affiliate" means, with respect to any Holder, any other entity which, directly or indirectly, controls, is controlled by, or is under common control with such Holder.

5.4 Transfer Procedure. After receipt by Silicon Valley Bank of the executed Warrant, Silicon Valley Bank will transfer all of this Warrant to its parent company, SVB Financial Group. By its acceptance of this Warrant, SVB Financial Group hereby makes to the Company each of the representations and warranties set forth in Section 4 hereof and agrees to be bound by all of the terms and conditions of this Warrant as if the original Holder hereof, including without limitation, the provisions of the Market Stand Off Agreement. Subject to the provisions of Section 5.3 and upon providing the Company with written notice, SVB Financial Group and any subsequent Holder may transfer all or part of this Warrant or the Shares issuable upon exercise of this Warrant (or the securities issuable directly or indirectly, upon conversion of the Shares, if any) to any transferee, provided, however, in connection with any such transfer, SVB Financial Group or any subsequent Holder will give the Company notice of the portion of the Warrant being transferred with the name, address and taxpayer identification number of the transferee and Holder will surrender this Warrant to the Company for reissuance to the transferee(s) (and Holder if applicable); and provided further, that any subsequent transferee other than SVB Financial Group shall agree in writing with the Company to be bound by all of the terms and conditions of this Warrant, including without limitation, the provisions of the Market Stand Off Agreement. Notwithstanding any contrary provision herein, at all times prior to the IPO, Holder may not, without the Company's prior written consent, transfer this Warrant or any portion hereof, or any Shares issued upon any exercise hereof, or any shares or other securities issued upon any conversion of any Shares issued upon any exercise hereof, to any person or entity who directly competes with the Company, except in connection with an Acquisition of the Company by such a direct competitor.

5.5 Notices. All notices and other communications hereunder from the Company to the Holder, or vice versa, shall be deemed delivered and effective (i) when given personally, (ii) on the third (3rd) Business Day after being mailed by first-class registered or certified mail, postage prepaid, (iii) if given by facsimile, upon confirmation of facsimile transfer, or if sent via electronic mail, upon transmission when directed to the relevant electronic mail address, or (iv) on the first Business Day following delivery to a reliable overnight courier service, courier fee prepaid, in any case at such address as may have been furnished to the Company or Holder, as the case may be, in writing by the Company or such Holder from time to time in accordance with the provisions of this Section 5.5. All notices to Holder shall be addressed as follows until the Company receives notice of a change of address in connection with a transfer or otherwise:

SVB Financial Group
Attn: Treasury Department
3003 Tasman Drive, HC 215
Santa Clara, CA 95054
Telephone: (408) 654-7400
Facsimile: (408) 988-8317
Email address: derivatives@svb.com

Notice to the Company shall be addressed as follows until Holder receives notice of a change in address:

Twist Bioscience Corporation
Attn: Emily LeProust
455 Mission Bay Boulevard, Suite 545
Telephone: _____
Facsimile: _____
Email: _____

5.6 Waiver. This Warrant and any term hereof may be changed, waived, discharged or terminated (either generally or in a particular instance and either retroactively or prospectively) only by an instrument in writing signed by the party against which enforcement of such change, waiver, discharge or termination is sought.

5.7 Attorney's Fees. In the event of any dispute between the parties concerning the terms and provisions of this Warrant, the party prevailing in such dispute shall be entitled to collect from the other party all costs incurred in such dispute, including reasonable attorneys' fees.

5.8 Counterparts; Facsimile/Electronic Signatures. This Warrant may be executed in counterparts, all of which together shall constitute one and the same agreement. Any signature page delivered electronically or by facsimile shall be binding to the same extent as an original signature page with regards to any agreement subject to the terms hereof or any amendment thereto.

5.9 Governing Law. This Warrant shall be governed by and construed in accordance with the laws of the State of California, without giving effect to its principles regarding conflicts of law.

5.10 Headings. The headings in this Warrant are for purposes of reference only and shall not limit or otherwise affect the meaning of any provision of this Warrant.

5.11 Business Days. "**Business Day**" is any day that is not a Saturday, Sunday or a day on which Silicon Valley Bank is closed.

[Remainder of page left blank intentionally]
[Signature page follows]

IN WITNESS WHEREOF, the parties have caused this Warrant to Purchase Stock to be executed by their duly authorized representatives effective as of the Issue Date written above.

"**COMPANY**"

TWIST BIOSCIENCE CORPORATION

By: /s/ Emily Leproust
Name: Emily Leproust
(Print)
Title: CEO

"HOLDER"

SILICON VALLEY BANK

By: /s/ Dennis He
Name: Dennis He
(Print)
Title: Vice President

Exhibit 4.6

THIS WARRANT AND THE SHARES ISSUABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT**"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN SECTIONS 5.3 AND 5.4 BELOW, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR IN FORM AND SUBSTANCE SATISFACTORY TO THE COMPANY, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

WARRANT TO PURCHASE STOCK

Company:	**Twist Bioscience Corporation**
Number of Shares:	**186,679**
Type/Series of Stock:	**Series C Preferred**
Warrant Price:	**$1.4999 share**
Issue Date:	**December 22, 2015**
Expiration Date:	**December 22, 2025 See also Section 5.1(b).**
Credit Facility:	This Warrant to Purchase Stock ("**Warrant**") is issued in connection with that certain Second Amended and Restated Loan and Security Agreement of even date herewith between Silicon Valley Bank and the Company (the "**Loan Agreement**").

THIS WARRANT CERTIFIES THAT, for good and valuable consideration, SILICON VALLEY BANK (together with any successor or permitted assignee or transferee of this Warrant or of any shares issued upon exercise hereof, "**Holder**") is entitled to purchase the number of fully paid and non-assessable shares (the "**Shares**") of the above-stated Type/Series of Stock (the "**Class**") of the above-named company (the "**Company**") at the above-stated Warrant Price, all as set forth above and as adjusted pursuant to Section 2 of this Warrant, subject to the provisions and upon the terms and conditions set forth in this Warrant. Reference is made to Section 5.4 of this Warrant whereby Silicon Valley Bank shall transfer this Warrant to its parent company, SVB Financial Group.

SECTION 1. EXERCISE.

1.1 Method of Exercise. Holder may at any time and from time to time exercise this Warrant, in whole or in part, by delivering to the Company the original of this Warrant together with a duly executed Notice of Exercise in substantially the form attached hereto as Appendix 1 and, unless Holder is exercising this Warrant pursuant to a cashless exercise set forth in Section 1.2, a check, wire transfer of same-day funds (to an account designated by the Company), or other form of payment acceptable to the Company for the aggregate Warrant Price for the Shares being purchased.

1.2 Cashless Exercise. On any exercise of this Warrant, in lieu of payment of the aggregate Warrant Price in the manner as specified in Section 1.1 above, but otherwise in accordance with the requirements of Section 1.1, Holder may elect to receive Shares equal to the value of this Warrant, or portion hereof as to which this Warrant is being exercised. Thereupon, the Company shall issue to the Holder such number of fully paid and non-assessable Shares as are computed using the following formula:

$$X = Y(A-B)/A$$

where:

X = the number of Shares to be issued to the Holder;

Y = the number of Shares with respect to which this Warrant is being exercised (inclusive of the Shares surrendered to the Company in payment of the aggregate Warrant Price);

A = the fair market value (as determined pursuant to Section 1.3 below) of one Share; and

B = the Warrant Price.

1.3 Fair Market Value. If the Company's common stock is then traded or quoted on a nationally recognized securities exchange, inter-dealer quotation system or over-the-counter market (a "**Trading Market**") and the Class is common stock, the fair market value of a Share shall be the closing price or last sale price of a share of common stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company. If the Company's common stock is then traded in a Trading Market and the Class is a series of the Company's convertible preferred stock, the fair market value of a Share shall be the closing price or last sale price of a share of the Company's common stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company multiplied by the number of shares of the Company's common stock into which a Share is then convertible. If the Company's common stock is not traded in a Trading Market, the Board of Directors of the Company shall determine the fair market value of a Share in its reasonable good faith judgment.

1.4 Delivery of Certificate and New Warrant. Within a reasonable time after Holder exercises this Warrant in the manner set forth in Section 1.1 or 1.2 above, the Company shall deliver to Holder a certificate representing the Shares issued to Holder upon such exercise and, if this Warrant has not been fully exercised and has not expired, a new warrant of like tenor representing the Shares not so acquired.

1.5 Replacement of Warrant. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of loss, theft or destruction, on delivery of an indemnity agreement reasonably satisfactory in form, substance and amount to the Company or, in the case of mutilation, on surrender of this Warrant to the Company for cancellation, the Company shall, within a reasonable time, execute and deliver to Holder, in lieu of this Warrant, a new warrant of like tenor and amount.

1.6 Treatment of Warrant Upon Acquisition of Company.

(a) Acquisition. For the purpose of this Warrant, "**Acquisition**" means any Liquidation Event (including but not limited to any "deemed" Liquidation Event), as defined in the Company's Amended and Restated Certificate of Incorporation, as amended from time to time.

(b) Treatment of Warrant at Acquisition. In the event of an Acquisition in which the consideration to be received by the Company's stockholders consists solely of cash, solely of Marketable Securities or a combination of cash and Marketable Securities (a "**Cash/Public Acquisition**"), and the fair market value of one Share as determined in accordance with Section 1.3 above would be greater than the Warrant Price in effect on such date immediately prior to such Cash/Public Acquisition, and Holder has not exercised this Warrant pursuant to Section 1.1 above as to all Shares, then this Warrant shall automatically be deemed to be Cashless Exercised pursuant to Section 1.2 above as to all Shares effective immediately

prior to and contingent upon the consummation of a Cash/Public Acquisition. In connection with such Cashless Exercise, Holder shall be deemed to have restated each of the representations and warranties in Section 4 of the Warrant as the date thereof and the Company shall promptly notify the Holder of the number of Shares (or such other securities) issued upon exercise. In the event of a Cash/Public Acquisition where the fair market value of one Share as determined in accordance with Section 1.3 above would be less than the Warrant Price in effect immediately prior to such Cash/Public Acquisition, then this Warrant will expire immediately prior to the consummation of such Cash/Public Acquisition.

(c) Upon the closing of any Acquisition other than a Cash/Public Acquisition defined above, the acquiring, surviving or successor entity shall assume the obligations of this Warrant, and this Warrant shall thereafter be exercisable for the same securities and/or other property as would have been paid for the Shares issuable upon exercise of the unexercised portion of this Warrant as if such Shares were outstanding on and as of the closing of such Acquisition, subject to further adjustment from time to time in accordance with the provisions of this Warrant..

(d) Upon the closing of any Acquisition other than a Cash/Public Acquisition defined above, the acquiring, surviving or successor entity shall assume the obligations of this Warrant, and this Warrant shall thereafter be exercisable for the same securities and/or other property as would have been paid for the Shares issuable upon exercise of the unexercised portion of this Warrant as if such Shares were outstanding on and as of the closing of such Acquisition, subject to further adjustment from time to time in accordance with the provisions of this Warrant.

(e) As used in this Warrant, "**Marketable Securities**" means securities meeting all of the following requirements: (i) the issuer thereof is then subject to the reporting requirements of Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), and is then current in its filing of all required reports and other information under the Act and the Exchange Act; (ii) the class and series of shares or other security of the issuer that would be received by Holder in connection with the Acquisition were Holder to exercise this Warrant on or prior to the closing thereof is then traded in Trading Market, and (iii) following the closing of such Acquisition, Holder would not be restricted from publicly re-selling all of the issuer's shares and/or other securities that would be received by Holder in such Acquisition were Holder to exercise or convert this Warrant in full on or prior to the closing of such Acquisition, except to the extent that any such restriction (x) arises solely under federal or state securities laws, rules or regulations, and (y) does not extend beyond six (6) months from the closing of such Acquisition.

SECTION 2. ADJUSTMENTS TO THE SHARES AND WARRANT PRICE.

2.1 Stock Dividends, Splits, Etc. If the Company declares or pays a dividend or distribution on the outstanding shares of the Class payable in common stock or other securities or property (other than cash), then upon exercise of this Warrant, for each Share acquired, Holder shall receive, without additional cost to Holder, the total number and kind of securities and property which Holder would have received had Holder owned the Shares of record as of the date the dividend or distribution occurred. If the Company subdivides the outstanding shares of the Class by reclassification or otherwise into a greater number of shares, the number of Shares purchasable hereunder shall be proportionately increased and the Warrant Price shall be proportionately decreased. If the outstanding shares of the Class are combined or consolidated, by reclassification or otherwise, into a lesser number of shares, the Warrant Price shall be proportionately increased and the number of Shares shall be proportionately decreased.

2.2 Reclassification, Exchange, Combinations or Substitution. Upon any event whereby all of the outstanding shares of the Class are reclassified, exchanged, combined, substituted, or replaced for, into, with or by Company securities of a different class and/or series, then from and after the consummation of such event, this Warrant will be exercisable for the number, class and series of Company securities that Holder would have received had the Shares been outstanding on and as of the consummation of such event, and subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant. The provisions of this Section 2.2 shall similarly apply to successive reclassifications, exchanges, combinations substitutions, replacements or other similar events.

2.3 Conversion of Preferred Stock. If the Class is a class and series of the Company's convertible preferred stock, in the event that all outstanding shares of the Class are converted, automatically or by action of the holders thereof, into common stock pursuant to the provisions of the Company's Certificate of Incorporation, including, without limitation, in connection with the Company's initial, underwritten public offering and sale of its common stock pursuant to an effective registration statement under the Act (the "**IPO**"), then from and after the date on which all outstanding shares of the Class have been so converted, this Warrant shall be exercisable for such number of shares of common stock into which the Shares would have been converted had the Shares been outstanding on the date of such conversion, and the Warrant Price shall equal the Warrant Price in effect as of immediately prior to such conversion divided by the number of shares of common stock into which one Share would have been converted, all subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant.

2.4 Adjustments for Diluting Issuances. Without duplication of any adjustment otherwise provided for in this Section 2, the number of shares of common stock issuable upon conversion of the Shares shall be subject to anti-dilution adjustment from time to time in the manner set forth in the Company's Certificate of Incorporation as if the Shares were issued and outstanding on and as of the date of any such required adjustment.

2.5 No Fractional Share. No fractional Share shall be issuable upon exercise of this Warrant and the number of Shares to be issued shall be rounded down to the nearest whole Share. If a fractional Share interest arises upon any exercise of the Warrant, the Company shall eliminate such fractional Share interest by paying Holder in cash the amount computed by multiplying the fractional interest by (i) the fair market value (as determined in accordance with Section 1.3 above) of a full Share, less (ii) the then-effective Warrant Price.

2.6 Notice/Certificate as to Adjustments. Upon each adjustment of the Warrant Price, Class and/or number of Shares, the Company, at the Company's expense, shall notify Holder in writing within a reasonable time setting forth the adjustments to the Warrant Price, Class and/or number of Shares and facts upon which such adjustment is based. The Company shall, upon written request from Holder, furnish Holder with a certificate of its Chief Financial Officer, including computations of such adjustment and the Warrant Price, Class and number of Shares in effect upon the date of such adjustment.

SECTION 3. REPRESENTATIONS AND COVENANTS OF THE COMPANY.

3.1 Representations and Warranties. The Company represents and warrants to, and agrees with, the Holder as follows:

(a) The initial Warrant Price referenced on the first page of this Warrant is not greater than the price per share at which shares of the Class were last sold and issued prior to the Issue Date hereof in an arms-length transaction in which at least $500,000 of such shares were sold.

(b) All Shares which may be issued upon the exercise of this Warrant, and all securities, if any, issuable upon conversion of the Shares, shall, upon issuance, be duly authorized, validly issued, fully paid and non-assessable, and free of any liens and encumbrances except for those in favor of Holder and for restrictions on transfer provided for herein or under applicable federal and state securities laws. The Company covenants that it shall at all times cause to be reserved and kept available out of its authorized and unissued capital stock such number of shares of the Class, common stock and other securities as will be sufficient to permit the exercise in full of this Warrant and the conversion of the Shares into common stock or such other securities.

(c) The Company's capitalization table attached hereto as Schedule 1 is true and complete, in all material respects, as of the Issue Date.

3.2 Notice of Certain Events. If the Company proposes at any time to:

(a) declare any dividend or distribution upon the outstanding shares of the Class or common stock, whether in cash, property, stock, or other securities and whether or not a regular cash dividend;

(b) offer for subscription or sale pro rata to the holders of the outstanding shares of the Class any additional shares of any class or series of the Company's stock (other than pursuant to contractual pre-emptive rights);

(c) effect any reclassification, exchange, combination, substitution, reorganization or recapitalization of the outstanding shares of the Class;

(d) effect an Acquisition or to liquidate, dissolve or wind up; or

(e) effect an IPO;

then, in connection with each such event, the Company shall give Holder:

(1) at least seven (7) Business Days prior written notice of the date on which a record will be taken for such dividend, distribution, or subscription rights (and specifying the date on which the holders of outstanding shares of the Class will be entitled thereto) or for determining rights to vote, if any, in respect of the matters referred to in (a) and (b) above;

(2) in the case of the matters referred to in (c) and (d) above at least seven (7) Business Days prior written notice of the date when the same will take place (and specifying the date on which the holders of outstanding shares of the Class will be entitled to exchange their shares for the securities or other property deliverable upon the occurrence of such event); and

(3) with respect to the IPO, at least seven (7) Business Days prior written notice of the effective date of the Company's registration statement in connection therewith.

Reference is made to Section 1.6(c) whereby this Warrant will be deemed to be exercised pursuant to Section 1.2 hereof if the Company does not give written notice to Holder of a Cash/Public Acquisition as required by the terms hereof. Company will also provide information requested by Holder that is reasonably necessary to enable Holder to comply with Holder's accounting or reporting requirements; provided that to the extent any such information provided in connection with this Warrant is confidential information, such information shall subject to Section 12.9 of the Loan Agreement for so long as the Loan Agreement remains in effect.

SECTION 4. REPRESENTATIONS, WARRANTIES OF THE HOLDER.

The Holder represents and warrants to the Company as follows:

4.1 Purchase for Own Account. This Warrant and the securities to be acquired upon exercise of this Warrant by Holder are being acquired for investment for Holder's account, not as a nominee or agent, and not with a view to the public resale or distribution within the meaning of the Act. Holder also represents that it has not been formed for the specific purpose of acquiring this Warrant or the Shares.

4.2 Disclosure of Information. Holder is aware of the Company's business affairs and financial condition and has received or has had full access to all the information it considers necessary or appropriate to make an informed investment decision with respect to the acquisition of this Warrant and its underlying securities. Holder further has had an opportunity to ask questions and receive answers from the Company regarding the terms and conditions of the offering of this Warrant and its underlying securities and to obtain additional information (to the extent the Company possessed such information or could acquire it without unreasonable effort or expense) necessary to verify any information furnished to Holder or to which Holder has access.

4.3 Investment Experience. Holder understands that the purchase of this Warrant and its underlying securities involves substantial risk. Holder has experience as an investor in securities of companies in the development stage and acknowledges that Holder can bear the economic risk of such Holder's investment in this Warrant and its underlying securities and has such knowledge and experience in financial or business matters that Holder is capable of evaluating the merits and risks of its investment in this Warrant and its underlying securities and/or has a preexisting personal or business relationship with the Company and certain of its officers, directors or controlling persons of a nature and duration that enables Holder to be aware of the character, business acumen and financial circumstances of such persons.

4.4 Accredited Investor Status. Holder is an "accredited investor" within the meaning of Regulation D promulgated under the Act.

4.5 The Act. Holder understands that this Warrant and the Shares issuable upon exercise hereof have not been registered under the Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of the Holder's investment intent as expressed herein. Holder understands that this Warrant and the Shares issued upon any exercise

hereof must be held indefinitely unless subsequently registered under the Act and qualified under applicable state securities laws, or unless exemption from such registration and qualification are otherwise available. Holder is aware of the provisions of Rule 144 promulgated under the Act.

4.6 Market Stand Off Agreement. The Holder agrees that the Shares shall be subject to the Market Stand Off provisions in Section 12 of the Amended and Restated Registration Rights Agreement, dated May 29, 2015 (as amended from time to time) (the "**Market Stand Off Agreement**").

4.7 No Voting or Other Stockholder Rights. Holder, as a Holder of this Warrant, will not have any voting rights or other rights as a stockholder of the Company until the exercise of this Warrant.

SECTION 5. MISCELLANEOUS.

5.1 Term and Automatic Conversion Upon Expiration.

(a) Term. Subject to the provisions of Section 1.6 above, this Warrant is exercisable in whole or in part at any time and from time to time on or before 6:00 PM, Pacific Time, on the Expiration Date and shall be void thereafter.

(b) Automatic Cashless Exercise upon Expiration. In the event that, upon the Expiration Date, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above is greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall, within a reasonable time, deliver a certificate representing the Shares (or such other securities) issued upon such exercise to Holder.

5.2 Legends. The Shares (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) shall be imprinted with a legend in substantially the following form:

> THE SHARES EVIDENCED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT**"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN THAT CERTAIN WARRANT TO PURCHASE STOCK ISSUED BY THE ISSUER TO SILICON VALLEY BANK DATED DECEMBER 22, 2015 MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

5.3 Compliance with Securities Laws on Transfer. This Warrant and the Shares issuable upon exercise of this Warrant (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) may not be transferred or assigned in whole or in part except in compliance with applicable federal and state securities laws by the transferor and the transferee (including, without limitation, the delivery of investment representation letters and legal opinions reasonably satisfactory to the Company, as reasonably requested by the Company). The Company shall not require Holder to provide an opinion of

counsel if the transfer is to SVB Financial Group (Silicon Valley Bank's parent company) or any other Affiliate of Holder, provided that any such transferee is an "accredited investor" as defined in Regulation D promulgated under the Act. Additionally, the Company shall also not require an opinion of counsel if there is no material question as to the availability of Rule 144 promulgated under the Act. As used herein, an "Affiliate" means, with respect to any Holder, any other entity which, directly or indirectly, controls, is controlled by, or is under common control with such Holder.

5.4 Transfer Procedure. After receipt by Silicon Valley Bank of the executed Warrant, Silicon Valley Bank will transfer all of this Warrant to its parent company, SVB Financial Group. By its acceptance of this Warrant, SVB Financial Group hereby makes to the Company each of the representations and warranties set forth in Section 4 hereof and agrees to be bound by all of the terms and conditions of this Warrant as if the original Holder hereof, including without limitation, the provisions of the Market Stand Off Agreement. Subject to the provisions of Section 5.3 and upon providing the Company with written notice, SVB Financial Group and any subsequent Holder may transfer all or part of this Warrant or the Shares issuable upon exercise of this Warrant (or the securities issuable directly or indirectly, upon conversion of the Shares, if any) to any transferee, provided, however, in connection with any such transfer, SVB Financial Group or any subsequent Holder will give the Company notice of the portion of the Warrant being transferred with the name, address and taxpayer identification number of the transferee and Holder will surrender this Warrant to the Company for reissuance to the transferee(s) (and Holder if applicable); and provided further, that any subsequent transferee other than SVB Financial Group shall agree in writing with the Company to be bound by all of the terms and conditions of this Warrant, including without limitation, the provisions of the Market Stand Off Agreement. Notwithstanding any contrary provision herein, at all times prior to the IPO, Holder may not, without the Company's prior written consent, transfer this Warrant or any portion hereof, or any Shares issued upon any exercise hereof, or any shares or other securities issued upon any conversion of any Shares issued upon any exercise hereof, to any person or entity who directly competes with the Company, except in connection with an Acquisition of the Company by such a direct competitor.

5.5 Notices. All notices and other communications hereunder from the Company to the Holder, or vice versa, shall be deemed delivered and effective (i) when given personally, (ii) on the third (3rd) Business Day after being mailed by first-class registered or certified mail, postage prepaid, (iii) if given by facsimile, upon confirmation of facsimile transfer, or if sent via electronic mail, upon transmission when directed to the relevant electronic mail address, or (iv) on the first Business Day following delivery to a reliable overnight courier service, courier fee prepaid, in any case at such address as may have been furnished to the Company or Holder, as the case may be, in writing by the Company or such Holder from time to time in accordance with the provisions of this Section 5.5. All notices to Holder shall be addressed as follows until the Company receives notice of a change of address in connection with a transfer or otherwise:

SVB Financial Group
Attn: Treasury Department
3003 Tasman Drive, HC 215
Santa Clara, CA 95054
Telephone: (408) 654-7400
Facsimile: (408) 988-8317
Email address: derivatives@svb.com

Notice to the Company shall be addressed as follows until Holder receives notice of a change in address:

Twist Bioscience Corporation
Attn: Emily LeProust
455 Mission Bay Boulevard, Suite 545
San Francisco, CA 94158
Telephone: _____
Facsimile: _____
Email: _____

5.6 Waiver. This Warrant and any term hereof may be changed, waived, discharged or terminated (either generally or in a particular instance and either retroactively or prospectively) only by an instrument in writing signed by the party against which enforcement of such change, waiver, discharge or termination is sought.

5.7 Attorney's Fees. In the event of any dispute between the parties concerning the terms and provisions of this Warrant, the party prevailing in such dispute shall be entitled to collect from the other party all costs incurred in such dispute, including reasonable attorneys' fees.

5.8 Counterparts; Facsimile/Electronic Signatures. This Warrant may be executed in counterparts, all of which together shall constitute one and the same agreement. Any signature page delivered electronically or by facsimile shall be binding to the same extent as an original signature page with regards to any agreement subject to the terms hereof or any amendment thereto.

5.9 Governing Law. This Warrant shall be governed by and construed in accordance with the laws of the State of California, without giving effect to its principles regarding conflicts of law.

5.10 Headings. The headings in this Warrant are for purposes of reference only and shall not limit or otherwise affect the meaning of any provision of this Warrant.

5.11 Business Days. "**Business Day**" is any day that is not a Saturday, Sunday or a day on which Silicon Valley Bank is closed.

[Remainder of page left blank intentionally]
[Signature page follows]

IN WITNESS WHEREOF, the parties have caused this Warrant to Purchase Stock to be executed by their duly authorized representatives effective as of the Issue Date written above.

"COMPANY"

TWIST BIOSCIENCE CORPORATION

By: /s/ Emily Leproust
Name: Emily Leproust
(Print)
Title: CEO

"HOLDER"

SILICON VALLEY BANK

By: /s/ Brandon Clark
Name: Brandon Clark
(Print)
Title: Vice President

Exhibit 4.7

THIS WARRANT AND THE SHARES ISSUABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT**"). OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN SECTIONS 5.3 AND 5.4 BELOW, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR IN FORM AND SUBSTANCE SATISFACTORY TO THE COMPANY, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

WARRANT TO PURCHASE STOCK

Company:	**Twist Bioscience Corporation**
Number of Shares:	**See Section 1.7**
Type/Series of Stock:	**Series D Preferred**
Warrant Price:	**$2.1457 per share Series D price**
Issue Date:	**Funding Date of first Tranche B Growth Capital Advance**
Expiration Date:	**10 years after Funding Date of first Tranche B Growth Capital Advance See also Section 5.1(b).**
Credit Facility:	This Warrant to Purchase Stock ("**Warrant**") is issued in connection with that certain Second Amended and Restated Loan and Security Agreement dated as of December 22, 2015 between Silicon Valley Bank and the Company (the "**Loan Agreement**").

THIS WARRANT CERTIFIES THAT, for good and valuable consideration, SILICON VALLEY BANK (together with any successor or permitted assignee or transferee of this Warrant or of any shares issued upon exercise hereof, "**Holder**") is entitled to purchase the number of fully paid and non-assessable shares (the "**Shares**") of the above-stated Type/Series of Stock (the "**Class**") of the above-named company (the "**Company**") at the above-stated Warrant Price, all as set forth above and as adjusted pursuant to Section 2 of this Warrant, subject to the provisions and upon the terms and conditions set forth in this Warrant. Reference is made to Section 5.4 of this Warrant whereby Silicon Valley Bank shall transfer this Warrant to its parent company, SVB Financial Group.

SECTION 1. EXERCISE.

1.1 Method of Exercise. Holder may at any time and from time to time exercise this Warrant, in whole or in part, by delivering to the Company the original of this Warrant together with a duly executed Notice of Exercise in substantially the form attached hereto as Appendix 1 and, unless Holder is exercising this Warrant pursuant to a cashless exercise set forth in Section 1.2, a check, wire transfer of same-day funds (to an account designated by the Company), or other form of payment acceptable to the Company for the aggregate Warrant Price for the Shares being purchased.

1.2 Cashless Exercise. On any exercise of this Warrant, in lieu of payment of the aggregate Warrant Price in the manner as specified in Section 1.1 above, but otherwise in accordance with the requirements of Section 1.1, Holder may elect to receive Shares equal to the value of this Warrant, or portion hereof as to which this Warrant is being exercised. Thereupon, the Company shall issue to the Holder such number of fully paid and non-assessable Shares as are computed using the following formula:

$$X = Y(A-B)/A$$

where:

X = the number of Shares to be issued to the Holder;

Y = the number of Shares with respect to which this Warrant is being exercised (inclusive of the Shares surrendered to the Company in payment of the aggregate Warrant Price);

A = the fair market value (as determined pursuant to Section 1.3 below) of one Share; and

B = the Warrant Price.

1.3 Fair Market Value. If the Company's common stock is then traded or quoted on a nationally recognized securities exchange, inter-dealer quotation system or over-the-counter market (a "**Trading Market**") and the Class is common stock, the fair market value of a Share shall be the closing price or last sale price of a share of common stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company. If the Company's common stock is then traded in a Trading Market and the Class is a series of the Company's convertible preferred stock, the fair market value of a Share shall be the closing price or last sale price of a share of the Company's common stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company multiplied by the number of shares of the Company's common stock into which a Share is then convertible. If the Company's common stock is not traded in a Trading Market, the Board of Directors of the Company shall determine the fair market value of a Share in its reasonable good faith judgment.

1.4 Delivery of Certificate and New Warrant. Within a reasonable time after Holder exercises this Warrant in the manner set forth in Section 1.1 or 1.2 above, the Company shall deliver to Holder a certificate representing the Shares issued to Holder upon such exercise and, if this Warrant has not been fully exercised and has not expired, a new warrant of like tenor representing the Shares not so acquired.

1.5 Replacement of Warrant. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of loss, theft or destruction, on delivery of an indemnity agreement reasonably satisfactory in form, substance and amount to the Company or, in the case of mutilation, on surrender of this Warrant to the Company for cancellation, the Company shall, within a reasonable time, execute and deliver to Holder, in lieu of this Warrant, a new warrant of like tenor and amount.

1.6 Treatment of Warrant Upon Acquisition of Company.

(a) Acquisition. For the purpose of this Warrant, "**Acquisition**" means any Liquidation Event (including but not limited to any "deemed" Liquidation Event), as defined in the Company's Amended and Restated Certificate of Incorporation, as amended from time to time.

(b) Treatment of Warrant at Acquisition. In the event of an Acquisition in which the consideration to be received by the Company's stockholders consists solely of cash, solely of Marketable Securities or a combination of cash and Marketable Securities (a "**Cash/Public Acquisition**"), and the fair market value of one Share as determined in accordance with Section 1.3 above would be greater than the Warrant Price in effect on such date immediately prior to such Cash/Public Acquisition, and Holder has not exercised this Warrant pursuant to Section 1.1 above as to all Shares, then this Warrant shall automatically be deemed to be Cashless Exercised pursuant to Section 1.2 above as to all Shares effective immediately

prior to and contingent upon the consummation of a Cash/Public Acquisition. In connection with such Cashless Exercise, Holder shall be deemed to have restated each of the representations and warranties in Section 4 of the Warrant as the date thereof and the Company shall promptly notify the Holder of the number of Shares (or such other securities) issued upon exercise. In the event of a Cash/Public Acquisition where the fair market value of one Share as determined in accordance with Section 1.3 above would be less than the Warrant Price in effect immediately prior to such Cash/Public Acquisition, then this Warrant will expire immediately prior to the consummation of such Cash/Public Acquisition.

(c) Upon the closing of any Acquisition other than a Cash/Public Acquisition defined above, the acquiring, surviving or successor entity shall assume the obligations of this Warrant, and this Warrant shall thereafter be exercisable for the same securities and/or other property as would have been paid for the Shares issuable upon exercise of the unexercised portion of this Warrant as if such Shares were outstanding on and as of the closing of such Acquisition, subject to further adjustment from time to time in accordance with the provisions of this Warrant..

(d) Upon the closing of any Acquisition other than a Cash/Public Acquisition defined above, the acquiring, surviving or successor entity shall assume the obligations of this Warrant, and this Warrant shall thereafter be exercisable for the same securities and/or other property as would have been paid for the Shares issuable upon exercise of the unexercised portion of this Warrant as if such Shares were outstanding on and as of the closing of such Acquisition, subject to further adjustment from time to time in accordance with the provisions of this Warrant.

(e) As used in this Warrant, "**Marketable Securities**" means securities meeting all of the following requirements: (i) the issuer thereof is then subject to the reporting requirements of Section 13 or Section 1.5(d) of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), and is then current in its filing of all required reports and other information under the Act and the Exchange Act; (ii) the class and series of shares or other security of the issuer that would be received by Holder in connection with the Acquisition were Holder to exercise this Warrant on or prior to the closing thereof is then traded in Trading Market, and (iii) following the closing of such Acquisition, Holder would not be restricted from publicly re-selling all of the issuer's shares and/or other securities that would be received by Holder in such Acquisition were Holder to exercise or convert this Warrant in full on or prior to the closing of such Acquisition, except to the extent that any such restriction (x) arises solely under federal or state securities laws, rules or regulations, and (y) does not extend beyond six (6) months from the closing of such Acquisition.

1.7 Number of Shares. The Number of Shares for which this Warrant shall be exercisable shall be based on the principal amount of Tranche B Growth Capital Advances and Tranche C Growth Capital Advances (as defined in the Loan Agreement) made by Silicon Valley Bank to the Company pursuant to the Loan Agreement and shall be a number equal to (i) four percent (4.00%) of the aggregate principal amount of the Tranche B Growth Capital Advances and Tranche C Growth Capital Advances made pursuant to the Loan Agreement divided by (ii) the Warrant Price, subject to adjustment as set forth in Section 2.

SECTION 2. ADJUSTMENTS TO THE SHARES AND WARRANT PRICE.

2.1 Stock Dividends, Splits, Etc. If the Company declares or pays a dividend or distribution on the outstanding shares of the Class payable in common stock or other securities or property (other than cash), then upon exercise of this Warrant, for each Share acquired, Holder shall receive, without additional cost to Holder, the total number and kind of securities and property which Holder would have received had Holder owned the Shares of record as of the date the dividend or distribution occurred. If the Company subdivides the outstanding shares of the Class by reclassification or otherwise into a greater number of shares, the number of Shares purchasable hereunder shall be proportionately increased and the Warrant Price shall be proportionately decreased. If the outstanding shares of the Class are combined or consolidated, by reclassification or otherwise, into a lesser number of shares, the Warrant Price shall be proportionately increased and the number of Shares shall be proportionately decreased.

2.2 Reclassification, Exchange, Combinations or Substitution. Upon any event whereby all of the outstanding shares of the Class are reclassified, exchanged, combined, substituted, or replaced for, into, with or by Company securities of a different class and/or series, then from and after the consummation of such event, this Warrant will be exercisable for the number, class and series of Company securities that Holder would have received had the Shares been outstanding on and as of the consummation of such event, and subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant. The provisions of this Section 2.2 shall similarly apply to successive reclassifications, exchanges, combinations substitutions, replacements or other similar events.

2.3 Conversion of Preferred Stock. If the Class is a class and series of the Company's convertible preferred stock, in the event that all outstanding shares of the Class are converted, automatically or by action of the holders thereof, into common stock pursuant to the provisions of the Company's Certificate of Incorporation, including, without limitation, in connection with the Company's initial, underwritten public offering and sale of its common stock pursuant to an effective registration statement under the Act (the "**IPO**"), then from and after the date on which all outstanding shares of the Class have been so converted, this Warrant shall be exercisable for such number of shares of common stock into which the Shares would have been converted had the Shares been outstanding on the date of such conversion, and the Warrant Price shall equal the Warrant Price in effect as of immediately prior to such conversion divided by the number of shares of common stock into which one Share would have been converted, all subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant.

2.4 Adjustments for Diluting Issuances. Without duplication of any adjustment otherwise provided for in this Section 2, the number of shares of common stock issuable upon conversion of the Shares shall be subject to anti-dilution adjustment from time to time in the manner set forth in the Company's Certificate of Incorporation as if the Shares were issued and outstanding on and as of the date of any such required adjustment.

2.5 No Fractional Share. No fractional Share shall be issuable upon exercise of this Warrant and the number of Shares to be issued shall be rounded down to the nearest whole Share. If a fractional Share interest arises upon any exercise of the Warrant, the Company shall eliminate such fractional Share interest by paying Holder in cash the amount computed by multiplying the fractional interest by (i) the fair market value (as determined in accordance with Section 1.3 above) of a full Share, less (ii) the then-effective Warrant Price.

2.6 Notice/Certificate as to Adjustments. Upon each adjustment of the Warrant Price, Class and/or number of Shares, the Company, at the Company's expense, shall notify Holder in writing within a reasonable time setting forth the adjustments to the Warrant Price, Class and/or number of Shares and facts upon which such adjustment is based. The Company shall, upon written request from Holder, furnish Holder with a certificate of its Chief Financial Officer, including computations of such adjustment and the Warrant Price, Class and number of Shares in effect upon the date of such adjustment.

SECTION 3. REPRESENTATIONS AND COVENANTS OF THE COMPANY.

3.1 Representations and Warranties. The Company represents and warrants to, and agrees with, the Holder as follows:

(a) The initial Warrant Price referenced on the first page of this Warrant is not greater than the price per share at which shares of the Class were last sold and issued prior to the Issue Date hereof in an arms-length transaction in which at least $500,000 of such shares were sold.

(b) All Shares which may be issued upon the exercise of this Warrant, and all securities, if any, issuable upon conversion of the Shares, shall, upon issuance, be duly authorized, validly issued, fully paid and non-assessable, and free of any liens and encumbrances except for those in favor of Holder and for restrictions on transfer provided for herein or under applicable federal and state securities laws. The Company covenants that it shall at all times cause to be reserved and kept available out of its authorized and unissued capital stock such number of shares of the Class, common stock and other securities as will be sufficient to permit the exercise in full of this Warrant and the conversion of the Shares into common stock or such other securities.

(c) The Company's capitalization table attached hereto as Schedule 1 is true and complete, in all material respects, as of the Issue Date.

3.2 Notice of Certain Events. If the Company proposes at any time to:

(a) declare any dividend or distribution upon the outstanding shares of the Class or common stock, whether in cash, property, stock, or other securities and whether or not a regular cash dividend:

(b) offer for subscription or sale pro rata to the holders of the outstanding shares of the Class any additional shares of any class or series of the Company's stock (other than pursuant to contractual pre-emptive rights);

(c) effect any reclassification, exchange, combination, substitution, reorganization or recapitalization of the outstanding shares of the Class;

(d) effect an Acquisition or to liquidate, dissolve or wind up; or

(e) effect an IPO;

then, in connection with each such event, the Company shall give Holder:

(1) at least seven (7) Business Days prior written notice of the date on which a record will be taken for such dividend, distribution, or subscription rights (and specifying the date on which the holders of outstanding shares of the Class will be entitled thereto) or for determining rights to vote, if any, in respect of the matters referred to in (a) and (b) above;

(2) in the case of the matters referred to in (c) and (d) above at least seven (7) Business Days prior written notice of the date when the same will take place (and specifying the date on which the holders of outstanding shares of the Class will be entitled to exchange their shares for the securities or other property deliverable upon the occurrence of such event); and

(3) with respect to the IPO, at least seven (7) Business Days prior written notice of the effective date of the Company's registration statement in connection therewith.

Reference is made to Section 1.6(c) whereby this Warrant will be deemed to be exercised pursuant to Section 1.2 hereof if the Company does not give written notice to Holder of a Cash/Public Acquisition as required by the terms hereof. Company will also provide information requested by Holder that is reasonably necessary to enable Holder to comply with Holder's accounting or reporting requirements; provided that to the extent any such information provided in connection with this Warrant is confidential information, such information shall subject to Section 12.9 of the Loan Agreement for so long as the Loan Agreement remains in effect.

SECTION 4. REPRESENTATIONS, WARRANTIES OF THE HOLDER.

The Holder represents and warrants to the Company as follows:

4.1 Purchase for Own Account. This Warrant and the securities to be acquired upon exercise of this Warrant by Holder are being acquired for investment for Holder's account, not as a nominee or agent, and not with a view to the public resale or distribution within the meaning of the Act. Holder also represents that it has not been formed for the specific purpose of acquiring this Warrant or the Shares.

4.2 Disclosure of Information. Holder is aware of the Company's business affairs and financial condition and has received or has had full access to all the information it considers necessary or appropriate to make an informed investment decision with respect to the acquisition of this Warrant and its underlying securities. Holder further has had an opportunity to ask questions and receive answers from the Company regarding the terms and conditions of the offering of this Warrant and its underlying securities and to obtain additional information (to the extent the Company possessed such information or could acquire it without unreasonable effort or expense) necessary to verify any information furnished to Holder or to which Holder has access.

4.3 Investment Experience. Holder understands that the purchase of this Warrant and its underlying securities involves substantial risk. Holder has experience as an investor in securities of companies in the development stage and acknowledges that Holder can bear the economic risk of such Holder's investment in this Warrant and its underlying securities and has such knowledge and experience in financial or business matters that Holder is capable of evaluating the merits and risks of its investment in this Warrant and its underlying securities and/or has a preexisting personal or business relationship with the Company and certain of its officers, directors or controlling persons of a nature and duration that enables Holder to be aware of the character, business acumen and financial circumstances of such persons.

4.4 Accredited Investor Status. Holder is an "accredited investor" within the meaning of Regulation D promulgated under the Act.

4.5 The Act. Holder understands that this Warrant and the Shares issuable upon exercise hereof have not been registered under the Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of the Holder's investment intent as expressed herein. Holder understands that this Warrant and the Shares issued upon any exercise hereof must be held indefinitely unless subsequently registered under the Act and qualified under applicable state securities laws, or unless exemption from such registration and qualification are otherwise available. Holder is aware of the provisions of Rule 144 promulgated under the Act.

4.6 Market Stand Off Agreement. The Holder agrees that the Shares shall be subject to the Market Stand Off provisions in Section 12 of the ***Third Amended and Restated Registration Rights Agreement, dated December 22, 2015*** (as amended from time to time) (the "**Market Stand Off Agreement**").

4.7 No Voting or Other Stockholder Rights. Holder, as a Holder of this Warrant, will not have any voting rights or other rights as a stockholder of the Company until the exercise of this Warrant.

SECTION 5. MISCELLANEOUS.

5.1 Term and Automatic Conversion Upon Expiration.

(a) Term. Subject to the provisions of Section 1.6 above, this Warrant is exercisable in whole or in part at any time and from time to time on or before 6:00 PM, Pacific Time, on the Expiration Date and shall be void thereafter.

(b) Automatic Cashless Exercise upon Expiration. In the event that, upon the Expiration Date, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above is greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall, within a reasonable time, deliver a certificate representing the Shares (or such other securities) issued upon such exercise to Holder.

5.2 Legends. The Shares (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) shall be imprinted with a legend in substantially the following form:

> THE SHARES EVIDENCED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT**"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN THAT CERTAIN WARRANT TO PURCHASE STOCK ISSUED BY THE ISSUER TO SILICON VALLEY BANK DATED _____ MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

5.3 Compliance with Securities Laws on Transfer. This Warrant and the Shares issuable upon exercise of this Warrant (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) may not be transferred or assigned in whole or in part except in compliance with

applicable federal and state securities laws by the transferor and the transferee (including, without limitation, the delivery of investment representation letters and legal opinions reasonably satisfactory to the Company, as reasonably requested by the Company). The Company shall not require Holder to provide an opinion of counsel if the transfer is to SVB Financial Group (Silicon Valley Bank's parent company) or any other Affiliate of Holder, provided that any such transferee is an "accredited investor" as defined in Regulation D promulgated under the Act. Additionally, the Company shall also not require an opinion of counsel if there is no material question as to the availability of Rule 144 promulgated under the Act. As used herein, an "Affiliate" means, with respect to any Holder, any other entity which, directly or indirectly, controls, is controlled by, or is under common control with such Holder.

5.4 Transfer Procedure. After receipt by Silicon Valley Bank of the executed Warrant, Silicon Valley Bank will transfer all of this Warrant to its parent company, SVB Financial Group. By its acceptance of this Warrant, SVB Financial Group hereby makes to the Company each of the representations and warranties set forth in Section 4 hereof and agrees to be bound by all of the terms and conditions of this Warrant as if the original Holder hereof, including without limitation, the provisions of the Market Stand Off Agreement. Subject to the provisions of Section 5.3 and upon, providing the Company with written notice. SVB Financial Group and any subsequent Holder may transfer all or part of this Warrant or the Shares issuable upon exercise of this Warrant (or the securities issuable directly or indirectly, upon conversion of the Shares, if any) to any transferee, provided, however, in connection with any such transfer, SVB Financial Group or any subsequent Holder will give the Company notice of the portion of the Warrant being transferred with the name, address and taxpayer identification number of the transferee and Holder will surrender this Warrant to the Company for reissuance to the transferee(s) (and Holder if applicable): and provided further, that any subsequent transferee other than SVB Financial Group shall agree in writing with the Company to be bound by all of the terms and conditions of this Warrant, including without limitation, the provisions of the Market Stand Off Agreement. Notwithstanding any contrary provision herein, at all times prior to the IPO, Holder may not, without the Company's prior written consent, transfer this Warrant or any portion hereof, or any Shares issued upon any exercise hereof or any shares or other securities issued upon any conversion of any Shares issued upon any exercise hereof, to any person or entity who directly competes with the Company, except in connection with an Acquisition of the Company by such a direct competitor.

5.5 Notices. All notices and other communications hereunder from the Company to the Holder, or vice versa, shall be deemed delivered and effective (i) when given personally, (ii) on the third (3rd) Business Day after being mailed by first-class registered or certified mail, postage prepaid, (iii) if given by facsimile, upon confirmation of facsimile transfer, or if sent via electronic mail, upon transmission when directed to the relevant electronic mail address, or (iv) on the first Business Day following delivery to a reliable overnight courier service, courier fee prepaid, in any case at such address as may have been furnished to the Company or Holder, as the case may be, in writing by the Company or such Holder from time to time in accordance with the provisions of this Section 5.5. All notices to Holder shall be addressed as follows until the Company receives notice of a change of address in connection with a transfer or otherwise:

SVB Financial Group
Attn: Treasury Department
3003 Tasman Drive, HC 215
Santa Clara, CA 95054
Telephone: (408) 654-7400
Facsimile: (408) 988-8317
Email address: derivatives@svb.com

Notice to the Company shall be addressed as follows until Holder receives notice of a change in address:

Twist Bioscience Corporation
Attn: Emily LeProust
455 Mission Bay Boulevard, Suite 545
San Francisco, CA 94158
Telephone: _____
Facsimile: _____
Email: _____

5.6 Waiver. This Warrant and any term hereof may be changed, waived, discharged or terminated (either generally or in a particular instance and either retroactively or prospectively) only by an instrument in writing signed by the party against which enforcement of such change, waiver, discharge or termination is sought.

5.7 Attorney's Fees. In the event of any dispute between the parties concerning the terms and provisions of this Warrant, the party prevailing in such dispute shall be entitled to collect from the other party all costs incurred in such dispute, including reasonable attorneys' fees.

5.8 Counterparts; Facsimile/Electronic Signatures. This Warrant may be executed in counterparts, all of which together shall constitute one and the same agreement. Any signature page delivered electronically or by facsimile shall be binding to the same extent as an original signature page with regards to any agreement subject to the terms hereof or any amendment thereto.

5.9 Governing Law. This Warrant shall be governed by and construed in accordance with the laws of the State of California, without giving effect to its principles regarding conflicts of law.

5.10 Headings. The headings in this Warrant are for purposes of reference only and shall not limit or otherwise affect the meaning of any provision of this Warrant.

5.11 Business Days. "**Business Day**" is any day that is not a Saturday, Sunday or a day on which Silicon Valley Bank is closed.

[Remainder of page left blank intentionally]
[Signature page follows)

IN WITNESS WHEREOF, the Parties have caused this Warrant to Purchase Stock to be executed by their duly authorized representatives effective as of the Issue Date written above.

"COMPANY"

TWIST BIOSCIENCE CORPORATION

By: /s/ Solange Glaize
Name: Solange Glaize
(Print)
Title: CFO, Twist Bioscience Corporation

"HOLDER"

SILICON VALLEY BANK

By: /s/ Brandon Clark
Name: Brandon Clark
(Print)
Title: Vice President

THIS WARRANT AND THE SHARES ISSUABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN SECTIONS 5.3 AND 5.4 BELOW, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR IN FORM AND SUBSTANCE SATISFACTORY TO THE COMPANY, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

WARRANT TO PURCHASE COMMON STOCK

Company: TWIST BIOSCIENCE CORPORATION, a Delaware corporation
Number of Shares of Common Stock: 317,460 (the "Initial Shares"), plus all Additional Shares (as defined in Section 1.7) which Holder is entitled to purchase
Warrant Price: $0.63 per share
Issue Date: September 6, 2017
Expiration Date: September 6, 2027 See also Section 5.1(b).

Credit Facility: This Warrant to Purchase Common Stock ("**Warrant**") is issued in connection with that certain Fourth Amended and Restated Loan and Security Agreement of even date herewith between Silicon Valley Bank and the Company (the "**Loan Agreement**").

THIS WARRANT CERTIFIES THAT, for good and valuable consideration, LIFE SCIENCE LOANS II, LLC (together with any successor or permitted assignee or transferee of this Warrant or of any shares issued upon exercise hereof, "**Holder**") is entitled to purchase the number of fully paid and non-assessable shares, constituting the Initial Shares and, if applicable, the Additional Shares (the "**Shares**"), of the above-stated common stock (the "**Common Stock**") of the above-named company (the "**Company**") at the above-stated Warrant Price, all as set forth above and as adjusted pursuant to Section 2 of this Warrant, subject to the provisions and upon the terms and conditions set forth in this Warrant.

SECTION 1. EXERCISE.

1.1 Method of Exercise. Holder may at any time and from time to time exercise this Warrant, in whole or in part, by delivering to the Company the original of this Warrant together with a duly executed Notice of Exercise in substantially the form attached hereto as Appendix 1 and, unless Holder is exercising this Warrant pursuant to a cashless exercise set forth in Section 1.2, a check, wire transfer of same-day funds (to an account designated by the Company), or other form of payment acceptable to the Company for the aggregate Warrant Price for the Shares being purchased.

1.2 Cashless Exercise. On any exercise of this Warrant, in lieu of payment of the aggregate Warrant Price in the manner as specified in Section 1.1 above, but otherwise in accordance with the requirements of Section 1.1, Holder may elect to receive Shares equal to the value of this Warrant, or portion hereof as to which this Warrant is being exercised. Thereupon, the Company shall issue to the Holder such number of fully paid and non-assessable Shares as are computed using the following formula:

$$X = Y(A-B)/A$$

where:

X = the number of Shares to be issued to the Holder;

Y = the number of Shares with respect to which this Warrant is being exercised (inclusive of the Shares surrendered to the Company in payment of the aggregate Warrant Price);

A = the Fair Market Value (as determined pursuant to Section 1.3 below) of one Share; and

B = the Warrant Price.

1.3 Fair Market Value. If the Company's Common Stock is then traded or quoted on a nationally recognized securities exchange, inter-dealer quotation system or over-the-counter market (a "**Trading Market**"), the fair market value of a Share shall be the closing price or last sale price of a share of Common Stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company. If the Company's Common Stock is not traded in a Trading Market, the Board of Directors of the Company shall determine the fair market value of a Share in its reasonable good faith judgment.

1.4 Delivery of Certificate and New Warrant. Within a reasonable time after Holder exercises this Warrant in the manner set forth in Section 1.1 or 1.2 above, the Company shall deliver to Holder a certificate representing the Shares issued to Holder upon such exercise and, if this Warrant has not been fully exercised and has not expired, a new warrant of like tenor representing the Shares not so acquired.

1.5 Replacement of Warrant. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of loss, theft or destruction, on delivery of an indemnity agreement reasonably satisfactory in form, substance and amount to the Company or, in the case of mutilation, on surrender of this Warrant to the Company for cancellation, the Company shall, within a reasonable time, execute and deliver to Holder, in lieu of this Warrant, a new warrant of like tenor and amount.

1.6 Treatment of Warrant Upon Acquisition of Company.

(a) Acquisition. For the purpose of this Warrant, "**Acquisition**" means any Liquidation Event (including, but not limited to any "deemed" Liquidation Event), as defined in the Company's Amended and Restated Certificate of Incorporation, as amended from time to time.

(b) Treatment of Warrant at Acquisition. In the event of an Acquisition in which the consideration to be received by the Company's stockholders consists solely of cash, solely of Marketable Securities or a combination of cash and Marketable Securities (a "**Cash/Public Acquisition**"), and the fair market value of one Share as determined in accordance with Section 1.3 above would be greater than the Warrant Price in effect on such date immediately prior to such Cash/Public Acquisition, and Holder has not exercised this Warrant pursuant to Section 1.1 above as to all Shares, then this Warrant shall automatically be deemed to be Cashless Exercised pursuant to Section 1.2 above as to all Shares effective immediately prior to and contingent upon the consummation of a Cash/Public Acquisition. In connection with such Cashless Exercise, Holder shall be deemed to have restated each of the representations and warranties in Section 4 of the Warrant as the date thereof and the Company shall promptly notify the Holder of the number of Shares (or such other securities) issued upon exercise. In the event of a Cash/Public Acquisition where the fair market value of one Share as determined in accordance with Section 1.3 above would be less than the Warrant Price in effect immediately prior to such Cash/Public Acquisition, then this Warrant will expire immediately prior to the consummation of such Cash/Public Acquisition.

(c) Upon the closing of any Acquisition other than a Cash/Public Acquisition defined above, the acquiring, surviving or successor entity shall assume the obligations of this Warrant, and this Warrant shall thereafter be exercisable for the same securities and/or other property as would have been paid for the Shares issuable upon exercise of the unexercised portion of this Warrant as if such Shares were outstanding on and as of the closing of such Acquisition, subject to further adjustment from time to time in accordance with the provisions of this Warrant.

(d) As used in this Warrant, "**Marketable Securities**" means securities meeting all of the following requirements: (i) the issuer thereof is then subject to the reporting requirements of Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), and is then current in its filing of all required reports and other information under the Act and the Exchange Act; (ii) the class and series of shares or other security of the issuer that would be received by Holder in connection with the Acquisition were Holder to exercise this Warrant on or prior to the closing thereof is then traded in Trading Market, and (iii) following the closing of such Acquisition, Holder would not be restricted from publicly re-selling all of the issuer's shares and/or other securities that would be received by Holder in such Acquisition were Holder to exercise or convert this Warrant in full on or prior to the closing of such Acquisition, except to the extent that any such restriction (x) arises solely under federal or state securities laws, rules or regulations, and (y) does not extend beyond six (6) months from the closing of such Acquisition.

1.7 Number of Shares. This Warrant shall be exercisable for the Initial Shares, plus, (i) upon the funding of the Tranche B Growth Capital Advance (as defined in the Loan Agreement), pursuant to the Loan Agreement, the Tranche B Additional Shares (as applicable), and (ii) upon the funding of the Tranche C Growth Capital Advance (as defined in the Loan Agreement), pursuant to the Loan Agreement, the Tranche C Additional Shares (as applicable). As used herein, (x) the "Tranche B Additional Shares" means 158,730 shares, (y) the "Tranche C Additional Shares" means 158,730 shares, and (z) the "Additional Shares" means, collectively, the Tranche B Additional Shares and the Tranche C Additional Shares. For the avoidance of doubt, if Silicon Valley Bank fully funds both the Tranche B Growth Capital Advance and the Tranche C Growth Capital Advance, the total number of Additional Shares shall equal 317,460.

SECTION 2. ADJUSTMENTS TO THE SHARES AND WARRANT PRICE.

2.1 Stock Dividends, Splits, Etc. If the Company declares or pays a dividend or distribution on the outstanding shares of the Common Stock payable in securities or property (other than cash), then upon exercise of this Warrant, for each Share acquired, Holder shall receive, without additional cost to Holder, the total number and kind of securities and property which Holder would have received had Holder owned the Shares of record as of the date the dividend or distribution occurred. If the Company subdivides the outstanding shares of the Common Stock by reclassification or otherwise into a greater number of shares, the number of Shares purchasable hereunder shall be proportionately increased and the Warrant Price shall be proportionately decreased. If the outstanding shares of the Common Stock are combined or consolidated, by reclassification or otherwise, into a lesser number of shares, the Warrant Price shall be proportionately increased and the number of Shares shall be proportionately decreased.

2.2 Reclassification, Exchange, Combinations or Substitution. Upon any event whereby all of the outstanding shares of the Common Stock are reclassified, exchanged, combined, substituted, or replaced for, into, with or by Company securities of a different class and/or series, then from and after the consummation of such event, this Warrant will be exercisable for the number, class and series of Company securities that Holder would have received had the Shares been outstanding on and as of the consummation of such event, and subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant. The provisions of this Section 2.2 shall similarly apply to successive reclassifications, exchanges, combinations substitutions, replacements or other similar events.

2.3 Intentionally Omitted.

2.4 Intentionally Omitted.

2.5 No Fractional Share. No fractional Share shall be issuable upon exercise of this Warrant and the number of Shares to be issued shall be rounded down to the nearest whole Share. If a fractional Share interest arises upon any exercise of the Warrant, the Company shall eliminate such fractional Share interest by paying Holder in cash the amount computed by multiplying the fractional interest by (i) the fair market value (as determined in accordance with Section 1.3 above) of a full Share, less (ii) the then-effective Warrant Price.

2.6 Notice/Certificate as to Adjustments. Upon each adjustment of the Warrant Price, Common Stock and/or number of Shares, the Company, at the Company's expense, shall notify Holder in writing within a reasonable time setting forth the adjustments to the Warrant Price, class and/or number of Shares and facts upon which such adjustment is based. The Company shall, upon written request from Holder, furnish Holder with a certificate of its Chief Financial Officer, including computations of such adjustment and the Warrant Price, class and number of Shares in effect upon the date of such adjustment.

SECTION 3. REPRESENTATIONS AND COVENANTS OF THE COMPANY.

3.1 Representations and Warranties. The Company represents and warrants to, and agrees with, the Holder as follows: All Shares which may be issued upon the exercise of this Warrant, shall, upon issuance, be duly authorized, validly issued, fully paid and non-assessable, and free of any liens and encumbrances except for restrictions on transfer provided for herein or under applicable federal and state securities laws. The Company covenants that it shall at all times cause to be reserved and kept available out of its authorized and unissued capital stock such number of securities as will be sufficient to permit the exercise in full of this Warrant.

3.2 Notice of Certain Events. If the Company proposes at any time to:

(a) declare any dividend or distribution upon the outstanding shares of the Company's stock, whether in cash, property, stock, or other securities and whether or not a regular cash dividend;

(b) offer for subscription or sale pro rata to the holders of the outstanding shares any additional shares of any class or series of the Company's stock (other than pursuant to contractual pre-emptive rights);

(c) effect any reclassification, exchange, combination, substitution, reorganization or recapitalization of the outstanding shares of the Common Stock; or

(d) effect an Acquisition or to liquidate, dissolve or wind up; then, in connection with each such event, the Company shall give Holder:

(1) in the case of the matters referred to in (a) and (b) above, at least seven (7) Business Days prior written notice of the earlier to occur of the effective date thereof or the date on which a record will be taken for such dividend, distribution, or subscription rights (and specifying the date on which the holders of outstanding shares of the Common Stock will be entitled thereto) or for determining rights to vote, if any; and

(2) in the case of the matters referred to in (c) and (d) above at least seven (7) Business Days prior written notice of the date when the same will take place (and specifying the date on which the holders of outstanding shares of the Class will be entitled to exchange their shares for the securities or other property deliverable upon the occurrence of such event and such reasonable information as Holder may reasonably require regarding the treatment of this Warrant in connection with such event giving rise to the notice).

Company will also provide information requested by Holder that is reasonably necessary to enable Holder to comply with Holder's accounting or reporting requirements; provided that to the extent any such information provided in connection with this Warrant is confidential information, such information shall be subject to Section 12.9 of the Loan Agreement for so long as the Loan Agreement remains in effect.

SECTION 4. REPRESENTATIONS, WARRANTIES OF THE HOLDER.

The Holder represents and warrants to the Company as follows:

4.1 Purchase for Own Account. This Warrant and the Shares to be acquired upon exercise of this Warrant by Holder are being acquired for investment for Holder's account, not as a nominee or agent, and not with a view to the public resale or distribution within the meaning of the Act. Holder also represents that it has not been formed for the specific purpose of acquiring this Warrant or the Shares.

4.2 Disclosure of Information. Holder is aware of the Company's business affairs and financial condition and has received or has had full access to all the information it considers necessary or appropriate to make an informed investment decision with respect to the acquisition of this Warrant and its underlying securities. Holder further has had an opportunity to ask questions and receive answers from the Company regarding the terms and conditions of the offering of this Warrant and its underlying securities and to obtain additional information (to the extent the Company possessed such information or could acquire it without unreasonable effort or expense) necessary to verify any information furnished to Holder or to which Holder has access.

4.3 Investment Experience. Holder understands that the purchase of this Warrant and its underlying securities involves substantial risk. Holder has experience as an investor in securities of companies in the development stage and acknowledges that Holder can bear the economic risk of such Holder's investment in this Warrant and its underlying securities and has such knowledge and experience in financial or business matters that Holder is capable of evaluating the merits and risks of its investment in this Warrant and its underlying securities and/or has a preexisting personal or business relationship with the Company and certain of its officers, directors or controlling persons of a nature and duration that enables Holder to be aware of the character, business acumen and financial circumstances of such persons.

4.4 Accredited Investor Status. Holder is an "accredited investor" within the meaning of Regulation D promulgated under the Act.

4.5 The Act. Holder understands that this Warrant and the Shares issuable upon exercise hereof have not been registered under the Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of the Holder's investment intent as expressed herein. Holder understands that this Warrant and the Shares issued upon any exercise hereof must be held indefinitely unless subsequently registered under the Act and qualified under applicable state securities laws, or unless exemption from such registration and qualification are otherwise available. Holder is aware of the provisions of Rule 144 promulgated under the Act.

4.6 No Voting Rights. Holder, as a Holder of this Warrant, will not have any voting rights until the exercise of this Warrant.

SECTION 5. MISCELLANEOUS.

5.1 Term and Automatic Conversion Upon Expiration.

(a) Term. Subject to the provisions of Section 1.6 above, this Warrant is exercisable in whole or in part at any time and from time to time on or before 6:00 PM, Pacific time, on the Expiration Date and shall be void thereafter.

(b) Automatic Cashless Exercise upon Expiration. In the event that, upon the Expiration Date, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above is greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall, within a reasonable time, deliver a certificate representing the Shares (or such other securities) issued upon such exercise to Holder.

5.2 Legends. The Shares (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) shall be imprinted with a legend in substantially the following form:

THE SHARES EVIDENCED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT**"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN THAT CERTAIN WARRANT TO PURCHASE COMMON STOCK ISSUED BY THE ISSUER TO LIFE SCIENCE LOANS II, LLC DATED SEPTEMBER 6, 2017, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

5.3 Compliance with Securities Laws on Transfer. This Warrant and the Shares issuable upon exercise of this Warrant (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) may not be transferred or assigned in whole or in part except in compliance with applicable federal and state securities laws by the transferor and the transferee (including, without limitation, the delivery of investment representation letters and legal opinions reasonably satisfactory to the Company, as reasonably requested by the Company). The Company shall not require Holder to provide an opinion of counsel if the transfer is to SVB Financial Group (Silicon Valley Bank's parent company) or any other Affiliate of Holder, provided that any such transferee is an "accredited investor" as defined in Regulation D promulgated under the Act. Additionally, the Company shall also not require an opinion of counsel if there is no material question as to the availability of Rule 144 promulgated under the Act. As used herein, an "Affiliate" means, with respect to any Holder, any other entity which, directly or indirectly, controls, is controlled by, or is under common control with such Holder.

5.4 Intentionally Omitted.

5.5 Notices. All notices and other communications hereunder from the Company to the Holder, or vice versa, shall be deemed delivered and effective (i) when given personally, (ii) on the third (3rd) Business Day after being mailed by first-class registered or certified mail, postage prepaid, (iii) upon actual receipt if given by facsimile or electronic mail and such receipt is confirmed in writing by the recipient, or (iv) on the first Business Day following delivery to a reliable overnight courier service, courier fee prepaid, in any case at such address as may have been furnished to the Company or Holder, as the case may be, in writing by the Company or such Holder from time to time in accordance with the provisions of this Section 5.5. All notices to Holder shall be addressed as follows until the Company receives notice of a change of address in connection with a transfer or otherwise:

Life Science Loans II, LLC
c/o Chief Financial Officer
3720 Carillon Point
Kirkland, Washington 98033-7455
Attention:
Telephone:
Email:

Notice to the Company shall be addressed as follows until Holder receives notice of a change in address:

Twist Bioscience Corporation
Attn: Emily LeProust
455 Mission Bay Boulevard, Suite 545
San Francisco, CA 94158
Email:

With a copy (which shall not constitute notice) to:

Orrick, Herrington & Sutcliffe LLP

Attn: John Bautista
405 Howard Street
San Francisco, CA 94105-2669
Telephone:
Email:

5.6 Waiver. This Warrant and any term hereof may be changed, waived, discharged or terminated (either generally or in a particular instance and either retroactively or prospectively) only by an instrument in writing signed by the party against which enforcement of such change, waiver, discharge or termination is sought.

5.7 Attorney's Fees. In the event of any dispute between the parties concerning the terms and provisions of this Warrant, the party prevailing in such dispute shall be entitled to collect from the other party all costs incurred in such dispute, including reasonable attorneys' fees.

5.8 Counterparts; Facsimile/Electronic Signatures. This Warrant may be executed in counterparts, all of which together shall constitute one and the same agreement. Any signature page delivered electronically or by facsimile shall be binding to the same extent as an original signature page with regards to any agreement subject to the terms hereof or any amendment thereto.

5.9 Governing Law. This Warrant shall be governed by and construed in accordance with the laws of the State of California, without giving effect to its principles regarding conflicts of law.

5.10 Headings. The headings in this Warrant are for purposes of reference only and shall not limit or otherwise affect the meaning of any provision of this Warrant.

5.11 Business Days. "**Business Day**" is any day that is not a Saturday, Sunday or a day on which Silicon Valley Bank is closed.

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IN WITNESS WHEREOF, the parties have caused this Warrant to Purchase Common Stock to be executed by their duly authorized representatives effective as of the Issue Date written above.

"COMPANY"

TWIST BIOSCIENCE CORPORATION

By: /s/ Solange Glaize
Name: Solange Glaize
(Print)
Title: CFO

"HOLDER"

LIFE SCIENCE LOANS II, LLC
By: Loan Manager, LLC, Managing Member

By: /s/ Trent Dawson
Trent Dawson, Chief Financial Officer

THIS WARRANT AND THE SHARES ISSUABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN SECTIONS 5.3 AND 5.4 BELOW, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR IN FORM AND SUBSTANCE SATISFACTORY TO THE COMPANY, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

WARRANT TO PURCHASE COMMON STOCK

Company: TWIST BIOSCIENCE CORPORATION, a Delaware corporation
Number of Shares of Common Stock: 317,461 (the "Initial Shares"), plus all Additional Shares (as defined in Section 1.7) which Holder is entitled to purchase
Warrant Price: $0.63 per share
Issue Date: September 6, 2017
Expiration Date: September 6, 2027 See also Section 5.1(b).
Credit Facility: This Warrant to Purchase Common Stock ("**Warrant**") is issued in connection with that certain Fourth Amended and Restated Loan and Security Agreement of even date herewith between Silicon Valley Bank and the Company (the "**Loan Agreement**").

THIS WARRANT CERTIFIES THAT, for good and valuable consideration, SILICON VALLEY BANK (together with any successor or permitted assignee or transferee of this Warrant or of any shares issued upon exercise hereof, "**Holder**") is entitled to purchase the number of fully paid and non-assessable shares, constituting the Initial Shares and, if applicable, the Additional Shares (the "**Shares**"), of the above-stated common stock (the "**Common Stock**") of the above-named company (the "**Company**") at the above-stated Warrant Price, all as set forth above and as adjusted pursuant to Section 2 of this Warrant, subject to the provisions and upon the terms and conditions set forth in this Warrant. Reference is made to Section 5.4 of this Warrant whereby Silicon Valley Bank shall transfer this Warrant to its parent company, SVB Financial Group.

SECTION 1. EXERCISE.

1.1 Method of Exercise. Holder may at any time and from time to time exercise this Warrant, in whole or in part, by delivering to the Company the original of this Warrant together with a duly executed Notice of Exercise in substantially the form attached hereto as Appendix 1 and, unless Holder is exercising this Warrant pursuant to a cashless exercise set forth in Section 1.2, a check, wire transfer of same-day funds (to an account designated by the Company), or other form of payment acceptable to the Company for the aggregate Warrant Price for the Shares being purchased.

1.2 Cashless Exercise. On any exercise of this Warrant, in lieu of payment of the aggregate Warrant Price in the manner as specified in Section 1.1 above, but otherwise in accordance with the requirements of Section 1.1, Holder may elect to receive Shares equal to the value of this Warrant, or portion hereof as to which this Warrant is being exercised. Thereupon, the Company shall issue to the Holder such number of fully paid and non-assessable Shares as are computed using the following formula:

$$X = Y(A-B)/A$$

where:

X = the number of Shares to be issued to the Holder;

Y = the number of Shares with respect to which this Warrant is being exercised (inclusive of the Shares surrendered to the Company in payment of the aggregate Warrant Price);

A = the Fair Market Value (as determined pursuant to Section 1.3 below) of one Share; and

B = the Warrant Price.

1.3 Fair Market Value. If the Company's Common Stock is then traded or quoted on a nationally recognized securities exchange, inter-dealer quotation system or over-the-counter market (a "**Trading Market**"), the fair market value of a Share shall be the closing price or last sale price of a share of Common Stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company. If the Company's Common Stock is not traded in a Trading Market, the Board of Directors of the Company shall determine the fair market value of a Share in its reasonable good faith judgment.

1.4 Delivery of Certificate and New Warrant. Within a reasonable time after Holder exercises this Warrant in the manner set forth in Section 1.1 or 1.2 above, the Company shall deliver to Holder a certificate representing the Shares issued to Holder upon such exercise and, if this Warrant has not been fully exercised and has not expired, a new warrant of like tenor representing the Shares not so acquired.

1.5 Replacement of Warrant. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of loss, theft or destruction, on delivery of an indemnity agreement reasonably satisfactory in form, substance and amount to the Company or, in the case of mutilation, on surrender of this Warrant to the Company for cancellation, the Company shall, within a reasonable time, execute and deliver to Holder, in lieu of this Warrant, a new warrant of like tenor and amount.

1.6 Treatment of Warrant Upon Acquisition of Company.

(a) Acquisition. For the purpose of this Warrant, "**Acquisition**" means any Liquidation Event (including, but not limited to any "deemed" Liquidation Event), as defined in the Company's Amended and Restated Certificate of Incorporation, as amended from time to time.

(b) Treatment of Warrant at Acquisition. In the event of an Acquisition in which the consideration to be received by the Company's stockholders consists solely of cash, solely of Marketable Securities or a combination of cash and Marketable Securities (a "**Cash/Public Acquisition**"), and the fair market value of one Share as determined in accordance with Section 1.3 above would be greater than the Warrant Price in effect on such date immediately prior to such Cash/Public Acquisition, and Holder has not exercised this Warrant pursuant to Section 1.1 above as to all Shares, then this Warrant shall automatically be deemed to be Cashless Exercised pursuant to Section 1.2 above as to all Shares effective immediately prior to and contingent upon the consummation of a Cash/Public Acquisition. In connection with such Cashless Exercise, Holder shall be deemed to have restated each of the

representations and warranties in Section 4 of the Warrant as the date thereof and the Company shall promptly notify the Holder of the number of Shares (or such other securities) issued upon exercise. In the event of a Cash/Public Acquisition where the fair market value of one Share as determined in accordance with Section 1.3 above would be less than the Warrant Price in effect immediately prior to such Cash/Public Acquisition, then this Warrant will expire immediately prior to the consummation of such Cash/Public Acquisition.

(c) Upon the closing of any Acquisition other than a Cash/Public Acquisition defined above, the acquiring, surviving or successor entity shall assume the obligations of this Warrant, and this Warrant shall thereafter be exercisable for the same securities and/or other property as would have been paid for the Shares issuable upon exercise of the unexercised portion of this Warrant as if such Shares were outstanding on and as of the closing of such Acquisition, subject to further adjustment from time to time in accordance with the provisions of this Warrant.

(d) As used in this Warrant, "**Marketable Securities**" means securities meeting all of the following requirements: (i) the issuer thereof is then subject to the reporting requirements of Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), and is then current in its filing of all required reports and other information under the Act and the Exchange Act; (ii) the class and series of shares or other security of the issuer that would be received by Holder in connection with the Acquisition were Holder to exercise this Warrant on or prior to the closing thereof is then traded in Trading Market, and (iii) following the closing of such Acquisition, Holder would not be restricted from publicly re-selling all of the issuer's shares and/or other securities that would be received by Holder in such Acquisition were Holder to exercise or convert this Warrant in full on or prior to the closing of such Acquisition, except to the extent that any such restriction (x) arises solely under federal or state securities laws, rules or regulations, and (y) does not extend beyond six (6) months from the closing of such Acquisition.

1.7 Number of Shares. This Warrant shall be exercisable for the Initial Shares, plus, (i) upon the funding of the Tranche B Growth Capital Advance (as defined in the Loan Agreement), pursuant to the Loan Agreement, the Tranche B Additional Shares (as applicable), and (ii) upon the funding of the Tranche C Growth Capital Advance (as defined in the Loan Agreement), pursuant to the Loan Agreement, the Tranche C Additional Shares (as applicable). As used herein, (x) the "Tranche B Additional Shares" means 158,730 shares, (y) the "Tranche C Additional Shares" means 158,730 shares, and (z) the "Additional Shares" means, collectively, the Tranche B Additional Shares and the Tranche C Additional Shares. For the avoidance of doubt, if Silicon Valley Bank fully funds both the Tranche B Growth Capital Advance and the Tranche C Growth Capital Advance, the total number of Additional Shares shall equal 317,460.

SECTION 2. ADJUSTMENTS TO THE SHARES AND WARRANT PRICE.

2.1 Stock Dividends, Splits, Etc. If the Company declares or pays a dividend or distribution on the outstanding shares of the Common Stock payable in securities or property (other than cash), then upon exercise of this Warrant, for each Share acquired, Holder shall receive, without additional cost to Holder, the total number and kind of securities and property which Holder would have received had Holder owned the Shares of record as of the date the dividend or distribution occurred. If the Company subdivides the outstanding shares of the Common Stock by reclassification or otherwise into a greater number of shares, the number of Shares purchasable hereunder shall be proportionately

increased and the Warrant Price shall be proportionately decreased. If the outstanding shares of the Common Stock are combined or consolidated, by reclassification or otherwise, into a lesser number of shares, the Warrant Price shall be proportionately increased and the number of Shares shall be proportionately decreased.

2.2 Reclassification, Exchange, Combinations or Substitution. Upon any event whereby all of the outstanding shares of the Common Stock are reclassified, exchanged, combined, substituted, or replaced for, into, with or by Company securities of a different class and/or series, then from and after the consummation of such event, this Warrant will be exercisable for the number, class and series of Company securities that Holder would have received had the Shares been outstanding on and as of the consummation of such event, and subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant. The provisions of this Section 2.2 shall similarly apply to successive reclassifications, exchanges, combinations substitutions, replacements or other similar events.

2.3 Intentionally Omitted.

2.4 Intentionally Omitted.

2.5 No Fractional Share. No fractional Share shall be issuable upon exercise of this Warrant and the number of Shares to be issued shall be rounded down to the nearest whole Share. If a fractional Share interest arises upon any exercise of the Warrant, the Company shall eliminate such fractional Share interest by paying Holder in cash the amount computed by multiplying the fractional interest by (i) the fair market value (as determined in accordance with Section 1.3 above) of a full Share, less (ii) the then-effective Warrant Price.

2.6 Notice/Certificate as to Adjustments. Upon each adjustment of the Warrant Price, Common Stock and/or number of Shares, the Company, at the Company's expense, shall notify Holder in writing within a reasonable time setting forth the adjustments to the Warrant Price, class and/or number of Shares and facts upon which such adjustment is based. The Company shall, upon written request from Holder, furnish Holder with a certificate of its Chief Financial Officer, including computations of such adjustment and the Warrant Price, class and number of Shares in effect upon the date of such adjustment.

SECTION 3. REPRESENTATIONS AND COVENANTS OF THE COMPANY.

3.1 Representations and Warranties. The Company represents and warrants to, and agrees with, the Holder as follows: All Shares which may be issued upon the exercise of this Warrant, shall, upon issuance, be duly authorized, validly issued, fully paid and non-assessable, and free of any liens and encumbrances except for restrictions on transfer provided for herein or under applicable federal and state securities laws. The Company covenants that it shall at all times cause to be reserved and kept available out of its authorized and unissued capital stock such number of securities as will be sufficient to permit the exercise in full of this Warrant.

3.2 Notice of Certain Events. If the Company proposes at any time to:

(a) declare any dividend or distribution upon the outstanding shares of the Company's stock, whether in cash, property, stock, or other securities and whether or not a regular cash dividend;

(b) offer for subscription or sale pro rata to the holders of the outstanding shares any additional shares of any class or series of the Company's stock (other than pursuant to contractual pre-emptive rights);

(c) effect any reclassification, exchange, combination, substitution, reorganization or recapitalization of the outstanding shares of the Common Stock; or

(d) effect an Acquisition or to liquidate, dissolve or wind up;

then, in connection with each such event, the Company shall give Holder:

(1) in the case of the matters referred to in (a) and (b) above, at least seven (7) Business Days prior written notice of the earlier to occur of the effective date thereof or the date on which a record will be taken for such dividend, distribution, or subscription rights (and specifying the date on which the holders of outstanding shares of the Common Stock will be entitled thereto) or for determining rights to vote, if any; and

(2) in the case of the matters referred to in (c) and (d) above at least seven (7) Business Days prior written notice of the date when the same will take place (and specifying the date on which the holders of outstanding shares of the Class will be entitled to exchange their shares for the securities or other property deliverable upon the occurrence of such event and such reasonable information as Holder may reasonably require regarding the treatment of this Warrant in connection with such event giving rise to the notice).

Company will also provide information requested by Holder that is reasonably necessary to enable Holder to comply with Holder's accounting or reporting requirements; provided that to the extent any such information provided in connection with this Warrant is confidential information, such information shall be subject to Section 12.9 of the Loan Agreement for so long as the Loan Agreement remains in effect.

SECTION 4. REPRESENTATIONS, WARRANTIES OF THE HOLDER.

The Holder represents and warrants to the Company as follows:

4.1 Purchase for Own Account. This Warrant and the Shares to be acquired upon exercise of this Warrant by Holder are being acquired for investment for Holder's account, not as a nominee or agent, and not with a view to the public resale or distribution within the meaning of the Act. Holder also represents that it has not been formed for the specific purpose of acquiring this Warrant or the Shares.

4.2 Disclosure of Information. Holder is aware of the Company's business affairs and financial condition and has received or has had full access to all the information it considers necessary or appropriate to make an informed investment decision with respect to the acquisition of this Warrant and its underlying securities. Holder further has had an opportunity to ask questions and receive

answers from the Company regarding the terms and conditions of the offering of this Warrant and its underlying securities and to obtain additional information (to the extent the Company possessed such information or could acquire it without unreasonable effort or expense) necessary to verify any information furnished to Holder or to which Holder has access.

4.3 Investment Experience. Holder understands that the purchase of this Warrant and its underlying securities involves substantial risk. Holder has experience as an investor in securities of companies in the development stage and acknowledges that Holder can bear the economic risk of such Holder's investment in this Warrant and its underlying securities and has such knowledge and experience in financial or business matters that Holder is capable of evaluating the merits and risks of its investment in this Warrant and its underlying securities and/or has a preexisting personal or business relationship with the Company and certain of its officers, directors or controlling persons of a nature and duration that enables Holder to be aware of the character, business acumen and financial circumstances of such persons.

4.4 Accredited Investor Status. Holder is an "accredited investor" within the meaning of Regulation D promulgated under the Act.

4.5 The Act. Holder understands that this Warrant and the Shares issuable upon exercise hereof have not been registered under the Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of the Holder's investment intent as expressed herein. Holder understands that this Warrant and the Shares issued upon any exercise hereof must be held indefinitely unless subsequently registered under the Act and qualified under applicable state securities laws, or unless exemption from such registration and qualification are otherwise available. Holder is aware of the provisions of Rule 144 promulgated under the Act.

4.6 No Voting Rights. Holder, as a Holder of this Warrant, will not have any voting rights until the exercise of this Warrant.

SECTION 5. MISCELLANEOUS.

5.1 Term and Automatic Conversion Upon Expiration.

(a) Term. Subject to the provisions of Section 1.6 above, this Warrant is exercisable in whole or in part at any time and from time to time on or before 6:00 PM, Pacific time, on the Expiration Date and shall be void thereafter.

(b) Automatic Cashless Exercise upon Expiration. In the event that, upon the Expiration Date, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above is greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall, within a reasonable time, deliver a certificate representing the Shares (or such other securities) issued upon such exercise to Holder.

5.2 Legends. The Shares (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) shall be imprinted with a legend in substantially the following form:

THE SHARES EVIDENCED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT**"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN THAT CERTAIN WARRANT TO PURCHASE COMMON STOCK ISSUED BY THE ISSUER TO SILICON VALLEY BANK DATED SEPTEMBER 6, 2017, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

5.3 Compliance with Securities Laws on Transfer. This Warrant and the Shares issuable upon exercise of this Warrant (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) may not be transferred or assigned in whole or in part except in compliance with applicable federal and state securities laws by the transferor and the transferee (including, without limitation, the delivery of investment representation letters and legal opinions reasonably satisfactory to the Company, as reasonably requested by the Company). The Company shall not require Holder to provide an opinion of counsel if the transfer is to SVB Financial Group (Silicon Valley Bank's parent company) or any other Affiliate of Holder, provided that any such transferee is an "accredited investor" as defined in Regulation D promulgated under the Act. Additionally, the Company shall also not require an opinion of counsel if there is no material question as to the availability of Rule 144 promulgated under the Act. As used herein, an "Affiliate" means, with respect to any Holder, any other entity which, directly or indirectly, controls, is controlled by, or is under common control with such Holder.

5.4 Transfer Procedure. After receipt by Silicon Valley Bank of the executed Warrant, Silicon Valley Bank will transfer all of this Warrant to its parent company, SVB Financial Group. By its acceptance of this Warrant, SVB Financial Group hereby makes to the Company each of the representations and warranties set forth in Section 4 hereof and agrees to be bound by all of the terms and conditions of this Warrant as if the original Holder hereof. Subject to the provisions of Section 5.3 and upon providing the Company with written notice, SVB Financial Group and any subsequent Holder may transfer all or part of this Warrant or the Shares issuable upon exercise of this Warrant (or the securities issuable directly or indirectly, upon conversion of the Shares, if any) to any transferee, provided, however, in connection with any such transfer, SVB Financial Group or any subsequent Holder will give the Company notice of the portion of the Warrant being transferred with the name, address and taxpayer identification number of the transferee and Holder will surrender this Warrant to the Company for reissuance to the transferee(s) (and Holder if applicable); and provided further, that any subsequent transferee other than SVB Financial Group shall agree in writing with the Company to be bound by all of the terms and conditions of this Warrant.

5.5 Notices. All notices and other communications hereunder from the Company to the Holder, or vice versa, shall be deemed delivered and effective (i) when given personally, (ii) on the third (3rd) Business Day after being mailed by first-class registered or certified mail, postage prepaid, (iii) upon actual receipt if given by facsimile or electronic mail and such receipt is confirmed in writing by the recipient, or (iv) on the first Business Day following delivery to a reliable overnight courier service, courier fee prepaid, in any case at such address as may have been furnished to the Company or Holder, as the case may be, in writing by the Company or such Holder from time to time in accordance with the provisions of this Section 5.5. All notices to Holder shall be addressed as follows until the Company receives notice of a change of address in connection with a transfer or otherwise:

SVB Financial Group
Attn: Treasury Department
3003 Tasman Drive, HC 215
Santa Clara, CA 95054
Telephone: (408) 654-7400
Facsimile: (408) 988-8317
Email address: derivatives@svb.com

Notice to the Company shall be addressed as follows until Holder receives notice of a change in address:

Twist Bioscience Corporation
Attn: Emily LeProust
455 Mission Bay Boulevard, Suite 545
San Francisco, CA 94158
Email:

With a copy (which shall not constitute notice) to:

Orrick, Herrington & Sutcliffe LLP
Attn: John Bautista
405 Howard Street
San Francisco, CA 94105-2669
Telephone:
Email:

5.6 Waiver. This Warrant and any term hereof may be changed, waived, discharged or terminated (either generally or in a particular instance and either retroactively or prospectively) only by an instrument in writing signed by the party against which enforcement of such change, waiver, discharge or termination is sought.

5.7 Attorney's Fees. In the event of any dispute between the parties concerning the terms and provisions of this Warrant, the party prevailing in such dispute shall be entitled to collect from the other party all costs incurred in such dispute, including reasonable attorneys' fees.

5.8 Counterparts; Facsimile/Electronic Signatures. This Warrant may be executed in counterparts, all of which together shall constitute one and the same agreement. Any signature page delivered electronically or by facsimile shall be binding to the same extent as an original signature page with regards to any agreement subject to the terms hereof or any amendment thereto.

5.9 Governing Law. This Warrant shall be governed by and construed in accordance with the laws of the State of California, without giving effect to its principles regarding conflicts of law.

5.10 Headings. The headings in this Warrant are for purposes of reference only and shall not limit or otherwise affect the meaning of any provision of this Warrant.

5.11 Business Days. "**Business Day**" is any day that is not a Saturday, Sunday or a day on which Silicon Valley Bank is closed.

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IN WITNESS WHEREOF, the parties have caused this Warrant to Purchase Common Stock to be executed by their duly authorized representatives effective as of the Issue Date written above.

"COMPANY"

TWIST BIOSCIENCE CORPORATION

By: /s/ Solange Glaize
Name: Solange Glaize
(Print)
Title: CFO

"HOLDER"

SILICON VALLEY BANK

By: /s/ Brandon Clark
Name: Brandon Clark
(Print)
Title: Vice President

[Signature Page to Warrant to Purchase Common Stock]

Exhibit 10.1

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

1. **Purposes of the Plan.** The purposes of this Twist Bioscience Corporation 2013 Stock Plan are to attract and retain the best available personnel for positions of substantial responsibility, to provide additional incentive to Employees and Consultants, and to promote the success of the Company's business. Options granted under the Plan may be Incentive Stock Options or Nonstatutory Stock Options, as determined by the Administrator at the time of grant of an Option and subject to the applicable provisions of Section 422 of the Code and the regulations promulgated thereunder. Restricted Stock may also be granted under the Plan.

2. **Definitions.** As used herein, the following definitions shall apply:

(a) **"Administrator"** means the Board or a Committee.

(b) **"Affiliate"** means (i) an entity other than a Subsidiary which, together with the Company, is under common control of a third person or entity and (ii) an entity other than a Subsidiary in which the Company and /or one or more Subsidiaries own a controlling interest.

(c) **"Applicable Laws"** means all applicable laws, rules, regulations and requirements, including, but not limited to, all applicable U.S. federal or state laws, any Stock Exchange rules or regulations, and the applicable laws, rules or regulations of any other country or jurisdiction where Options or Restricted Stock are granted under the Plan or Participants reside or provide services, as such laws, rules, and regulations shall be in effect from time to time.

(d) **"Award"** means any award of an Option or Restricted Stock under the Plan.

(e) "**Award Agreement**" means a written document (e.g., an Option Agreement, Restricted Stock Award Agreement or Restricted Stock Purchase Agreement), the form(s) of which shall be approved from time to time by the Administrator, reflecting the terms of an Award granted under the Plan and includes any documents attached to or incorporated into such Award.

(f) **"Board"** means the Board of Directors of the Company.

(g) **"California Participant"** means a Participant whose Award is issued in reliance on Section 25102(o) of the California Corporations Code.

(h) **"Cashless Exercise"** means a program approved by the Administrator in which payment of the exercise price and/or tax withholding obligations or other required deductions may be satisfied, in whole or in part, with Shares subject to the Award, including by delivery of an irrevocable direction to a securities broker (on a form prescribed by the Company) to sell Shares and to deliver all or part of the sale proceeds to the Company in payment of such amount.

(i) **"Cause"** means, with respect to the termination of a Participant's Continuous Service Status, except as otherwise defined in an Award Agreement, (i) in the case where there is no employment agreement, consulting agreement, change in control agreement or similar agreement in effect between the Company or an Affiliate of the Company and the Participant at the time of the grant of the Award (or where there is such an agreement but it does not define "cause" (or words of like import) or where it only applies upon the occurrence of a change in control and one has not yet taken place): (A) any material breach by Participant of any material written agreement between Participant and the Company; (B) any failure by Participant to comply with the Company's material written policies or rules as they may be in effect from time to time; (C) neglect or persistent unsatisfactory performance of Participant's duties; (D) Participant's repeated failure to follow reasonable and lawful instructions from the Board or Chief Executive Officer; (E) Participant's indictment for, conviction of, or plea of guilty or nolo contendre to, any felony or crime that results in, or is reasonably expected to result in, a material adverse effect on the business or reputation of the Company; (F) Participant's commission of or participation in an act of fraud against the Company; (G) Participant's intentional material damage to the Company's business, property or reputation; or (H) Participant's unauthorized use or disclosure of any proprietary information or trade secrets of the Company or any other party to whom the Participant owes an obligation of nondisclosure as a result of his or her relationship with the Company; or (ii) in the case where there is an employment agreement, consulting agreement, change in control agreement or similar agreement in effect between the Company or an Affiliate and the Participant at the time of the grant of the Award that defines "cause" (or words of like import), "cause" as defined under such agreement; provided, however, that with regard to any agreement under which the definition of "cause" only applies on occurrence of a change in control, such definition of "cause" shall not apply until a change in control actually takes place and then only with regard to a termination thereafter. For purposes of clarity, a termination without "Cause" does not include any termination that occurs solely as a result of Participant's death or Disability. The determination as to whether a Participant's Continuous Service Status has been terminated for Cause shall be made in good faith by the Company and shall be final and binding on the Participant. The foregoing definition does not in any way limit the Company's ability to terminate a Participant's employment or consulting relationship at any time, and the term "Company" will be interpreted to include any Subsidiary, Parent, Affiliate, or any successor thereto, if appropriate.

(j) **"Code"** means the Internal Revenue Code of 1986, as amended, and any successor thereto. Reference in the Plan to any section of the Code shall be deemed to include any regulations or other interpretative guidance under such section, and any amendments or successor provisions to such section, regulations or guidance.

(k) **"Committee"** means one or more committees or subcommittees of the Board consisting of two (2) or more Directors (or such lesser or greater number of Directors as shall constitute the minimum number permitted by Applicable Laws to establish a committee or sub-committee of the Board) appointed by the Board to administer the Plan in accordance with Section 4 below.

(l) **"Common Stock"** means the Company's common stock, par value $0.00001 per share, as adjusted pursuant to Section 10 below.

(m) **"Company"** means Twist Bioscience Corporation, a Delaware corporation.

(n) **"Consultant"** means any person or entity, including an advisor but not an Employee, that renders, or has rendered, services to the Company, or any Parent, Subsidiary or Affiliate and is compensated for such services, and any non-Employee Director whether compensated for such services or not.

(o) **"Continuous Service Status"** means the absence of any interruption or termination of service as an Employee or Consultant. Continuous Service Status as an Employee or Consultant shall not be considered interrupted or terminated in the case of: (i) Company approved sick leave; (ii) military leave; (iii) any other bona fide leave of absence approved by the Company, provided that, if an Employee is holding an Incentive Stock Option and such leave exceeds 3 months, such Employee's service as an Employee shall be deemed terminated on the 1st day following such 3-month period and the Incentive Stock Option shall thereafter automatically become a Nonstatutory Stock Option in accordance with Applicable Laws, unless reemployment upon the expiration of such leave is guaranteed by contract or statute, or unless provided otherwise pursuant to a written Company policy. Also, Continuous Service Status as an Employee or Consultant shall not be considered interrupted or terminated in the case of a transfer between locations of the Company or between the Company, its Parents, Subsidiaries or Affiliates, or their respective successors, or a change in status from an Employee to a Consultant or from a Consultant to an Employee.

(p) **"Director"** means a member of the Board.

(q) **"Disability"** means "disability" within the meaning of Section 22(e)(3) of the Code.

(r) **"Employee"** means any person employed by the Company, or any Parent, Subsidiary or Affiliate, with the status of employment determined pursuant to such factors as are deemed appropriate by the Company in its sole discretion, subject to any requirements of Applicable Laws, including the Code. The payment by the Company of a director's fee shall not be sufficient to constitute "employment" of such director by the Company or any Parent, Subsidiary or Affiliate.

(s) **"Exchange Act"** means the Securities Exchange Act of 1934, as amended.

(t) **"Fair Market Value"** means, unless otherwise required by any applicable provision of the Code, with respect to a share of Common Stock or other security, as of any date, the closing price reported for the Common Stock on the applicable date: (a) as reported on the principal national securities exchange in the United States on which it is then traded; or (b) if not traded on any such national securities exchange, as quoted on an automated quotation system sponsored by the Financial Industry Regulatory Authority, or if the Common Stock shall not have been reported or quoted on such date, on the first day prior thereto on which the Common Stock was reported or quoted. If the Common Stock is not traded, listed or otherwise reported or quoted, then Fair Market Value means the fair market value of a share of Common Stock as determined by the Board or Committee in good faith on such basis as it deems appropriate and applied consistently with respect to Participants, taking into account the requirements of Section 422 of the Code or Section 409A of the Code, as applicable.

(u) **"Family Members"** means any child, stepchild, grandchild, parent, stepparent, grandparent, spouse, former spouse, sibling, niece, nephew, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law (including adoptive relationships) of the Participant, any person sharing the Participant's household (other than a tenant or employee), a trust in which these persons (or the Participant) have more than 50% of the beneficial interest, a foundation in which these persons (or the Participant) control the management of assets, and any other entity in which these persons (or the Participant) own more than 50% of the voting interests.

(v) **"Incentive Stock Option"** means an Option intended to, and which does, in fact, qualify as an incentive stock option within the meaning of Section 422 of the Code.

(w) **"Involuntary Termination"** means (unless another definition is provided in the applicable Award Agreement, employment agreement or other applicable written agreement) the termination of a Participant's Continuous Service Status other than for (i) death, (ii) Disability or (iii) for Cause by the Company or a Parent, Subsidiary, Affiliate or successor thereto, as appropriate.

(x) **"Listed Security"** means any security of the Company that is listed or approved for listing on a national securities exchange or designated or approved for designation as a national market system security on an interdealer quotation system by the Financial Industry Regulatory Authority (or any successor thereto).

(y) **"Nonstatutory Stock Option"** means an Option that is not intended to, or does not, in fact, qualify as an Incentive Stock Option.

(z) **"Option"** means a stock option granted pursuant to the Plan.

(aa) **"Option Agreement"** means a written document, the form(s) of which shall be approved from time to time by the Administrator, reflecting the terms of an Option granted under the Plan and includes any documents attached to or incorporated into such Option Agreement, including, but not limited to, a notice of stock option grant and a form of exercise notice.

(bb) **"Optioned Stock"** means Shares that are subject to an Option or that were issued pursuant to the exercise of an Option.

(cc) **"Optionee"** means an Employee or Consultant who receives an Option.

(dd) **"Parent"** means any corporation (other than the Company) in an unbroken chain of corporations ending with the Company if, at the time of grant of the Award, each of the corporations other than the Company owns stock possessing 50% or more of the total combined voting power of all classes of stock in one of the other corporations in such chain. A corporation that attains the status of a Parent on a date after the adoption of the Plan shall be considered a Parent commencing as of such date.

(ee) **"Participant"** means any holder of one or more Awards or Shares issued pursuant to an Award.

(ff) **"Plan"** means this Twist Bioscience Corporation 2013 Stock Plan.

(gg) **"Registration Rights Agreement"** means the Company's Registration Rights Agreement, dated as of July 1, 2013, 2013, by and among the Company and the other stockholders party thereto, as the same may thereafter be amended from time to time in accordance with its terms.

(hh) **"Restricted Stock"** means Shares acquired pursuant to a right to purchase or receive Common Stock granted pursuant to Section 8 below.

(ii) **"Rule 16b-3"** means Rule 16b-3 promulgated under the Exchange Act, as amended from time to time, or any successor provision.

(jj) **"Share"** means a share of Common Stock, as adjusted in accordance with Section 10 below.

(kk) **"Stock Exchange"** means any stock exchange or consolidated stock price reporting system on which prices for the Common Stock are quoted at any given time.

(ll) "**Stockholders Agreement**" shall mean the Stockholders Agreement, dated as of July 1, 2013 by and among the Company and the other stockholders party thereto, as the same may thereafter be amended from time to time in accordance with its terms.

(mm) **"Subsidiary"** means any corporation (other than the Company) in an unbroken chain of corporations beginning with the Company if, at the time of grant of the Award, each of the corporations other than the last corporation in the unbroken chain owns stock possessing 50% or more of the total combined voting power of all classes of stock in one of the other corporations in such chain. A corporation that attains the status of a Subsidiary on a date after the adoption of the Plan shall be considered a Subsidiary commencing as of such date.

(nn) **"Ten Percent Holder"** means a person who owns stock representing more than 10% of the voting power of all classes of stock of the Company or any Parent or Subsidiary measured as of an Award's date of grant.

3. **Stock Subject to the Plan.** Subject to the provisions of Section 10 below, the maximum aggregate number of Shares that may be issued under the Plan is 34,306,102 Shares, all of which Shares may be issued under the Plan pursuant to Incentive Stock Options. The Shares issued under the Plan may be authorized, but unissued, or reacquired Shares. If any Option Award granted under the Plan expires, terminates or is canceled for any reason without having been exercised in full, then such expired, terminated or cancelled Shares that were subject thereto shall become available for future grant under the Plan. In addition, any Shares subject to a Restricted Stock Award issued under the Plan and later forfeited to the Company due to the failure to vest, and any Shares issued pursuant to a Restricted Stock Award that are repurchased by the Company at the original purchase price paid to the Company for the Shares (including, without limitation, upon forfeiture to or repurchase by the Company in connection with the termination of a Participant's Continuous Service Status, but excluding, for the avoidance of doubt, any Shares repurchased at a price in excess of the original purchase price paid to the Company for the Shares), shall again be available for future grant under the Plan. The number of Shares of Common Stock

available for the purpose of Awards under the Plan shall be reduced by (i) the total number of Options that have been exercised, regardless of whether any of the shares of Common Stock underlying such Awards are not actually issued to the Participant as the result of a net settlement, and (ii) any shares of Common Stock used to pay any exercise price or tax withholding obligation with respect to any Award. Notwithstanding the foregoing, subject to the provisions of Section 10 below, in no event shall the maximum aggregate number of Shares that may be issued under the Plan pursuant to Incentive Stock Options exceed the number set forth in the first sentence of this Section 3 plus, to the extent allowable under Section 422 of the Code, any Shares that again become available for issuance pursuant to the remaining provisions of this Section 3.

4. **Administration of the Plan.**

(a) **General.** The Plan shall be administered by the Board, a Committee appointed by the Board, or any combination thereof, as determined by the Board. The Plan may be administered by different administrative bodies with respect to different classes of Participants and, if permitted by Applicable Laws, the Board may authorize one or more officers of the Company to make Awards under the Plan to Employees and Consultants (who are not subject to Section 16 of the Exchange Act) within parameters specified by the Board.

(b) **Committee Composition.** If a Committee has been appointed pursuant to this Section 4, such Committee shall continue to serve in its designated capacity until otherwise directed by the Board.

(c) **Powers of the Administrator.** Subject to the provisions of the Plan and, in the case of a Committee, the specific duties delegated by the Board to such Committee, the Administrator shall have the authority, in its sole discretion:

(i) to determine the Fair Market Value in accordance with Section 2(t) above, provided that such determination shall be applied consistently with respect to Participants under the Plan;

(ii) to select the Employees and Consultants to whom Awards may from time to time be granted;

(iii) to determine the number of Shares to be covered by each Award;

(iv) to approve the form(s) of agreement(s) and other related documents used under the Plan;

(v) to determine the terms and conditions, not inconsistent with the terms of the Plan, of any Award granted hereunder, which terms and conditions include but are not limited to the exercise or purchase price, the time or times when Awards may vest and/or be exercised (which may be based on performance criteria), the circumstances (if any) when vesting will be accelerated or forfeiture restrictions will be waived, and any restriction or limitation regarding any Award, Optioned Stock, or Restricted Stock;

(vi) to amend any outstanding Award or agreement related to any Optioned Stock or Restricted Stock, including any amendment adjusting vesting (e.g., in

connection with a change in the terms or conditions under which such person is providing services to the Company), provided that no amendment shall be made that would materially and adversely affect the rights of any Participant without his or her consent;

(vii) to determine whether and under what circumstances an Option may be settled in cash under Section 7(c)(iii) below instead of Common Stock;

(viii) to approve addenda pursuant to Section 18 below or to grant Awards to, or to modify the terms of, any outstanding Award Agreement or any agreement related to any Optioned Stock or Restricted Stock held by Participants who are foreign nationals or employed outside of the United States with such terms and conditions as the Administrator deems necessary or appropriate to accommodate differences in local law, tax policy or custom which deviate from the terms and conditions set forth in this Plan to the extent necessary or appropriate to accommodate such differences; and

(ix) to construe and interpret the terms of the Plan, any Award Agreement, and any agreement related to any Optioned Stock or Restricted Stock, which constructions, interpretations and decisions shall be final and binding on all Participants.

(d) **Indemnification.** To the maximum extent permitted by Applicable Laws, each member of the Committee (including officers of the Company, if applicable), or of the Board, as applicable, shall be indemnified and held harmless by the Company against and from (i) any loss, cost, liability, or expense that may be imposed upon or reasonably incurred by him or her in connection with or resulting from any claim, action, suit, or proceeding to which he or she may be a party or in which he or she may be involved by reason of any action taken or failure to act under the Plan or pursuant to the terms and conditions of any Award except for actions taken in bad faith or failures to act in bad faith, and (ii) any and all amounts paid by him or her in settlement thereof, with the Company's approval, or paid by him or her in satisfaction of any judgment in any such claim, action, suit, or proceeding against him or her, provided that such member shall give the Company an opportunity, at its own expense, to handle and defend any such claim, action, suit or proceeding before he or she undertakes to handle and defend it on his or her own behalf. The foregoing right of indemnification shall not be exclusive of any other rights of indemnification to which such persons may be entitled under the Company's Certificate of Incorporation, Bylaws, the Stockholders Agreement, the Registration Rights Agreement, by contract, as a matter of law, or otherwise, or under any other power that the Company may have to indemnify or hold harmless each such person.

5. **Eligibility.**

(a) **Recipients of Grants.** Nonstatutory Stock Options and Restricted Stock may be granted to Employees and Consultants. Incentive Stock Options may be granted only to Employees, provided that Employees of Affiliates shall not be eligible to receive Incentive Stock Options.

(b) **No Employment Rights.** Neither the Plan nor any Award shall confer upon any Employee or Consultant any right with respect to continuation of an employment or consulting relationship with the Company (any Parent, Subsidiary or Affiliate), nor shall it interfere in any

way with such Employee's or Consultant's right or the Company's (Parent's, Subsidiary's or Affiliate's) right to terminate his or her employment or consulting relationship at any time, with or without cause.

6. **Term of Plan.** The Plan shall become effective upon its adoption by the Board and shall continue in effect for a term of 10 years unless sooner terminated under Section 13 below.

7. **Options.**

(a) **Term of Option.** The term of each Option shall be the term stated in the Option Agreement; provided that the term shall be no more than 10 years from the date of grant thereof or such shorter term as may be provided in the Option Agreement and provided further that, in the case of an Incentive Stock Option granted to a person who at the time of such grant is a Ten Percent Holder, the term of the Option shall be 5 years from the date of grant thereof or such shorter term as may be provided in the Option Agreement.

(b) **Type of Option.** Each Option shall be designated in the Option Agreement as either an Incentive Stock Option or a Nonstatutory Stock Option.

(c) **ISO $100,000 Limitation.** Notwithstanding any designation under Section 5(a) above, to the extent that the aggregate Fair Market Value of Shares with respect to which options designated as incentive stock options are exercisable for the first time by any Optionee during any calendar year (under all plans of the Company or any Parent or Subsidiary) exceeds $100,000, such excess options shall be treated as nonstatutory stock options. For purposes of this Section 5(c), incentive stock options shall be taken into account in the order in which they were granted, and the Fair Market Value of the Shares subject to an incentive stock option shall be determined as of the date of the grant of such option.

(d) **Option Exercise Price and Consideration.**

(i) **Exercise Price.** The per Share exercise price for the Shares to be issued pursuant to the exercise of an Option shall be such price as is determined by the Administrator and set forth in the Option Agreement, but shall be subject to the following:

(1) In the case of an Incentive Stock Option

a. granted to an Employee who at the time of grant is a Ten Percent Holder, the per Share exercise price shall be no less than 110% of the Fair Market Value per Share on the date of grant;

b. granted to any other Employee, the per Share exercise price shall be no less than 100% of the Fair Market Value per Share on the date of grant;

(2) In the case of a Nonstatutory Stock Option the per Share exercise price shall be no less than 100% of the Fair Market Value per Share on the date of grant.

(ii) **Permissible Consideration.** The consideration to be paid for the Shares to be issued upon exercise of an Option, including the method of payment, shall be

determined by the Administrator (and, in the case of an Incentive Stock Option and to the extent required by Applicable Laws, shall be determined at the time of grant) and may consist entirely of (1) cash; (2) check; (3) to the extent permitted under, and in accordance with, Applicable Laws and approved by the Committee, delivery of a promissory note with such recourse, interest, security and redemption provisions as the Administrator determines to be appropriate (subject to the provisions of Section 152 of the General Corporation Law); (4) cancellation of indebtedness of the Company to the Participant; (5) other previously owned Shares (for which the Participant has good title free and clear of any liens and encumbrances) that have a Fair Market Value on the date of surrender equal to the aggregate exercise price of the Shares as to which the Option is exercised; (6) a Cashless Exercise; (7) such other consideration and method of payment permitted under Applicable Laws; or (8) any combination of the foregoing methods of payment. In making its determination as to the type of consideration to accept, the Administrator may, in its sole discretion, refuse to accept a particular form of consideration at the time of any Option exercise. No Shares shall be issued until payment therefor, as provided herein, has been made or provided for.

(e) **Exercise of Option.**

(i) **General.**

(1) **Exercisability.** Any Option granted hereunder shall be exercisable at such times and under such conditions as determined by the Administrator, consistent with the terms of the Plan and reflected in the Option Agreement, including vesting requirements and/or performance criteria with respect to the Company, and Parent, Subsidiary or Affiliate, and/or the Optionee.

(2) **Leave of Absence.** The Administrator shall have the discretion to determine whether and to what extent the vesting of Options shall be tolled during any leave of absence; provided, however, that in the absence of such determination, vesting of Options shall be tolled during any leave (unless otherwise required by Applicable Laws). Notwithstanding the foregoing, in the event of military leave, vesting shall toll during any unpaid portion of such leave, provided that, upon an Optionee's returning from military leave (under conditions that would entitle him or her to protection upon such return under the Uniform Services Employment and Reemployment Rights Act), he or she shall be given vesting credit with respect to Options to the same extent as would have applied had the Optionee continued to provide services to the Company (or any Parent, Subsidiary or Affiliate, if applicable) throughout the leave on the same terms as he or she was providing services immediately prior to such leave.

(3) **Minimum Exercise Requirements.** An Option may not be exercised for a fraction of a Share. The Administrator may require that an Option be exercised as to a minimum number of Shares, provided that such requirement shall not prevent an Optionee from exercising the full number of Shares as to which the Option is then exercisable.

(4) **Procedures for and Results of Exercise.** An Option shall be deemed exercised when written notice of such exercise has been received by the Company in accordance with the terms of the Option Agreement by the person entitled to exercise the Option and the Company has received full payment for the Shares with respect to which the Option is

exercised and has paid, or made arrangements to satisfy, any applicable taxes, withholding, required deductions or other required payments in accordance with Section 9 below. The exercise of an Option shall result in a decrease in the number of Shares that thereafter may be available, both for purposes of the Plan and for sale under the Option, by the number of Shares as to which the Option is exercised.

(5) **Rights as Holder of Capital Stock.** Until the issuance of the Shares (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company), no right to vote or receive dividends or any other rights as a holder of capital stock shall exist with respect to the Optioned Stock, notwithstanding the exercise of the Option. No adjustment will be made for a dividend or other right for which the record date is prior to the date the stock certificate is issued, except as provided in Section 10 below.

(ii) **Termination of Continuous Service Status.** The Administrator shall establish and set forth in the applicable Option Agreement the terms and conditions upon which an Option shall remain exercisable, if at all, following termination of an Optionee's Continuous Service Status, which provisions may be waived or modified by the Administrator at any time. To the extent that an Option Agreement does not specify the terms and conditions upon which an Option shall terminate upon termination of an Optionee's Continuous Service Status, the following provisions shall apply:

(1) **General Provisions.** If the Optionee (or other person entitled to exercise the Option) does not exercise the Option to the extent so entitled within the time specified below, the Option shall terminate and the Optioned Stock underlying the unexercised portion of the Option shall revert to the Plan. In no event may any Option be exercised after the expiration of the Option term as set forth in the Option Agreement (and subject to this Section 7).

(2) **Termination other than Upon Disability or Death or for Cause.** In the event of termination of an Optionee's Continuous Service Status other than under the circumstances set forth in the subsections (3) through (5) below, subject to Section 7(a) above, such Optionee may exercise any outstanding Option at any time within 3 month(s) following such termination to the extent the Optionee is vested in the Optioned Stock.

(3) **Disability of Optionee.** In the event of termination of an Optionee's Continuous Service Status as a result of his or her Disability, subject to Section 7(a) above, such Optionee may exercise any outstanding Option at any time within 12 month(s) following such termination to the extent the Optionee is vested in the Optioned Stock.

(4) **Death of Optionee.** In the event of the death of an Optionee during the period of Continuous Service Status since the date of grant of any outstanding Option, or within 3 month(s) following termination of the Optionee's Continuous Service Status, subject to Section 7(a) above, the Option may be exercised by any beneficiaries designated in accordance with Section 16 below, or if there are no such beneficiaries, by the Optionee's estate, or by a person who acquired the right to exercise the Option by bequest or inheritance, at any time within 12 month(s) following the date the Optionee's Continuous Service Status terminated, but only to the extent the Optionee is vested in the Optioned Stock.

(5) **Termination for Cause.** In the event of termination of an Optionee's Continuous Service Status for Cause, any outstanding Option (including any vested portion thereof) held by such Optionee shall immediately terminate in its entirety upon first notification to the Optionee of termination of the Optionee's Continuous Service Status for Cause. If an Optionee's Continuous Service Status is suspended pending an investigation of whether the Optionee's Continuous Service Status will be terminated for Cause, all the Optionee's rights under any Option, including the right to exercise the Option, shall be suspended during the investigation period. Nothing in this Section 7(c)(ii)(5) shall in any way limit the Company's right to purchase unvested Shares issued upon exercise of an Option as set forth in the applicable Option Agreement.

(iii) **Buyout Provisions.** The Administrator may at any time offer to buy out for a payment in cash or Shares an Option previously granted under the Plan based on such terms and conditions as the Administrator shall establish and communicate to the Optionee at the time that such offer is made, subject to Applicable Laws.

8. **Restricted Stock.**

(a) **Rights to Purchase.** When a right to purchase or receive Restricted Stock is granted under the Plan, the Company shall advise the recipient in writing of the terms, conditions and restrictions related to the offer, including the number of Shares that such person shall be entitled to purchase, the price to be paid, if any (which shall be as determined by the Administrator, subject to Applicable Laws, including any applicable securities laws), and the time within which such person must accept such offer. The permissible consideration for Restricted Stock, if any, shall be determined by the Administrator and shall be the same as is set forth in Section 7(b)(ii) above with respect to exercise of Options. The offer to purchase Shares shall be accepted by execution of an Award Agreement in the form determined by the Administrator.

(b) **Repurchase Option.**

(i) **General.** Unless the Administrator determines otherwise, the Restricted Stock Award Agreement shall grant the Company a repurchase option exercisable upon the voluntary or involuntary termination of the Participant's Continuous Service Status for any reason (including death or Disability) at a purchase price for Shares equal to the lesser of (A) the original purchase price paid by the purchaser to the Company for such Shares and (B) the Fair Market Value of such Shares, and may be paid by cancellation of any indebtedness of the purchaser to the Company. The repurchase option shall lapse at such rate as the Administrator may determine.

(ii) **Leave of Absence.** The Administrator shall have the discretion to determine whether and to what extent the lapsing of Company repurchase rights shall be tolled during any leave of absence; provided, however, that in the absence of such determination, such lapsing shall be tolled during any leave (unless otherwise required by Applicable Laws). Notwithstanding the foregoing, in the event of military leave, the lapsing of Company repurchase rights shall toll during any unpaid portion of such leave, provided that, upon a Participant's

returning from military leave (under conditions that would entitle him or her to protection upon such return under the Uniform Services Employment and Reemployment Rights Act), he or she shall be given vesting credit with respect to Shares purchased pursuant to the Restricted Stock Award Agreement to the same extent as would have applied had the Participant continued to provide services to the Company (or any Parent, Subsidiary or Affiliate, if applicable) throughout the leave on the same terms as he or she was providing services immediately prior to such leave.

(c) **Other Provisions.** The Restricted Stock Award Agreement shall contain such other terms, provisions and conditions not inconsistent with the Plan as may be determined by the Administrator in its sole discretion. In addition, the provisions of Restricted Stock Award Agreements need not be the same with respect to each Participant. Each Restricted Stock grant shall be subject to the conditions set forth in this Plan and to such other conditions not inconsistent with the Plan as determined by the Committee and may be reflected in the applicable Award Agreement. The Committee shall establish restrictions applicable to such Restricted Stock, including the time or times at which Restricted Stock shall be granted or become vested. The Committee may in its sole discretion accelerate the vesting and/or the lapse of any or all of the restrictions on the Restricted Stock which acceleration shall not affect any other terms and conditions of such Awards.

(d) **Rights as a Holder of Capital Stock.** Subject to the terms and conditions of the Stockholders Agreement and the Registration Rights Agreement, as applicable, once the Restricted Stock is purchased, the Participant shall have the rights equivalent to those of a holder of capital stock, and shall be a record holder when his or her purchase and the issuance of the Shares is entered upon the records of the duly authorized transfer agent of the Company. No adjustment will be made for a dividend or other right for which the record date is prior to the date the Restricted Stock is purchased, except as provided in Section 10 below and subject to Section 15 below.

9. **Taxes.**

(a) As a condition of the grant, vesting and exercise of an Award, the Participant (or in the case of the Participant's death or a permitted transferee, the person holding or exercising the Award) shall make such arrangements as the Administrator may require for the satisfaction of any applicable U.S. federal, state, local or foreign tax, withholding, and any other required deductions or payments that may arise in connection with such Award. The Company shall not be required to issue any Shares under the Plan until such obligations are satisfied.

(b) The Administrator may, to the extent permitted under Applicable Laws, permit a Participant (or in the case of the Participant's death or a permitted transferee, the person holding or exercising the Award) to satisfy all or part of his or her tax, withholding, or any other required deductions or payments by Cashless Exercise or by surrendering Shares (either directly or by stock attestation) that he or she previously acquired and for which the Participant has good title free and clear of any liens and encumbrances; provided that, unless specifically permitted by the Company, any such Cashless Exercise must be an approved broker-assisted Cashless Exercise or the Shares withheld in the Cashless Exercise must be limited to avoid financial accounting charges under applicable accounting guidance and any such surrendered Shares must have been previously held for any minimum duration required to avoid financial accounting charges under

applicable accounting guidance. Any payment of taxes by surrendering Shares to the Company may be subject to restrictions, including, but not limited to, any restrictions required by rules of the Securities and Exchange Commission.

(c) Although the Company does not guarantee the particular tax treatment of an Award granted under the Plan, Awards granted under the Plan are intended to comply with, or be exempt from, the applicable requirements of Code Section 409A and the Plan and any Award Agreement hereunder shall be limited, construed and interpreted in accordance with such intent. To the extent that any Award granted under the Plan constitutes "non-qualified deferred compensation" pursuant to Code Section 409A, it shall be paid in a manner that will comply with or be exempt from Code Section 409A. In no event whatsoever shall the Company be liable for any additional tax, interest or penalties that may be imposed on an Award by Code Section 409A or any damages for failing to comply with Code Section 409A.

10. **Adjustments Upon Changes in Capitalization, Merger or Certain Other Transactions.**

(a) **Changes in Capitalization.** Subject to any action required under Applicable Laws by the holders of capital stock of the Company, (i) the numbers and class of Shares or other stock or securities: (x) available for future Awards under Section 3 above and (y) covered by each outstanding Award, (ii) the exercise price per Share of each such outstanding Option, and (iii) any repurchase price per Share applicable to Shares issued pursuant to any Award, shall be automatically proportionately adjusted in the event of a stock split, reverse stock split, stock dividend, combination, consolidation, reclassification of the Shares or subdivision of the Shares. In the event of any increase or decrease in the number of issued Shares effected without receipt of consideration by the Company, a declaration of an extraordinary dividend with respect to the Shares payable in a form other than Shares in an amount that has a material effect on the Fair Market Value, a recapitalization (including a recapitalization through a large nonrecurring cash dividend), a rights offering, a reorganization, merger, a spin-off, split-up, change in corporate structure or a similar occurrence, the Administrator shall make appropriate adjustments, in its discretion, in one or more of (i) the numbers and class of Shares or other stock or securities: (x) available for future Awards under Section 3 above and (y) covered by each outstanding Award, (ii) the exercise price per Share of each outstanding Option and (iii) any repurchase price per Share applicable to Shares issued pursuant to any Award, and any such adjustment by the Administrator shall be made in the Administrator's sole and absolute discretion and shall be final, binding and conclusive. Except as expressly provided herein, no issuance by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number or price of Shares subject to an Award. If, by reason of a transaction described in this Section 10(a) or an adjustment pursuant to this Section 10(a), a Participant's Award agreement or agreement related to any Optioned Stock or Restricted Stock covers additional or different shares of stock or securities, then such additional or different shares, and the Award agreement or agreement related to the Optioned Stock or Restricted Stock in respect thereof, shall be subject to all of the terms, conditions and restrictions which were applicable to the Award, Optioned Stock and Restricted Stock prior to such adjustment.

(b) **Dissolution or Liquidation.** In the event of the dissolution or liquidation of the Company, each Award will terminate immediately prior to the consummation of such action, unless otherwise determined by the Administrator.

(c) **Corporate Transactions.** In the event of (i) a transfer of all or substantially all of the Company's assets, (ii) a merger, consolidation or other capital reorganization or business combination transaction of the Company with or into another corporation, entity or person, or (iii) the consummation of a transaction, or series of related transactions, in which any "person" (as such term is used in Sections 13(d) and 14(d) of the Exchange Act) becomes the "beneficial owner" (as defined in Rule 13d-3 of the Exchange Act), directly or indirectly, of more than 50% of the Company's then outstanding capital stock (a "Corporate Transaction"), each outstanding Award (vested or unvested) will be treated as the Administrator determines (subject to the last sentence of this paragraph), which determination may be made without the consent of any Participant and need not treat all outstanding Awards (or portion thereof) in an identical manner. Such determination, without the consent of any Participant, may provide (without limitation) for one or more of the following in the event of a Corporate Transaction: (A) the continuation of such outstanding Awards by the Company (if the Company is the surviving corporation); (B) the assumption of such outstanding Awards by the surviving corporation or its parent; (C) the substitution by the surviving corporation or its parent of new options or equity awards for such Awards; (D) the cancellation of such Awards and a payment to the Participants equal to the excess of (1) the Fair Market Value of the Shares subject to such Awards as of the closing date of such Corporate Transaction over (2) the exercise price or purchase price for the Shares to be issued pursuant to the exercise of such Awards (such payment shall be made in the form of cash, cash equivalents and/or securities of the surviving corporation or its parent with a Fair Market Value equal to the required amount; if the exercise price or purchase price per Share of the Shares to be issued pursuant to the exercise of such Awards exceeds the Fair Market Value per Share of such Shares, as of the closing date of the Corporate Transaction, then such Awards may be cancelled without making a payment to the Participants); or (E) the opportunity for Participants to exercise the Options prior to the occurrence of the Corporate Transaction and the termination (for no consideration) upon the consummation of such Corporate Transaction of any Options not exercised prior thereto.

(d) Notwithstanding anything herein to the contrary, (i) any adjustments made pursuant to this Section 10 to Awards that are considered "non-qualified deferred compensation" within the meaning of Code Section 409A shall be made in a manner intended to comply with the requirements of Code Section 409A; and (ii) any adjustments made pursuant to this Section 10 to Awards that are not considered "non-qualified deferred compensation" subject to Code Section 409A shall be made in a manner intended to ensure that after such adjustment, the Awards either (A) continue not to be subject to Code Section 409A or (B) comply with the requirements of Code Section 409A.

11. **Non-Transferability of Awards.**

(a) **General.** Except as set forth in this Section 11 and subject to the terms and conditions of the Stockholders Agreement and the Registration Rights Agreement, as applicable, Awards may not be sold, pledged, assigned, hypothecated, transferred or disposed of in any manner other than by will or by the laws of descent or distribution. The designation of a

beneficiary by a Participant will not constitute a transfer. Subject to the terms and conditions of the Stockholders Agreement and the Registration Rights Agreement, as applicable, an Option may be exercised, during the lifetime of the holder of the Option, only by such holder or a transferee permitted by this Section 11.

(b) **Limited Transferability Rights.** Notwithstanding anything else in this Section 11 and subject to the terms and conditions of the Stockholders Agreement and the Registration Rights Agreement, as applicable, the Administrator may in its sole discretion grant Nonstatutory Stock Options that may be transferred by instrument to an inter vivos or testamentary trust in which the Options are to be passed to beneficiaries upon the death of the trustor (settlor) or by gift to Family Members. Further, beginning with (i) the period when the Company begins to rely on the exemption described in Rule 12h-1(f)(1) promulgated under the Exchange Act, as determined by the Board in its sole discretion, and (ii) ending on the earlier of (A) the date when the Company ceases to rely on such exemption, as determined by the Board in its sole discretion, or (B) the date when the Company becomes subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act, an Option, or prior to exercise, the Shares subject to the Option, may not be pledged, hypothecated or otherwise transferred or disposed of, in any manner, including by entering into any short position, any "put equivalent position" or any "call equivalent position" (as defined in Rule 16a-1(h) and Rule 16a-1(b) of the Exchange Act, respectively), other than to (i) persons who are Family Members through gifts or domestic relations orders, or (ii) to an executor or guardian of the Participant upon the death or disability of the Participant. Notwithstanding the foregoing sentence, the Board, in its sole discretion, may permit transfers of Nonstatutory Stock Options to the Company or in connection with a Corporate Transaction or other acquisition transactions involving the Company to the extent permitted by Rule 12h-1(f).

12. **Time of Granting Awards.** The date of grant of an Award shall, for all purposes, be the date on which the Administrator makes the determination granting such Award, or such other date as is determined by the Administrator.

13. **Amendment and Termination of the Plan.** The Board may at any time amend or terminate the Plan, but no amendment or termination shall be made that would materially and adversely affect the rights of any Participant under any outstanding Award, without his or her consent. In addition, to the extent necessary and desirable to comply with Applicable Laws, the Company shall obtain the approval of holders of capital stock with respect to any Plan amendment in such a manner and to such a degree as required.

14. **Conditions Upon Issuance of Shares.** Notwithstanding any other provision of the Plan or any agreement entered into by the Company pursuant to the Plan, the Company shall not be obligated, and shall have no liability for failure, to issue or deliver any Shares under the Plan unless such issuance or delivery would comply with Applicable Laws, with such compliance determined by the Company in consultation with its legal counsel. As a condition to the exercise of any Option or purchase of any Restricted Stock, the Company may require the person exercising the Option or purchasing the Restricted Stock to represent and warrant at the time of any such exercise or purchase that the Shares are being purchased only for investment and without any present intention to sell or distribute such Shares if, in the opinion of counsel for the Company, such a representation is advisable or required by Applicable Laws. Shares issued upon exercise of Options or purchase of Restricted Stock prior to the date, if ever, on which the Common Stock

becomes a Listed Security shall be subject to a right of first refusal in favor of the Company pursuant to which the Participant will be required to offer Shares to the Company before selling or transferring them to any third party on such terms and subject to such conditions as is reflected in the applicable Option Agreement or Restricted Stock Award Agreement. Without limiting the foregoing, as a condition to the grant of any Award or the delivery of any Shares upon the vesting or exercise of any Award, the Company shall have the right to require that the Participant become party to the Stockholders Agreement and/or the Registration Rights Agreement, as applicable.

15. **Rights as Stockholders.** The holder of an Option or other Award shall not be deemed for any purpose, nor have any of the rights or privileges of, a stockholder of the Company with respect to any Shares purchasable upon the exercise of any part of an Option or deliverable with respect to such other Award unless, until and to the extent that (i) such holder has signed a joinder to the Stockholders Agreement designated by the Company (in the form attached to such Stockholders Agreement), (ii) in the case of an Option, such Option shall have been exercised pursuant to its terms, (iii) the Company shall have issued and delivered such Shares to such holder and (iv) the holder's name shall have been entered as a stockholder of record with respect to such Shares on the books of the Company.

16. **Beneficiaries.** If permitted by the Company, a Participant may designate one or more beneficiaries with respect to an Award by timely filing the prescribed form with the Company. A beneficiary designation may be changed by filing the prescribed form with the Company at any time before the Participant's death. Except as otherwise provided in an Award Agreement, if no beneficiary was designated or if no designated beneficiary survives the Participant, then after a Participant's death any vested Award(s) shall be transferred or distributed to the Participant's estate or to any person who has the right to acquire the Award by bequest or inheritance.

17. **Approval of Holders of Capital Stock.** If required by Applicable Laws, continuance of the Plan shall be subject to approval by the holders of capital stock of the Company within 12 months before or after the date the Plan is adopted or, to the extent required by Applicable Laws, any date the Plan is amended. Such approval shall be obtained in the manner and to the degree required under Applicable Laws.

18. **Addenda.** The Administrator may approve such addenda to the Plan as it may consider necessary or appropriate for the purpose of granting Awards to Employees or Consultants, which Awards may contain such terms and conditions as the Administrator deems necessary or appropriate to accommodate differences in local law, tax policy or custom, which may deviate from the terms and conditions set forth in this Plan. The terms of any such addenda shall supersede the terms of the Plan to the extent necessary to accommodate such differences but shall not otherwise affect the terms of the Plan as in effect for any other purpose.

19. **Information to Holders of Options.** In the event the Company is relying on the exemption provided by Rule 12h-1(f) under the Exchange Act, then to the extent required, the Company shall provide the information described in Rule 701(e)(3), (4) and (5) of the Securities Act of 1933, as amended, to all holders of Options in accordance with the requirements thereunder until such time as the Company becomes subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act. The Company may request that holders of Options agree to keep the

information to be provided pursuant to this Section confidential. If the holder does not agree to keep the information to be provided pursuant to this Section confidential, then the Company will not be required to provide the information unless otherwise required pursuant to Rule 12h-1(f)(1) of the Exchange Act.

20. **No Right to Continued Employment**. The grant of an Award in any year shall not give the Participant any right to similar grants in future years, any right to continue such Participant's employment or service relationship with the Company or its Affiliates, or, until Shares are issued, any rights as a stockholder of the Company. All Participant shall remain subject to discharge to the same extent as if the Plan were not in effect.

21. **No Right to Company Assets**. No Participant, and no beneficiary or other persons claiming under or through the Participant, shall have any right, title or interest by reason of any Award to any particular assets of the Company or Affiliates of the Company, or any Shares allocated or reserved for the purposes of the Plan or subject to any Award except as set forth herein. The Company shall not be required to establish any fund or make any other segregation of assets to assure satisfaction of the Company's obligations under the Plan.

22. **Governing Law**. The Plan and Award grants hereunder shall be governed by the laws of the State of Delaware. The Plan and Award grants hereunder, and the obligation of the Company to sell and deliver Shares under such Awards, shall be subject to all applicable laws, rules, and regulations, whether the United States or any other country, state or subdivision thereof having jurisdiction over the Company and the Participant, including the United States Securities Act of 1933, and to such approvals by any governmental agencies or national securities exchanges as may be required.

23. **Severability**. If any provision of the Plan or any Award Agreement is or becomes or is deemed to be invalid, illegal, or unenforceable in any jurisdiction or as to any person or Award, or would disqualify the Plan or any Award under any law deemed applicable by the Committee, such provision shall be construed or deemed amended to conform to the applicable laws, or if it cannot be construed or deemed amended without, in the determination of the Committee, materially altering the intent of the Plan or the Award, such provision shall be stricken as to such jurisdiction, person or Award and the remainder of the Plan and any such Award shall remain in full force and effect.

24. **Successors**. The obligations of the Company under the Plan shall be binding upon any successor corporation or organization resulting from the merger, consolidation or other reorganization of the Company, or upon any successor corporation or organization succeeding to substantially all of the assets and business of the Company.

25. **Dispute Resolution.** All disputes, claims, or controversies arising out of or relating to this Plan, any Awards granted hereunder or any other agreement executed and delivered pursuant to this Plan, or the negotiation, validity or performance hereof and thereof or the transactions contemplated hereby and thereby, that are not resolved by mutual agreement shall be resolved solely and exclusively by binding arbitration to be conducted before J.A.M.S./Endispute, Inc. ("JAMS") or its successor. The parties understand and agree that this arbitration provision shall apply equally to claims of fraud or fraud in the inducement. The arbitration shall be held in Chicago, Illinois before a single arbitrator and shall be conducted in accordance with the rules and regulations promulgated by JAMS unless specifically modified herein.

The parties covenant and agree that the arbitration shall commence within one hundred twenty (120) days of the date on which a written demand for arbitration is filed by any party hereto. In connection with the arbitration proceeding, the arbitrator shall have the power to order the production of documents by each party and any third-party witnesses. In addition, each party may take up to three depositions as of right, and the arbitrator may in his or her discretion allow additional depositions upon good cause shown by the moving party. However, the arbitrator shall not have the power to order the answering of interrogatories or the response to requests for admission. In connection with any arbitration, each party shall provide to the other, no later than fourteen (14) business days before the date of the arbitration, the identity of all persons that may testify at the arbitration, a copy of all documents that may be introduced at the arbitration or considered or used by a party's witness or expert, and a summary of the expert's opinions and the basis for said opinions. The arbitrator's decision and award shall be made and delivered within sixty (60) days of the conclusion of the arbitration. The arbitrator's decision shall set forth a reasoned basis for any award of damages or finding of liability. The arbitrator shall not have power to award damages in excess of actual compensatory damages and shall not multiply actual damages or award punitive damages or any other damages that are specifically excluded under this Plan, and each party hereby irrevocably waives any claim to such damages.

The parties covenant and agree that they will participate in the arbitration in good faith and that they will share equally its costs, except as otherwise provided herein. The arbitrator may in his or her discretion assess costs and expenses (including the reasonable legal fees and expenses of the prevailing party) against any party to a proceeding. Any party unsuccessfully refusing to comply with an order of the arbitrators shall be liable for costs and expenses, including attorneys' fees, incurred by the other party in enforcing the award. This Section 25 applies equally to requests for temporary, preliminary or permanent injunctive relief, except that in the case of temporary or preliminary injunctive relief any party may proceed in court without prior arbitration for the limited purpose of avoiding immediate and irreparable harm. The provisions of this Section 25 shall be enforceable in any court of competent jurisdiction.

Subject to the second sentence of the immediately preceding paragraph, the parties shall bear their own attorneys' fees, costs and expenses in connection with the arbitration. The parties will share equally in the fees and expenses charged by JAMS.

Each of the parties hereto irrevocably and unconditionally consents to the exclusive jurisdiction of JAMS to resolve all disputes, claims or controversies arising out of or relating to this Plan, any Awards granted hereunder or any other agreement executed and delivered pursuant to this Plan or the negotiation, validity or performance hereof and thereof or the transactions contemplated hereby and thereby and further consents to the jurisdiction of the courts of Chicago, Illinois for the purposes of enforcing the arbitration provisions of this Section 25 of this Plan. Each party further irrevocably waives any objection to proceeding before JAMS based upon lack of personal jurisdiction or to the laying of venue and further irrevocably and unconditionally waives and agrees not to make a claim in any court that arbitration before JAMS has been brought in an inconvenient forum. Each of the parties hereto hereby consents to service of process by registered mail at the address to which notices are to be given. Each of the parties hereto agrees that its or his submission to jurisdiction and its or his consent to service of process by mail is made for the express benefit of the other parties hereto.

ADDENDUM A

Twist Bioscience Corporation 2013 Stock Plan

(California Participants)

Prior to the date, if ever, on which the Common Stock becomes a Listed Security and/or the Company is subject to the reporting requirements of the Exchange Act, the terms set forth herein shall apply to Awards issued to California Participants. All capitalized terms used herein but not otherwise defined shall have the respective meanings set forth in the Plan.

1. The following rules shall apply to any Option in the event of termination of the Participant's Continuous Service Status:

(a) If such termination was for reasons other than death, "Permanent Disability" (as defined below), or Cause, the Participant shall have at least 30 days (or such greater time period as may be provided in the Plan or Option Agreement) after the date of such termination to exercise his or her Option to the extent the Participant is entitled to exercise on his or her termination date, provided that in no event shall the Option be exercisable after the expiration of the term as set forth in the Option Agreement.

(b) If such termination was due to death or Permanent Disability, the Participant shall have at least 6 months (or such greater time period as may be provided in the Plan or Option Agreement) after the date of such termination to exercise his or her Option to the extent the Participant is entitled to exercise on his or her termination date, provided that in no event shall the Option be exercisable after the expiration of the term as set forth in the Option Agreement.

"Permanent Disability" for purposes of this Addendum shall mean the inability of the Participant, in the opinion of a qualified physician acceptable to the Company, to perform the major duties of the Participant's position with the Company or any Parent or Subsidiary because of the sickness or injury of the Participant.

2. Notwithstanding anything to the contrary in Section 10(a) of the Plan, the Administrator shall in any event make such adjustments as may be required by Section 25102(o) of the California Corporations Code.

3. Notwithstanding anything stated herein to the contrary, no Option shall be exercisable on or after the 10th anniversary of the date of grant and any Award agreement shall terminate on or before the 10th anniversary of the date of grant.

4. The Company shall furnish summary financial information (audited or unaudited) of the Company's financial condition and results of operations, consistent with the requirements of Applicable Laws, at least annually to each California Participant during the period such Participant has one or more Awards outstanding, and in the case of an individual who acquired Shares pursuant to the Plan, during the period such Participant owns such Shares; provided, however, the Company shall not be required to provide such information if (i) the issuance is limited to key persons whose duties in connection with the Company assure their access to equivalent information or (ii) the Plan or any agreement complies with all conditions of Rule 701

of the Securities Act of 1933, as amended; provided that for purposes of determining such compliance, any registered domestic partner shall be considered a “family member” as that term is defined in Rule 701.

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

NOTICE OF STOCK OPTION GRANT

[Optionee Name]
[Optionee Address Line 1]
[Optionee Address Line 2]

You have been granted an Option to purchase Shares of Common Stock of Twist Bioscience Corporation, a Delaware corporation (the "Company"), as provided in this Notice of Stock Option Grant (this "Notice") and subject to the terms and conditions of the Twist Bioscience Corporation 2013 Stock Plan (the "Plan") and the Stock Option Agreement attached hereto, both of which are made a part of this Notice. Unless otherwise defined in this Notice, capitalized terms used but not defined in this Notice shall have the meanings defined in the Plan.

Date of Grant:	_____
Total Number of Shares:	_____
Exercise Price per Share:	$_____
Designation of Option:	____ Incentive Stock Option ____ Nonstatutory Stock Option
Expiration Date:	_____
Vesting Commencement Date:	_____
Vesting/Exercise Schedule:	So long as your Continuous Service Status does not terminate, the Shares underlying this Option shall vest and become exercisable in accordance with the following schedule: [25% of the Total Number of Shares shall vest and become exercisable on the one year anniversary of the Vesting Commencement Date, and 1/48th of the Total Number of Shares shall vest and become exercisable on the same day of each month thereafter (and if there is no corresponding day, on the last day of the month)].
Termination Period:	You may exercise this Option for 3 month(s) after termination of your Continuous Service Status, except as otherwise provided in Section 5 of the Stock Option Agreement (but in no event later than the Expiration Date). You are responsible for keeping track of these exercise periods following the termination of your Continuous Service Status for any reason. The Company will not provide further notice of such periods.

By your signature and the signature of the Company's representative below, you and the Company agree that this Option is granted under and governed by the terms and conditions of this Notice, the Plan and the Stock Option Agreement. Further, as a condition to the grant of this Option and/or the delivery of any Shares upon the vesting or exercise of this Option, the Company shall have the right to require that you become party to the Stockholders Agreement and/or the Registration Rights Agreement.

In addition, you agree and acknowledge that your rights to any Shares underlying this Option will be earned only as you provide services to the Company over time, that the grant of this Option is not as consideration for services you rendered to the Company prior to your date of hire, and that nothing in this Notice or the attached documents confers upon you any right to continue your employment or consulting relationship with the Company for any period of time, nor does it interfere in any way with your right or the Company's right to terminate that relationship at any time, for any reason, with or without cause. For purposes of this paragraph, the term "Company" will be interpreted to include any Parent, Subsidiary or Affiliate.

THE COMPANY:

TWIST BIOSCIENCE CORPORATION

By: _____
(Signature)

Name: _____

Title: _____

OPTIONEE:

_____
(PRINT NAME)

_____
(Signature)

Address: _____

_____

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

STOCK OPTION AGREEMENT

1. **Grant of Option.** Twist Bioscience Corporation, a Delaware corporation (the "Company"), hereby grants to ("Optionee"), an option (the "Option") to purchase the total number of shares of Common Stock (the "Shares") set forth in the Notice of Stock Option Grant (the "Notice"), at the exercise price per Share set forth in the Notice (the "Exercise Price") subject to the terms, definitions and provisions of the Twist Bioscience Corporation 2013 Stock Plan (the "Plan") adopted by the Company, which is incorporated in this Stock Option Agreement (this "Agreement") by reference. Unless otherwise defined in this Agreement, the terms used in this Agreement or the Notice shall have the meanings defined in the Plan.

2. **Designation of Option.** This Option is intended to be an Incentive Stock Option as defined in Section 422 of the Code only to the extent so designated in the Notice, and to the extent it is not so designated, or to the extent this Option does not or ceases to qualify as an Incentive Stock Option, it shall be treated as a Nonstatutory Stock Option.

Notwithstanding the above, if designated as an Incentive Stock Option, in the event that the Shares subject to this Option (and all other incentive stock options granted to Optionee by the Company or any Parent or Subsidiary, including under other plans) that first become exercisable in any calendar year have an aggregate Fair Market Value (determined for each Share as of the date of grant of the option covering such Share) in excess of $100,000, this Option, to the extent the value thereof is in excess of $100,000, shall be treated as a Nonstatutory Stock Option, in accordance with Section 7(c) of the Plan.

3. **Exercise of Option.** This Option shall be exercisable during its term in accordance with the Vesting/Exercise Schedule set out in the Notice and with the provisions of Section 7(c) of the Plan as follows:

(a) **Right to Exercise.**

(i) This Option may not be exercised for a fraction of a share.

(ii) In the event of Optionee's death, Disability or other termination of Continuous Service Status, the exercisability of this Option is governed by Section 5 below, subject to the limitations contained in this Section 3.

(iii) In no event may this Option be exercised after the Expiration Date set forth in the Notice.

(b) **Method of Exercise.**

(i) This Option shall be exercisable by execution and delivery of the Exercise Agreement attached hereto as Exhibit A or of any other form of written notice approved for such purpose by the Company which shall state Optionee's election to exercise this Option, the number of Shares in respect of which this Option is being exercised, and such other representations and agreements as to the holder's investment intent with respect to such Shares as may be required by the Company pursuant to the provisions of the Plan. Such written notice shall be signed by Optionee and shall be delivered to the Company by such means as are determined by the Company in its discretion to constitute adequate delivery. The written notice shall be accompanied by payment of the aggregate Exercise Price for the purchased Shares.

(ii) As a condition to the exercise of this Option and subject to Section 9 of the Plan, Optionee agrees to make adequate provision for federal, state or other applicable tax, withholding, required deductions or other payments, if any, which arise upon the grant, vesting or exercise of this Option, or disposition of Shares, whether by withholding, direct payment to the Company, or otherwise, as determined by the Company in its sole discretion.

(iii) The Company is not obligated, and will have no liability for failure, to issue or deliver any Shares upon exercise of this Option unless such issuance or delivery would comply with the Applicable Laws, with such compliance determined by the Company in consultation with its legal counsel. This Option may not be exercised until such time as the Plan has been approved by the holders of capital stock of the Company, or if the issuance of such Shares upon such exercise or the method of payment of consideration for such Shares would constitute a violation of any Applicable Laws, including any applicable U.S. federal or state securities laws or any other law or regulation, including any rule under Part 221 of Title 12 of the Code of Federal Regulations as promulgated by the Federal Reserve Board. As a condition to the exercise of this Option, the Company may require Optionee to make any representation and warranty to the Company as may be required by the Applicable Laws. Assuming such compliance, for income tax purposes the Shares shall be considered transferred to Optionee on the date on which this Option is exercised with respect to such Shares.

(iv) Subject to compliance with Applicable Laws, this Option shall be deemed to be exercised upon receipt by the Company of the appropriate written notice of exercise accompanied by the Exercise Price and the satisfaction of any applicable obligations described in Section 3(b)(ii) above.

4. **Method of Payment.** Payment of the Exercise Price shall be by cash or check or, following the initial public offering of the Company's Common Stock, by Cashless Exercise pursuant to which the Optionee delivers an irrevocable direction to a securities broker (on a form prescribed by the Company and according to a procedure established by the Company).

5. **Termination of Relationship.** Following the date of termination of Optionee's Continuous Service Status for any reason (the "Termination Date"), Optionee may exercise this Option only as set forth in the Notice and this Section 5. If Optionee does not exercise this Option within the Termination Period set forth in the Notice or the termination periods set forth below, this Option shall terminate in its entirety. In no event, may any Option be exercised after the Expiration Date of this Option as set forth in the Notice.

(a) **General Termination.** In the event of termination of Optionee's Continuous Service Status other than as a result of Optionee's Disability or death or Optionee's termination by the Company for Cause, Optionee may, to the extent Optionee is vested in the Optioned Stock at the date of such termination, exercise this Option during the Termination Period set forth in the Notice (but in no event later than the Expiration Date).

(b) **Termination upon Disability of Optionee.** In the event of termination of Optionee's Continuous Service Status as a result of Optionee's Disability, Optionee may, but only within 12 month(s) following the Termination Date, exercise this Option to the extent Optionee is vested in the Optioned Stock.

(c) **Death of Optionee.** In the event of termination of Optionee's Continuous Service Status as a result of Optionee's death, or in the event of Optionee's death within 3 month(s) following Optionee's Termination Date, this Option may be exercised at any time within 12 month(s) following the Termination Date, or if later, 12 month(s) following the date of death (but in each case, in no event later than the Expiration Date) by any beneficiaries designated in accordance with Section 16 of the Plan or, if there are no such beneficiaries, by the Optionee's estate, or by a person who acquired the right to exercise the Option by bequest or inheritance, but only to the extent Optionee is vested in this Option.

(d) **Termination for Cause.** In the event of termination of Optionee's Continuous Service Status by the Company for Cause, this Option (including any vested portion thereof) shall immediately terminate in its entirety upon first notification to Optionee of such termination by the Company for Cause. If Optionee's Continuous Service Status is suspended pending an investigation of whether Optionee's Continuous Service Status will be terminated by the Company for Cause, all Optionee's rights under this Option, including the right to exercise this Option, shall be suspended during the investigation period.

6. **Non-Transferability of Option.** This Option may not be transferred in any manner otherwise than by will or by the laws of descent or distribution and may be exercised during the lifetime of Optionee only by him or her, subject to the terms of the Plan and the Stockholders Agreement. The terms of this Option shall be binding upon the executors, administrators, heirs, successors and assigns of Optionee.

7. **Lock-Up Agreement.** Without limitation on anything in the Stockholders Agreement and/or the Registration Rights Agreement, as applicable, to the extent so requested by the Company or the underwriters in connection with the initial public offering of the Company's securities registered under the Securities Act of 1933, as amended, Optionee shall not directly or indirectly offer, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant for the sale of or otherwise dispose of or transfer any shares held by it for such period, not to exceed (a) one hundred eighty (180) days following the effective date of the relevant registration statement filed under the Securities Act in connection with the Company's initial public offering of registrable securities, or (b) ninety (90) days following the effective date of the relevant registration statement in connection with any other public offering of registrable securities, as such underwriter shall specify reasonably and in good faith.

8. **Effect of Agreement.** Optionee acknowledges receipt of a copy of the Plan and represents that he or she is familiar with the terms and provisions thereof (and has had an opportunity to consult counsel regarding the Option terms), and hereby accepts this Option and agrees to be bound by its contractual terms as set forth herein and in the Plan. Optionee hereby agrees to accept as binding, conclusive and final all decisions and interpretations of the Administrator regarding any questions relating to this Option. In the event of a conflict between the terms and provisions of the Plan and the terms and provisions of the Notice and this Agreement, the Plan terms and provisions shall prevail.

9. **Imposition of Other Requirements.** The Company reserves the right to impose other requirements on Optionee's participation in the Plan, on the Option and on any Award or Shares acquired under the Plan, to the extent the Company determines it is necessary or advisable in order to comply with Applicable Laws or facilitate the administration of the Plan. Optionee agrees to sign any additional agreements or undertakings that may be necessary to accomplish the foregoing, including, without limitation, the Stockholders Agreement and/or the Registration Rights Agreement. Furthermore, Optionee acknowledges that the laws of the country in which Optionee is working at the time of grant, vesting and exercise of the Option or the sale of Shares received pursuant to this Agreement (including any rules or regulations governing securities, foreign exchange, tax, labor, or other matters) may subject Optionee to additional procedural or regulatory requirements that Optionee is and will be solely responsible for and must fulfill.

10. **Electronic Delivery.** The Company may, in its sole discretion, decide to deliver any documents related to Optionee's current or future participation in the Plan by electronic means or to request Optionee's consent to participate in the Plan by electronic means. By accepting this Option grant, Optionee hereby consents to receive such documents by electronic delivery and agrees to participate in the Plan through an on-line or electronic system established and maintained by the Company or a third party designated by the Company.

11. **Miscellaneous.**

(a) **Governing Law.** The validity, interpretation, construction and performance of this Agreement, and all acts and transactions pursuant hereto and the rights and obligations of the parties hereto shall be governed, construed and interpreted in accordance with the laws of the state of Delaware, without giving effect to principles of conflicts of law. For purposes of litigating any dispute that may arise directly or indirectly from this Agreement, the parties hereby submit and consent to the exclusive jurisdiction of the state of Delaware and agree that any such litigation shall be conducted only in the courts of Delaware or the federal courts of the United States located in Delaware and no other courts.

(b) **Entire Agreement.** This Agreement, together with the Plan and the Notice, set forth the entire agreement and understanding of the parties relating to the subject matter herein and supersede all prior or contemporaneous discussions, understandings and agreements, whether oral or written, between them relating to the subject matter hereof.

(c) **Amendments and Waivers.** No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, shall be effective unless in writing signed by the parties to this Agreement. No delay or failure to require performance of any provision of this Agreement shall constitute a waiver of that provision as to that or any other instance.

(d) **Successors and Assigns.** Except as otherwise provided in this Agreement, this Agreement, and the rights and obligations of the parties hereunder, will be binding upon and inure to the benefit of their respective successors, assigns, heirs, executors, administrators and legal representatives. The Company may assign any of its rights and obligations under this Agreement. No other party to this Agreement may assign, whether voluntarily or by operation of law, any of its rights and obligations under this Agreement, except with the prior written consent of the Company.

(e) **Notices.** Any notice, demand or request required or permitted to be given under this Agreement shall be in writing and shall be deemed sufficient when delivered personally or by overnight courier or sent by email, or 48 hours after being deposited in the U.S. mail as certified or registered mail with postage prepaid, addressed to the party to be notified at such party's address as set forth on the signature page, as subsequently modified by written notice, or if no address is specified on the signature page, at the most recent address set forth in the Company's books and records.

(f) **Severability.** If one or more provisions of this Agreement are held to be unenforceable under applicable law, the parties agree to renegotiate such provision in good faith. In the event that the parties cannot reach a mutually agreeable and enforceable replacement for such provision, then (i) such provision shall be excluded from this Agreement, (ii) the balance of the Agreement shall be interpreted as if such provision were so excluded and (iii) the balance of the Agreement shall be enforceable in accordance with its terms.

(g) **Construction.** This Agreement is the result of negotiations between and has been reviewed by each of the parties hereto and their respective counsel, if any; accordingly, this Agreement shall be deemed to be the product of all of the parties hereto, and no ambiguity shall be construed in favor of or against any one of the parties hereto.

(h) **Counterparts.** This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, and all of which together shall constitute one and the same agreement.

(i) **Code Section 409A**. It is intended that the Option comply with or be exempt from Section 409A of the Code, and this Agreement shall be limited, construed and interpreted in accordance with such intent; p*rovided*, that for the avoidance of doubt, this provision shall not be construed to require a gross-up payment in respect of any taxes, interest or penalties imposed on the Optionee as a result of Section 409A of the Code, and by accepting this Option grant, the Optionee agrees and acknowledges that the Company be held liable for any applicable costs, taxes, or penalties associated with this Option or this Agreement under Code Section 409A or otherwise.

EXHIBIT A

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

EXERCISE AGREEMENT

This Exercise Agreement (this "Agreement") is made as of , by and between Twist Bioscience Corporation, a Delaware corporation (the "Company"), and ("Purchaser"). To the extent any capitalized terms used in this Agreement are not defined, they shall have the meaning ascribed to them in the Company's 2013 Stock Plan (the "Plan") and the Option Agreement (as defined below).

1. **Exercise of Option.** Subject to the terms and conditions hereof, Purchaser hereby elects to exercise his or her option to purchase shares of the Common Stock (the "Shares") of the Company under and pursuant to the Plan, the Notice of Stock Option Grant and the Stock Option Agreement granted (the "Option Agreement"). The purchase price for the Shares shall be $ per Share, for a total purchase price of $.

2. **Time and Place of Exercise.** The purchase and sale of the Shares under this Agreement shall occur at the principal office of the Company simultaneously with the execution and delivery of this Agreement, the payment of the aggregate exercise price by any method permitted in Section 4 of the Option Agreement, and the satisfaction of any applicable tax, withholding, required deductions or other payments, all in accordance with the provisions of Section 3(b) of the Option Agreement. The Company shall issue the Shares to Purchaser by entering such Shares in Purchaser's name as of such date in the books and records of the Company or, if applicable, a duly authorized transfer agent of the Company, against payment of the exercise price therefor by Purchaser. If applicable, the Company will deliver to Purchaser a certificate representing the Shares as soon as practicable following such date.

3. **Limitations on Transfer.** In addition to any other limitation on transfer created by Applicable Laws and the Plan, Purchaser shall not assign, encumber or dispose of any interest in the Shares except in compliance with the Stockholders Agreement.

(a) **Restrictions Binding on Transferees.** All transferees of Shares or any interest therein will receive and hold such Shares or interest subject to the provisions of this Agreement, the Plan, the Stockholders Agreement and/or the Registration Rights Agreement, as applicable, and the terms of the Option Agreement, including, without limitation, Section 7 of the Option Agreement. Any sale or transfer of the Shares shall be void unless the provisions of this Agreement are satisfied.

(b) **Lock-Up Agreement.** The lock-up provisions set forth in Section 7 of the Option Agreement shall apply to the Shares issued upon exercise of the Option hereunder and Purchaser reaffirms Purchaser's obligations set forth therein.

4. **Investment and Taxation Representations.** In connection with the purchase of the Shares, Purchaser represents to the Company the following:

(a) Purchaser is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Shares. Purchaser is purchasing the Shares for investment for Purchaser's own account only and not with a view to, or for resale in connection with, any "distribution" thereof within the meaning of the Securities Act or under any applicable provision of state law. Purchaser does not have any present intention to transfer the Shares to any other person or entity.

(b) Purchaser understands that the Shares have not been registered under the Securities Act by reason of a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of Purchaser's investment intent as expressed herein.

(c) Purchaser further acknowledges and understands that the securities must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available. Purchaser further acknowledges and understands that the Company is under no obligation to register the securities.

(d) Purchaser is familiar with the provisions of Rule 144, promulgated under the Securities Act, which, in substance, permits limited public resale of "restricted securities" acquired, directly or indirectly, from the issuer of the securities (or from an affiliate of such issuer), in a non-public offering subject to the satisfaction of certain conditions. Purchaser understands that the Company provides no assurances as to whether he or she will be able to resell any or all of the Shares pursuant to Rule 144, which rule requires, among other things, that the Company be subject to the reporting requirements of the Exchange Act, that resales of securities take place only after the holder of the Shares has held the Shares for certain specified time periods, and under certain circumstances, that resales of securities be limited in volume and take place only pursuant to brokered transactions. Notwithstanding this Section 4(d), Purchaser acknowledges and agrees to the restrictions set forth in Section 4(e) below.

(e) Purchaser further understands that in the event all of the applicable requirements of Rule 144 are not satisfied, registration under the Securities Act, compliance with Regulation A, or some other registration exemption will be required; and that, notwithstanding the fact that Rule 144 is not exclusive, the Staff of the Securities and Exchange Commission has expressed its opinion that persons proposing to sell private placement securities other than in a registered offering and otherwise than pursuant to Rule 144 will have a substantial burden of proof in establishing that an exemption from registration is available for such offers or sales, and that such persons and their respective brokers who participate in such transactions do so at their own risk.

(f) Purchaser understands that Purchaser may suffer adverse tax consequences as a result of Purchaser's purchase or disposition of the Shares. Purchaser represents that Purchaser has consulted any tax consultants Purchaser deems advisable in connection with the purchase or disposition of the Shares and that Purchaser is not relying on the Company for any tax advice.

5. **Voting Provisions.** As condition precedent to entering into this Agreement, Purchaser shall become a party to the Stockholders Agreement as an "Other Stockholder" by executing an the joinder agreement attached thereto and agreeing to be bound by and subject to the terms of the Stockholders Agreement, including the restrictions on transfer contained therein, and to vote the Shares in the capacity of an "Other Stockholder" as defined in the Stockholders Agreement.

6. **Restrictive Legends and Stop-Transfer Orders.**

(A) **Legends.** Any certificate or certificates representing the Shares shall bear such legends as may be required by the Stockholders Agreement, the Plan or the Registration Rights Agreement, as applicable, as well as any legends required by the Company or applicable state and federal corporate and securities laws.

(b) **Stop-Transfer Notices.** Purchaser agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(c) **Refusal to Transfer.** The Company shall not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so transferred.

7. **No Employment Rights.** Nothing in this Agreement shall affect in any manner whatsoever the right or power of the Company, or a parent, subsidiary or affiliate of the Company, to terminate Purchaser's employment or consulting relationship, for any reason, with or without cause.

8. **Waiver of Statutory Information Rights.** Optionee acknowledges and understands that, but for the waiver made herein, Optionee would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the Company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the Company, if any, under the circumstances and in the manner provided in Section 220 of the Delaware General Corporation Law (any and all such rights, and any and all such other rights of Optionee as may be provided for in Section 220, the "Inspection Rights"). In light of the foregoing, until the first sale of Common Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act of 1933, as amended, Optionee hereby unconditionally and irrevocably waives the Inspection Rights, whether such Inspection Rights would be exercised or pursued directly or indirectly pursuant to Section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights. The foregoing waiver applies to the Inspection Rights of Optionee in Optionee's capacity as a stockholder and shall not affect any rights of a director, in his or her capacity as such, under Section 220. The foregoing waiver shall not apply to any contractual inspection rights of Optionee under any written agreement with the Company.

9. **Miscellaneous.**

(a) **Governing Law.** The validity, interpretation, construction and performance of this Agreement, and all acts and transactions pursuant hereto and the rights and obligations of the parties hereto shall be governed, construed and interpreted in accordance with the laws of the state of Delaware, without giving effect to principles of conflicts of law. For purposes of litigating any dispute that may arise directly or indirectly from this Agreement, the parties hereby submit and consent to the exclusive jurisdiction of the state of Delaware and agree that any such litigation shall be conducted only in the courts of Delaware or the federal courts of the United States located in Delaware and no other courts.

(b) **Entire Agreement.** This Agreement, together with the Option Agreement, the Notice and the Plan, sets forth the entire agreement and understanding of the parties relating to the subject matter herein and supersedes all prior or contemporaneous discussions, understandings and agreements, whether oral or written, between them relating to the subject matter hereof.

(c) **Amendments and Waivers.** No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, shall be effective unless in writing signed by the parties to this Agreement. No delay or failure to require performance of any provision of this Agreement shall constitute a waiver of that provision as to that or any other instance.

(d) **Successors and Assigns.** Except as otherwise provided in this Agreement, this Agreement, and the rights and obligations of the parties hereunder, will be binding upon and inure to the benefit of their respective successors, assigns, heirs, executors, administrators and legal representatives. The Company may assign any of its rights and obligations under this Agreement. No other party to this Agreement may assign, whether voluntarily or by operation of law, any of its rights and obligations under this Agreement, except with the prior written consent of the Company.

(e) **Notices.** Any notice, demand or request required or permitted to be given under this Agreement shall be in writing and shall be deemed sufficient when delivered personally or by overnight courier or sent by email, or 48 hours after being deposited in the U.S. mail as certified or registered mail with postage prepaid, addressed to the party to be notified at such party's address as set forth on the signature page, as subsequently modified by written notice, or if no address is specified on the signature page, at the most recent address set forth in the Company's books and records.

(f) **Severability.** If one or more provisions of this Agreement are held to be unenforceable under applicable law, the parties agree to renegotiate such provision in good faith. In the event that the parties cannot reach a mutually agreeable and enforceable replacement for such provision, then (i) such provision shall be excluded from this Agreement, (ii) the balance of the Agreement shall be interpreted as if such provision were so excluded and (iii) the balance of the Agreement shall be enforceable in accordance with its terms.

(g) **Construction.** This Agreement is the result of negotiations between and has been reviewed by each of the parties hereto and their respective counsel, if any; accordingly, this Agreement shall be deemed to be the product of all of the parties hereto, and no ambiguity shall be construed in favor of or against any one of the parties hereto.

(h) **Counterparts.** This Agreement may be executed in any number of which when so executed and delivered shall be deemed an original, and all of which together shall constitute one and the same agreement.

(i) **Electronic Delivery.** The Company may, in its sole discretion, decide to deliver any documents related to this Agreement by electronic means. Purchaser hereby consents to receive such documents by electronic delivery and agrees to participate through an on-line or electronic system established and maintained by the Company or a third party designated by the Company.

(j) **Compliance with Law.** If at any the Company or its counsel shall be of the opinion that any sale or delivery of Shares pursuant to this Agreement is or may in the circumstances be unlawful, or result in the imposition of excise taxes on the Company under the statutes, rules or regulations of any applicable jurisdiction, the Company shall have no obligation to make such sale or delivery, or to make any application or to effect or to maintain any qualification or registration under the Securities Act or otherwise with respect to Shares, and the right to purchase Shares shall be suspended until, in the opinion of said counsel, such sale or delivery shall be lawful and will not result in the imposition of excise taxes on the Company.

The parties have executed this Exercise Agreement as of the date first set forth above.

THE COMPANY:

TWIST BIOSCIENCE CORPORATION

By: _____
(Signature)

Name: _____

Title: _____

Address: _____

_____

PURCHASER:

_____
(PRINT NAME)

_____
(Signature)

Address: _____

_____

Email: _____

I, , spouse of ("Purchaser"), have read and hereby approve the foregoing Agreement. In consideration of the Company's granting my spouse the right to purchase the Shares as set forth in the Agreement, I hereby agree to be bound irrevocably by the Agreement and further agree that any community property or other such interest that I may have in the Shares shall hereby be similarly bound by the Agreement. I hereby appoint my spouse as my attorney-in-fact with respect to any amendment or exercise of any rights under the Agreement.

Spouse of Purchaser (if applicable)

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

NOTICE OF STOCK OPTION GRANT

[Optionee Name]
[Optionee Address Line 1]
[Optionee Address Line 2]

You have been granted an Option to purchase Shares of Common Stock of Twist Bioscience Corporation, a Delaware corporation (the "Company"), as provided in this Notice of Stock Option Grant (this "Notice") and subject to the terms and conditions of the Twist Bioscience Corporation 2013 Stock Plan (the "Plan") and the Stock Option Agreement attached hereto, both of which are made a part of this Notice. Unless otherwise defined in this Notice, capitalized terms used but not defined in this Notice shall have the meanings defined in the Plan.

Date of Grant:	_____
Total Number of Shares:	_____
Exercise Price per Share:	$_____
Designation of Option:	____ Incentive Stock Option ____ Nonstatutory Stock Option
Expiration Date:	_____
Vesting Commencement Date:	_____
Exercise Schedule:	The Option is immediately exercisable as to all Shares underlying this Option.
Vesting Schedule:	So long as your Continuous Service Status does not terminate, the Shares underlying this Option shall vest in accordance with the following schedule: [25% of the Total Number of Shares shall vest on the one year anniversary of the Vesting Commencement Date, and 1/48th of the Total Number of Shares shall vest on the same day of each month thereafter (and if there is no corresponding day, on the last day of the month)].
Termination Period:	You may exercise this Option for 3 month(s) after termination of your Continuous Service Status, except as otherwise provided in Section 5 of the Stock Option Agreement (but in no event later than the Expiration Date). You are responsible for keeping track of these exercise periods following the termination of your Continuous Service Status for any reason. The Company will not provide further notice of such periods.

By your signature and the signature of the Company's representative below, you and the Company agree that this Option is granted under and governed by the terms and conditions of this Notice, the Plan and the Stock Option Agreement. Further, as a condition to the grant of this Option and/or the delivery of any Shares upon the vesting or exercise of this Option, the Company shall have the right to require that you become party to the Stockholders Agreement and/or the Registration Rights Agreement.

In addition, you agree and acknowledge that your rights to any Shares underlying this Option will be earned only as you provide services to the Company over time, that the grant of this Option is not as consideration for services you rendered to the Company prior to your date of hire, and that nothing in this Notice or the attached documents confers upon you any right to continue your employment or consulting relationship with the Company for any period of time, nor does it interfere in any way with your right or the Company's right to terminate that relationship at any time, for any reason, with or without cause. For purposes of this paragraph, the term "Company" will be interpreted to include any Parent, Subsidiary or Affiliate.

THE COMPANY:

TWIST BIOSCIENCE CORPORATION

By: _____
(Signature)

Name: _____

Title: _____

OPTIONEE:

_____
(PRINT NAME)

_____
(Signature)

Address: _____

_____

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

STOCK OPTION AGREEMENT

1. **Grant of Option.** Twist Bioscience Corporation, a Delaware corporation (the "Company"), hereby grants to ("Optionee"), an option (the "Option") to purchase the total number of shares of Common Stock (the "Shares") set forth in the Notice of Stock Option Grant (the "Notice"), at the exercise price per Share set forth in the Notice (the "Exercise Price") subject to the terms, definitions and provisions of the Twist Bioscience Corporation 2013 Stock Plan (the "Plan") adopted by the Company, which is incorporated in this Stock Option Agreement (this "Agreement") by reference. Unless otherwise defined in this Agreement, the terms used in this Agreement or the Notice shall have the meanings defined in the Plan.

2. **Designation of Option.** This Option is intended to be an Incentive Stock Option as defined in Section 422 of the Code only to the extent so designated in the Notice, and to the extent it is not so designated, or to the extent this Option does not or ceases to qualify as an Incentive Stock Option, it shall be treated as a Nonstatutory Stock Option.

Notwithstanding the above, if designated as an Incentive Stock Option, in the event that the Shares subject to this Option (and all other incentive stock options granted to Optionee by the Company or any Parent or Subsidiary, including under other plans) that first become exercisable in any calendar year have an aggregate Fair Market Value (determined for each Share as of the date of grant of the option covering such Share) in excess of $100,000, this Option, to the extent the value thereof is in excess of $100,000, shall be treated as a Nonstatutory Stock Option, in accordance with Section 7(c) of the Plan.

3. **Exercise of Option.** This Option shall be exercisable during its term in accordance with the Exercise Schedule set out in the Notice and with the provisions of Section 7(c) of the Plan as follows:

(a) **Right to Exercise.**

(i) This Option may not be exercised for a fraction of a share.

(ii) In the event of Optionee's death, Disability or other termination of Continuous Service Status, the exercisability of this Option is governed by Section 5 below, subject to the limitations contained in this Section 3.

(iii) In no event may this Option be exercised after the Expiration Date set forth in the Notice.

(b) **Method of Exercise.**

(i) This Option shall be exercisable by execution and delivery of the Early Exercise Notice and Restricted Stock Purchase Agreement attached hereto as Exhibit A, the

Exercise Agreement attached hereto as Exhibit B or of any other form of written notice approved for such purpose by the Company which shall state Optionee's election to exercise this Option, the number of Shares in respect of which this Option is being exercised, and such other representations and agreements as to the holder's investment intent with respect to such Shares as may be required by the Company pursuant to the provisions of the Plan. Such written notice shall be signed by Optionee and shall be delivered to the Company by such means as are determined by the Company in its discretion to constitute adequate delivery. The written notice shall be accompanied by payment of the aggregate Exercise Price for the purchased Shares.

(ii) As a condition to the exercise of this Option and subject to Section 9 of the Plan, Optionee agrees to make adequate provision for federal, state or other applicable tax, withholding, required deductions or other payments, if any, which arise upon the grant, vesting or exercise of this Option, or disposition of Shares, whether by withholding, direct payment to the Company, or otherwise, as determined by the Company in its sole discretion.

(iii) The Company is not obligated, and will have no liability for failure, to issue or deliver any Shares upon exercise of this Option unless such issuance or delivery would comply with the Applicable Laws, with such compliance determined by the Company in consultation with its legal counsel. This Option may not be exercised until such time as the Plan has been approved by the holders of capital stock of the Company, or if the issuance of such Shares upon such exercise or the method of payment of consideration for such Shares would constitute a violation of any Applicable Laws, including any applicable U.S. federal or state securities laws or any other law or regulation, including any rule under Part 221 of Title 12 of the Code of Federal Regulations as promulgated by the Federal Reserve Board. As a condition to the exercise of this Option, the Company may require Optionee to make any representation and warranty to the Company as may be required by the Applicable Laws. Assuming such compliance, for income tax purposes the Shares shall be considered transferred to Optionee on the date on which this Option is exercised with respect to such Shares.

(iv) Subject to compliance with Applicable Laws, this Option shall be deemed to be exercised upon receipt by the Company of the appropriate written notice of exercise accompanied by the Exercise Price and the satisfaction of any applicable obligations described in Section 3(b)(ii) above.

4. **Method of Payment.** Payment of the Exercise Price shall be by cash or check or, following the initial public offering of the Company's Common Stock, by Cashless Exercise pursuant to which the Optionee delivers an irrevocable direction to a securities broker (on a form prescribed by the Company and according to a procedure established by the Company).

5. **Termination of Relationship.** Following the date of termination of Optionee's Continuous Service Status for any reason (the "Termination Date"), Optionee may exercise this Option only as set forth in the Notice and this Section 5. If Optionee does not exercise this Option within the Termination Period set forth in the Notice or the termination periods set forth below, this Option shall terminate in its entirety. In no event, may any Option be exercised after the Expiration Date of this Option as set forth in the Notice.

(a) **General Termination.** In the event of termination of Optionee's Continuous Service Status other than as a result of Optionee's Disability or death or Optionee's termination by the Company for Cause, Optionee may, to the extent Optionee is vested in the Optioned Stock, exercise this Option during the Termination Period set forth in the Notice (but in no event later than the Expiration Date).

(b) **Termination upon Disability of Optionee.** In the event of termination of Optionee's Continuous Service Status as a result of Optionee's Disability, Optionee may, but only within 12 month(s) following the Termination Date, exercise this Option to the extent Optionee is vested in the Optioned Stock.

(c) **Death of Optionee.** In the event of termination of Optionee's Continuous Service Status as a result of Optionee's death, or in the event of Optionee's death within 3 month(s) following Optionee's Termination Date, this Option may be exercised at any time within 12 month(s) following the Termination Date, or if later, 12 month(s) following the date of death (but in each case, in no event later than the Expiration Date) by any beneficiaries designated in accordance with Section 16 of the Plan or, if there are no such beneficiaries, by the Optionee's estate, or by a person who acquired the right to exercise the Option by bequest or inheritance, but only to the extent Optionee is vested in this Option.

(d) **Termination for Cause.** In the event of termination of Optionee's Continuous Service Status by the Company for Cause, this Option (including any vested portion thereof) shall immediately terminate in its entirety upon first notification to Optionee of such termination by the Company for Cause. If Optionee's Continuous Service Status is suspended pending an investigation of whether Optionee's Continuous Service Status will be terminated by the Company for Cause, all Optionee's rights under this Option, including the right to exercise this Option, shall be suspended during the investigation period.

6. **Non-Transferability of Option.** This Option may not be transferred in any manner otherwise than by will or by the laws of descent or distribution and may be exercised during the lifetime of Optionee only by him or her, subject to the terms of the Plan and the Stockholders Agreement. The terms of this Option shall be binding upon the executors, administrators, heirs, successors and assigns of Optionee.

7. **Lock-Up Agreement.** Without limitation on anything in the Stockholders Agreement and/or the Registration Rights Agreement, as applicable, to the extent so requested by the Company or the underwriters in connection with the initial public offering of the Company's securities registered under the Securities Act of 1933, as amended, Optionee shall not directly or indirectly offer, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant for the sale of or otherwise dispose of or transfer any shares held by it for such period, not to exceed (a) one hundred eighty (180) days following the effective date of the relevant registration statement filed under the Securities Act in connection with the Company's initial public offering of registrable securities, or (b) ninety (90) days following the effective date of the relevant registration statement in connection with any other public offering of registrable securities, as such underwriter shall specify reasonably and in good faith.

8. **Effect of Agreement.** Optionee acknowledges receipt of a copy of the Plan and represents that he or she is familiar with the terms and provisions thereof (and has had an opportunity to consult counsel regarding the Option terms), and hereby accepts this Option and agrees to be bound by its contractual terms as set forth herein and in the Plan. Optionee hereby agrees to accept as binding, conclusive and final all decisions and interpretations of the Administrator regarding any questions relating to this Option. In the event of a conflict between the terms and provisions of the Plan and the terms and provisions of the Notice and this Agreement, the Plan terms and provisions shall prevail.

9. **Imposition of Other Requirements.** The Company reserves the right to impose other requirements on Optionee's participation in the Plan, on the Option and on any Award or Shares acquired under the Plan, to the extent the Company determines it is necessary or advisable in order to comply with Applicable Laws or facilitate the administration of the Plan. Optionee agrees to sign any additional agreements or undertakings that may be necessary to accomplish the foregoing, including, without limitation, the Stockholders Agreement and/or the Registration Rights Agreement. Furthermore, Optionee acknowledges that the laws of the country in which Optionee is working at the time of grant, vesting and exercise of the Option or the sale of Shares received pursuant to this Agreement (including any rules or regulations governing securities, foreign exchange, tax, labor, or other matters) may subject Optionee to additional procedural or regulatory requirements that Optionee is and will be solely responsible for and must fulfill.

10. **Electronic Delivery.** The Company may, in its sole discretion, decide to deliver any documents related to Optionee's current or future participation in the Plan by electronic means or to request Optionee's consent to participate in the Plan by electronic means. By accepting this Option grant, Optionee hereby consents to receive such documents by electronic delivery and agrees to participate in the Plan through an on-line or electronic system established and maintained by the Company or a third party designated by the Company.

11. **Miscellaneous.**

(a) **Governing Law.** The validity, interpretation, construction and performance of this Agreement, and all acts and transactions pursuant hereto and the rights and obligations of the parties hereto shall be governed, construed and interpreted in accordance with the laws of the state of Delaware, without giving effect to principles of conflicts of law. For purposes of litigating any dispute that may arise directly or indirectly from this Agreement, the parties hereby submit and consent to the exclusive jurisdiction of the state of Delaware and agree that any such litigation shall be conducted only in the courts of Delaware or the federal courts of the United States located in Delaware and no other courts.

(b) **Entire Agreement.** This Agreement, together with the Plan and the Notice, set forth the entire agreement and understanding of the parties relating to the subject matter herein and supersede all prior or contemporaneous discussions, understandings and agreements, whether oral or written, between them relating to the subject matter hereof.

(c) **Amendments and Waivers.** No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, shall be effective unless in writing signed by the parties to this Agreement. No delay or failure to require performance of any provision of this Agreement shall constitute a waiver of that provision as to that or any other instance.

(d) **Successors and Assigns.** Except as otherwise provided in this Agreement, this Agreement, and the rights and obligations of the parties hereunder, will be binding upon and inure to the benefit of their respective successors, assigns, heirs, executors, administrators and legal representatives. The Company may assign any of its rights and obligations under this Agreement. No other party to this Agreement may assign, whether voluntarily or by operation of law, any of its rights and obligations under this Agreement, except with the prior written consent of the Company.

(e) **Notices.** Any notice, demand or request required or permitted to be given under this Agreement shall be in writing and shall be deemed sufficient when delivered personally or by overnight courier or sent by email, or 48 hours after being deposited in the U.S. mail as certified or registered mail with postage prepaid, addressed to the party to be notified at such party's address as set forth on the signature page, as subsequently modified by written notice, or if no address is specified on the signature page, at the most recent address set forth in the Company's books and records.

(f) **Severability.** If one or more provisions of this Agreement are held to be unenforceable under applicable law, the parties agree to renegotiate such provision in good faith. In the event that the parties cannot reach a mutually agreeable and enforceable replacement for such provision, then (i) such provision shall be excluded from this Agreement, (ii) the balance of the Agreement shall be interpreted as if such provision were so excluded and (iii) the balance of the Agreement shall be enforceable in accordance with its terms.

(g) **Construction.** This Agreement is the result of negotiations between and has been reviewed by each of the parties hereto and their respective counsel, if any; accordingly, this Agreement shall be deemed to be the product of all of the parties hereto, and no ambiguity shall be construed in favor of or against any one of the parties hereto.

(h) **Counterparts.** This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, and all of which together shall constitute one and the same agreement.

(i) **Code Section 409A**. It is intended that the Option comply with or be exempt from Section 409A of the Code, and this Agreement shall be limited, construed and interpreted in accordance with such intent; p*rovided*, that for the avoidance of doubt, this provision shall not be construed to require a gross-up payment in respect of any taxes, interest or penalties imposed on the Optionee as a result of Section 409A of the Code, and by accepting this Option grant, the Optionee agrees and acknowledges that the Company be held liable for any applicable costs, taxes, or penalties associated with this Option or this Agreement under Code Section 409A or otherwise.

EXHIBIT A

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

EARLY EXERCISE NOTICE AND RESTRICTED STOCK PURCHASE AGREEMENT

This Agreement ("Agreement") is made as of by and between Twist Bioscience Corporation, a Delaware corporation (the "Company"), and ("Purchaser"). To the extent any capitalized terms used in this Agreement are not defined, they shall have the meaning ascribed to them in the Company's 2013 Stock Plan (the "Plan") and the Option Agreement (as defined below).

1. **Exercise of Option.** Subject to the terms and conditions hereof, Purchaser hereby elects to exercise his or her option to purchase shares of the Common Stock (the "Shares") of the Company under and pursuant to the Plan, the Notice of Stock Option Grant and the Stock Option Agreement granted (the "Option Agreement"). Of these Shares, Purchaser has elected to purchase of those Shares which have become vested as of the date hereof under the Vesting Schedule set forth in the Notice of Stock Option Grant (the "Vested Shares") and Shares which have not yet vested under such Vesting Schedule (the "Unvested Shares"). The purchase price for the Shares shall be $ per Share for a total purchase price of $. The term "Shares" refers to the purchased Shares and all securities received in connection with the Shares pursuant to stock dividends or splits, all securities received in replacement of the Shares in a recapitalization, merger, reorganization, exchange or the like, and all new, substituted or additional securities or other property to which Purchaser is entitled by reason of Purchaser's ownership of the Shares.

2. **Time and Place of Exercise.** The purchase and sale of the Shares under this Agreement shall occur at the principal office of the Company simultaneously with the execution and delivery of this Agreement, the payment of the aggregate exercise price by any method permitted in Section 4 of the Option Agreement, and the satisfaction of any applicable tax, withholding, required deductions or other payments, all in accordance with the provisions of Section 3(b) of the Option Agreement. The Company shall issue the Shares to Purchaser by entering such Shares in Purchaser's name as of such date in the books and records of the Company or, if applicable, a duly authorized transfer agent of the Company, against payment of the exercise price therefor by Purchaser. If applicable, the Company will deliver to Purchaser a certificate representing the Shares as soon as practicable following such date.

3. **Limitations on Transfer.** In addition to any other limitation on transfer created by Applicable Laws and the Plan, Purchaser shall not assign, encumber or dispose of any interest in the Shares while the Shares are subject to the Company's Repurchase Option (as defined below). After any Shares have been released from such Repurchase Option, Purchaser shall not assign, encumber or dispose of any interest in such Shares except in compliance with the Stockholders Agreement.

(a) **Repurchase Option.**

(i) In the event of the voluntary or involuntary termination of Purchaser's Continuous Service Status with the Company for any reason (including, without limitation, resignation, death or Disability), with or without Cause, the Company shall upon the date of such termination (the "Termination Date") have an irrevocable, exclusive option (the "Repurchase Option") for a period of 3 months from such date to repurchase all or any portion of the Unvested Shares (as defined below) held by Purchaser as of the Termination Date at the original purchase price per Share (adjusted for any stock splits, stock dividends and the like) specified in Section 1. As used herein, "Unvested Shares" means Shares that have not yet been released from the Repurchase Option.

(ii) Unless the Company notifies Purchaser within 3 months from the Termination Date that it does not intend to exercise its Repurchase Option with respect to some or all of the Unvested Shares, the Repurchase Option shall be deemed automatically exercised by the Company as of the end of such 3-month period following such termination, provided that the Company may notify Purchaser that it is exercising its Repurchase Option as of a date prior to the end of such 3-month period. Unless Purchaser is otherwise notified by the Company pursuant to the preceding sentence that the Company does not intend to exercise its Repurchase Option as to some or all of the Unvested Shares to which it applies at the time of termination, execution of this Agreement by Purchaser constitutes written notice to Purchaser of the Company's intention to exercise its Repurchase Option with respect to all Unvested Shares to which such Repurchase Option applies. The Company, at its choice, may satisfy its payment obligation to Purchaser with respect to exercise of the Repurchase Option by either (A) delivering a check to Purchaser in the amount of the purchase price for the Unvested Shares being repurchased, or (B) in the event Purchaser is indebted to the Company, canceling an amount of such indebtedness equal to the purchase price for the Unvested Shares being repurchased, or (C) by a combination of (A) and (B) so that the combined payment and cancellation of indebtedness equals such purchase price. In the event of any deemed automatic exercise of the Repurchase Option pursuant to this Section 3(a)(ii) in which Purchaser is indebted to the Company, such indebtedness equal to the purchase price of the Unvested Shares being repurchased shall be deemed automatically canceled as of the end of such 3-month period following termination of Purchaser's employment or consulting relationship unless the Company otherwise satisfies its payment obligations. As a result of any repurchase of Unvested Shares pursuant to this Section 3(a), the Company shall become the legal and beneficial owner of the Unvested Shares being repurchased and shall have all rights and interest therein or related thereto, and the Company shall have the right to transfer to its own name the number of Unvested Shares being repurchased by the Company, without further action by Purchaser.

(iii) One hundred percent (100%) of the Shares shall initially be subject to the Repurchase Option. The Unvested Shares shall be released from the Repurchase Option in accordance with the Vesting Schedule set forth in the Notice of Stock Option Grant until all Shares are released from the Repurchase Option; provided, however, that such scheduled releases from the Repurchase Option shall immediately cease as of the Termination Date. Fractional shares shall be rounded to the nearest whole share.

(b) **Restrictions Binding on Transferees.** All transferees of Shares or any interest therein will receive and hold such Shares or interest subject to the provisions of this Agreement, the Plan, the Stockholders Agreement and/or the Registration Rights Agreement, as applicable, and the terms of the Option Agreement, including, without limitation, Section 7 of the Option Agreement and, insofar as applicable, the Repurchase Option. In the event the Repurchase Option is deemed exercised by the Company pursuant to Section 3(a)(ii) hereof, the Company may deem any transferee to have transferred the Shares or interest to Purchaser prior to their purchase by the Company, and payment of the purchase price by the Company to such transferee shall be deemed to satisfy Purchaser's obligation to pay such transferee for such Shares or interest, and also to satisfy the Company's obligation to pay Purchaser for such Shares or interest. Any sale or transfer of the Shares shall be void unless the provisions of this Agreement are satisfied.

(c) **Lock-Up Agreement.** The lock-up provisions set forth in Section 7 of the Option Agreement shall apply to the Shares issued upon exercise of the Option hereunder and Purchaser reaffirms Purchaser's obligations set forth therein.

4. **Escrow of Unvested Shares.** For purposes of facilitating the enforcement of the provisions of Section 3(a) above, Purchaser agrees, immediately upon receipt of the stock certificate or, in the case of uncertificated securities, notice of issuance, for the Shares subject to the Repurchase Option, to deliver any such stock certificate(s), as well as a Stock Power in the form attached to this Agreement as Attachment A executed by Purchaser and by Purchaser's spouse (if required for transfer), in blank, to the Secretary of the Company, or the Secretary's designee, to hold such Shares (and such stock certificate(s), if any) and Stock Power in escrow and to take all such actions and to effectuate all such transfers and/or releases as are required in accordance with the terms of this Agreement. Purchaser hereby acknowledges that the Secretary of the Company, or the Secretary's designee, is so appointed as the escrow holder with the foregoing authorities as a material inducement to make this Agreement and that said appointment is coupled with an interest and is accordingly irrevocable. Purchaser agrees that said escrow holder shall not be liable to any party hereof (or to any other party). The escrow holder may rely upon any letter, notice or other document executed by any signature purported to be genuine and may resign at any time. Purchaser agrees that if the Secretary of the Company, or the Secretary's designee, resigns as escrow holder for any or no reason, the Board shall have the power to appoint a successor to serve as escrow holder pursuant to the terms of this Agreement.

5. **Investment and Taxation Representations.** In connection with the purchase of the Shares, Purchaser represents to the Company the following:

(a) Purchaser is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Shares. Purchaser is purchasing the Shares for investment for Purchaser's own account only and not with a view to, or for resale in connection with, any "distribution" thereof within the meaning of the Securities Act or under any applicable provision of state law. Purchaser does not have any present intention to transfer the Shares to any other person or entity.

(b) Purchaser understands that the Shares have not been registered under the Securities Act by reason of a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of Purchaser's investment intent as expressed herein.

(c) Purchaser further acknowledges and understands that the securities must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available. Purchaser further acknowledges and understands that the Company is under no obligation to register the securities.

(d) Purchaser is familiar with the provisions of Rule 144, promulgated under the Securities Act, which, in substance, permits limited public resale of "restricted securities" acquired, directly or indirectly, from the issuer of the securities (or from an affiliate of such issuer), in a non-public offering subject to the satisfaction of certain conditions. Purchaser understands that the Company provides no assurances as to whether he or she will be able to resell any or all of the Shares pursuant to Rule 144, which rule requires, among other things, that the Company be subject to the reporting requirements of the Exchange Act, that resales of securities take place only after the holder of the Shares has held the Shares for certain specified time periods, and under certain circumstances, that resales of securities be limited in volume and take place only pursuant to brokered transactions. Notwithstanding this Section 5(d), Purchaser acknowledges and agrees to the restrictions set forth in Section 5(e) below.

(e) Purchaser further understands that in the event all of the applicable requirements of Rule 144 are not satisfied, registration under the Securities Act, compliance with Regulation A, or some other registration exemption will be required; and that, notwithstanding the fact that Rule 144 is not exclusive, the Staff of the Securities and Exchange Commission has expressed its opinion that persons proposing to sell private placement securities other than in a registered offering and otherwise than pursuant to Rule 144 will have a substantial burden of proof in establishing that an exemption from registration is available for such offers or sales, and that such persons and their respective brokers who participate in such transactions do so at their own risk.

(f) Purchaser understands that Purchaser may suffer adverse tax consequences as a result of Purchaser's purchase or disposition of the Shares. Purchaser represents that Purchaser has consulted any tax consultants Purchaser deems advisable in connection with the purchase or disposition of the Shares and that Purchaser is not relying on the Company for any tax advice.

6. **Voting Provisions.** As condition precedent to entering into this Agreement, Purchaser shall become a party to the Stockholders Agreement as an "Other Stockholder" by executing an the joinder agreement attached thereto and agreeing to be bound by and subject to the terms of the Stockholders Agreement, including the restrictions on transfer contained therein, and to vote the Shares in the capacity of an "Other Stockholder" as defined in the Stockholders Agreement.

7. **Restrictive Legends and Stop-Transfer Orders.**

(a) **Legends.** Any certificate or certificates representing the Shares shall bear such legends as may be required by the Stockholders Agreement, the Plan or the Registration Rights Agreement, as applicable, as well as any legends required by the Company or applicable state and federal corporate and securities laws.

(b) **Stop-Transfer Notices.** Purchaser agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(c) **Refusal to Transfer.** The Company shall not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so transferred.

8. **No Employment Rights.** Nothing in this Agreement shall affect in any manner whatsoever the right or power of the Company, or a parent, subsidiary or affiliate of the Company, to terminate Purchaser's employment or consulting relationship, for any reason, with or without cause.

9. **Section 83(b) Election.**

(a) Purchaser understands that Section 83(a) of the Internal Revenue Code of 1986, as amended (the "Code"), taxes as ordinary income for a Nonstatutory Stock Option and as alternative minimum taxable income for an Incentive Stock Option the difference between the amount paid for the Shares and the Fair Market Value of the Shares as of the date any restrictions on the Shares lapse. In this context, "restriction" means the right of the Company to buy back the Shares pursuant to the Repurchase Option set forth in Section 3(a) of this Agreement. Purchaser understands that Purchaser may elect to be taxed at the time the Shares are purchased, rather than when and as the Repurchase Option expires, by filing an election under Section 83(b) (an "83(b) Election") of the Code with the Internal Revenue Service within 30 days from the date of purchase. Even if the Fair Market Value of the Shares at the time of the execution of this Agreement equals the amount paid for the Shares, the election must be made to avoid income and alternative minimum tax treatment under Section 83(a) in the future. Purchaser understands that failure to file such an election in a timely manner may result in adverse tax consequences for Purchaser. Purchaser further understands that an additional copy of such election form should be filed with his or her federal income tax return for the calendar year in which the date of this Agreement falls. Purchaser acknowledges that the foregoing is only a summary of the effect of United States federal income taxation with respect to purchase of the Shares hereunder, and does not purport to be complete, and is not intended or written to be used, and cannot be used, for the purposes of avoiding taxpayer penalties. Purchaser further acknowledges that the Company has directed Purchaser to seek independent advice regarding the applicable provisions of the Code, the income tax laws of any municipality, state or foreign country in which Purchaser may reside, and the tax consequences of Purchaser's death, and Purchaser has consulted, and has been fully advised by, Purchaser's own tax advisor regarding such tax laws and tax consequences or has knowingly chosen not to consult such a tax advisor. Purchaser further acknowledges that neither the Company nor any subsidiary or representative of the Company has made any warranty or representation to Purchaser with respect to the tax consequences of Purchaser's purchase of the Shares or of the making or failure to make an 83(b) Election. PURCHASER (AND NOT THE

COMPANY, ITS AGENTS OR ANY OTHER PERSON) SHALL BE SOLELY RESPONSIBLE FOR APPROPRIATELY FILING SUCH FORM WITH THE IRS, EVEN IF PURCHASER REQUESTS THE COMPANY, ITS AGENTS OR ANY OTHER PERSON MAKE THIS FILING ON PURCHASER'S BEHALF.

(b) Purchaser agrees that he or she will execute and deliver to the Company with this executed Agreement a copy of the Acknowledgment and Statement of Decision Regarding Section 83(b) Election (the "Acknowledgment") attached hereto as Attachment B. Purchaser further agrees that he or she will execute and submit with the Acknowledgment a copy of the 83(b) Election attached hereto as Attachment C (for tax purposes in connection with the early exercise of an option) if Purchaser has indicated in the Acknowledgment his or her decision to make such an election.

10. **Waiver of Statutory Information Rights.** Purchaser acknowledges and understands that, but for the waiver made herein, Purchaser would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the Company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the Company, if any, under the circumstances and in the manner provided in Section 220 of the General Corporation Law of Delaware (any and all such rights, and any and all such other rights of Purchaser as may be provided for in Section 220, the "Inspection Rights"). In light of the foregoing, until the first sale of Common Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act of 1933, as amended, Purchaser hereby unconditionally and irrevocably waives the Inspection Rights, whether such Inspection Rights would be exercised or pursued directly or indirectly pursuant to Section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights. The foregoing waiver applies to the Inspection Rights of Purchaser in Purchaser's capacity as a stockholder and shall not affect any rights of a director, in his or her capacity as such, under Section 220. The foregoing waiver shall not apply to any contractual inspection rights of Purchaser under any written agreement with the Company.

11. **Miscellaneous.**

(a) **Governing Law.** The validity, interpretation, construction and performance of this Agreement, and all acts and transactions pursuant hereto and the rights and obligations of the parties hereto shall be governed, construed and interpreted in accordance with the laws of the state of Delaware, without giving effect to principles of conflicts of law. For purposes of litigating any dispute that may arise directly or indirectly from this Agreement, the parties hereby submit and consent to the exclusive jurisdiction of the state of Delaware and agree that any such litigation shall be conducted only in the courts of Delaware or the federal courts of the United States located in Delaware and no other courts.

(b) **Entire Agreement.** This Agreement, together with the Option Agreement, the Notice and the Plan, sets forth the entire agreement and understanding of the parties relating to the subject matter herein and supersedes all prior or contemporaneous discussions, understandings and agreements, whether oral or written, between them relating to the subject matter hereof.

(c) **Amendments and Waivers.** No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, shall be effective unless in writing signed by the parties to this Agreement. No delay or failure to require performance of any provision of this Agreement shall constitute a waiver of that provision as to that or any other instance.

(d) **Successors and Assigns.** Except as otherwise provided in this Agreement, this Agreement, and the rights and obligations of the parties hereunder, will be binding upon and inure to the benefit of their respective successors, assigns, heirs, executors, administrators and legal representatives. The Company may assign any of its rights and obligations under this Agreement. No other party to this Agreement may assign, whether voluntarily or by operation of law, any of its rights and obligations under this Agreement, except with the prior written consent of the Company.

(e) **Notices.** Any notice, demand or request required or permitted to be given under this Agreement shall be in writing and shall be deemed sufficient when delivered personally or by overnight courier or sent by email, or 48 hours after being deposited in the U.S. mail as certified or registered mail with postage prepaid, addressed to the party to be notified at such party's address as set forth on the signature page, as subsequently modified by written notice, or if no address is specified on the signature page, at the most recent address set forth in the Company's books and records.

(f) **Severability.** If one or more provisions of this Agreement are held to be unenforceable under applicable law, the parties agree to renegotiate such provision in good faith. In the event that the parties cannot reach a mutually agreeable and enforceable replacement for such provision, then (i) such provision shall be excluded from this Agreement, (ii) the balance of the Agreement shall be interpreted as if such provision were so excluded and (iii) the balance of the Agreement shall be enforceable in accordance with its terms.

(g) **Construction.** This Agreement is the result of negotiations between and has been reviewed by each of the parties hereto and their respective counsel, if any; accordingly, this Agreement shall be deemed to be the product of all of the parties hereto, and no ambiguity shall be construed in favor of or against any one of the parties hereto.

(h) **Counterparts.** This Agreement may be executed in any number of which when so executed and delivered shall be deemed an original, and all of which together shall constitute one and the same agreement.

(i) **Electronic Delivery.** The Company may, in its sole discretion, decide to deliver any documents related to this Agreement by electronic means. Purchaser hereby consents to receive such documents by electronic delivery and agrees to participate through an on-line or electronic system established and maintained by the Company or a third party designated by the Company.

(j) **Compliance with Law.** If at any the Company or its counsel shall be of the opinion that any sale or delivery of Shares pursuant to this Agreement is or may in the circumstances be unlawful, or result in the imposition of excise taxes on the Company under the statutes, rules or regulations of any applicable jurisdiction, the Company shall have no obligation to make such sale or delivery, or to make any application or to effect or to maintain any qualification or registration under the Securities Act or otherwise with respect to Shares, and the right to purchase Shares shall be suspended until, in the opinion of said counsel, such sale or delivery shall be lawful and will not result in the imposition of excise taxes on the Company.

The parties have executed this Early Exercise Notice and Restricted Stock Purchase Agreement as of the date first set forth above.

THE COMPANY:

TWIST BIOSCIENCE CORPORATION

By: _____
(Signature)

Name: _____

Title: _____

Address: _____

_____

PURCHASER:

_____
(PRINT NAME)

_____
(Signature)

Address: _____

_____

Email: _____

I, , spouse of ("Purchaser"), have read and hereby approve the foregoing Agreement. In consideration of the Company's granting my spouse the right to purchase the Shares as set forth in the Agreement, I hereby agree to be bound irrevocably by the Agreement and further agree that any community property or other such interest that I may have in the Shares shall hereby be similarly bound by the Agreement. I hereby appoint my spouse as my attorney-in-fact with respect to any amendment or exercise of any rights under the Agreement.

Spouse of Purchaser (if applicable)

ATTACHMENT A

STOCK POWER

FOR VALUE RECEIVED, the undersigned ("Holder"), hereby sells, assigns and transfers unto ("Transferee") shares of the Common Stock of Twist Bioscience Corporation, a Delaware corporation (the "Company"), standing in Holder's name on the Company's books as Certificate No. CS- whether held in certificated or uncertificated form, and does hereby irrevocably constitute and appoint to transfer said stock on the books of the Company with full power of substitution in the premises.

Dated: _____

HOLDER:

_____
(PRINT NAME)

_____
(Signature)

_____
Spouse of Holder (if applicable)

This Stock Power may only be used as authorized by the Early Exercise Notice and Restricted Stock Purchase Agreement between the Holder and the Company, dated and the exhibits thereto.

Instructions: Please do not fill in any blanks other than the signature line. The purpose of this assignment is to enable the Company to exercise its repurchase option set forth in the Agreement without requiring additional signatures on the part of Holder.

IF YOU WISH TO MAKE A SECTION 83(B) ELECTION, THE FILING OF SUCH ELECTION IS YOUR RESPONSIBILITY.

THE FORM FOR MAKING THIS SECTION 83(B) ELECTION IS ATTACHED TO THIS AGREEMENT.

YOU MUST FILE THIS FORM WITHIN 30 DAYS OF PURCHASING THE SHARES.

YOU (AND NOT THE COMPANY, ANY OF ITS AGENTS OR ANY OTHER PERSON) SHALL BE SOLELY RESPONSIBLE FOR FILING SUCH FORM WITH THE IRS, EVEN IF YOU REQUEST THE COMPANY, ITS AGENTS OR ANY OTHER PERSON TO MAKE THIS FILING ON YOUR BEHALF AND EVEN IF THE COMPANY, ANY OF ITS AGENTS OR ANY OTHER PERSON HAS PREVIOUSLY MADE THIS FILING ON YOUR BEHALF.

The election should be filed by mailing a signed election form by certified mail, return receipt requested to the IRS Service Center where you file your tax returns. See www.irs.gov.

ATTACHMENT B

ACKNOWLEDGMENT AND STATEMENT OF DECISION
REGARDING SECTION 83(b) ELECTION

The undersigned has entered into a stock purchase agreement with Twist Bioscience Corporation, a Delaware corporation (the "Company"), pursuant to which the undersigned is purchasing shares of Common Stock of the Company (the "Shares"). In connection with the purchase of the Shares, the undersigned hereby represents as follows:

1. The undersigned has carefully reviewed the stock purchase agreement pursuant to which the undersigned is purchasing the Shares.

2. The undersigned either [check and complete as applicable]:

(a) has consulted, and has been fully advised by, the undersigned's own tax advisor, , whose business address is , regarding the federal, state and local tax consequences of purchasing the Shares, and particularly regarding the advisability of making elections pursuant to Section 83(b) of the Internal Revenue Code of 1986, as amended (the "Code") and pursuant to the corresponding provisions, if any, of applicable state law; or

(b) has knowingly chosen not to consult such a tax advisor.

3. The undersigned hereby states that the undersigned has decided [check as applicable]:

(a) ____ to make an election pursuant to Section 83(b) of the Code, and is submitting to the Company, together with the undersigned's executed stock purchase agreement, an executed form entitled "Election Under Section 83(b) of the Internal Revenue Code of 1986;" or

(b) ____ not to make an election pursuant to Section 83(b) of the Code.

4. Neither the Company nor any subsidiary or representative of the Company has made any warranty or representation to the undersigned with respect to the tax consequences of the undersigned's purchase of the Shares or of the making or failure to make an election pursuant to Section 83(b) of the Code or the corresponding provisions, if any, of applicable state law.

Dated: _____

PURCHASER:

_____
(PRINT NAME)

_____
(Signature)

_____
Spouse of Purchaser (if applicable)

ATTACHMENT C

ELECTION UNDER SECTION 83(B)
OF THE INTERNAL REVENUE CODE OF 1986

The undersigned taxpayer hereby elects, pursuant to Section 83(b) of the Internal Revenue Code, to include in taxpayer's gross income or alternative minimum taxable income, as applicable, for the current taxable year, the amount of any income that may be taxable to taxpayer in connection with taxpayer's receipt of the property described below:

1. The name, address, taxpayer identification number and taxable year of the undersigned are as follows:

   NAME OF TAXPAYER: NAME OF SPOUSE:

   ADDRESS:

   United States

   IDENTIFICATION NO. OF TAXPAYER:

   IDENTIFICATION NO. OF SPOUSE:

   TAXABLE YEAR:

2. The property with respect to which the election is made is described as follows:

   shares of the Common Stock of Twist Bioscience Corporation, a Delaware corporation (the "Company").

3. The date on which the property was transferred is:

4. The property is subject to the following restrictions:

   Repurchase option at cost in favor of the Company upon termination of taxpayer's employment or consulting relationship.

5. The fair market value at the time of transfer, determined without regard to any restriction other than a restriction which by its terms will never lapse, of such property is: $.

6. The amount (if any) paid for such property: $.

The undersigned has submitted a copy of this statement to the person for whom the services were performed in connection with the undersigned's receipt of the above-described property. The transferee of such property is the person performing the services in connection with the transfer of said property.

The undersigned understands that the foregoing election may not be revoked except with the consent of the Commissioner.

Dated: _____

PURCHASER:

_____
(Signature)

_____
Spouse of Purchaser (if applicable)

EXHIBIT B

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

EXERCISE AGREEMENT

This Exercise Agreement (this "Agreement") is made as of , by and between Twist Bioscience Corporation, a Delaware corporation (the "Company"), and ("Purchaser"). To the extent any capitalized terms used in this Agreement are not defined, they shall have the meaning ascribed to them in the Company's 2013 Stock Plan (the "Plan") and the Option Agreement (as defined below).

1. **Exercise of Option.** Subject to the terms and conditions hereof, Purchaser hereby elects to exercise his or her option to purchase shares of the Common Stock (the "Shares") of the Company under and pursuant to the Plan, the Notice of Stock Option Grant and the Stock Option Agreement granted (the "Option Agreement"). The purchase price for the Shares shall be $ per Share, for a total purchase price of $.

2. **Time and Place of Exercise.** The purchase and sale of the Shares under this Agreement shall occur at the principal office of the Company simultaneously with the execution and delivery of this Agreement, the payment of the aggregate exercise price by any method permitted in Section 4 of the Option Agreement, and the satisfaction of any applicable tax, withholding, required deductions or other payments, all in accordance with the provisions of Section 3(b) of the Option Agreement. The Company shall issue the Shares to Purchaser by entering such Shares in Purchaser's name as of such date in the books and records of the Company or, if applicable, a duly authorized transfer agent of the Company, against payment of the exercise price therefor by Purchaser. If applicable, the Company will deliver to Purchaser a certificate representing the Shares as soon as practicable following such date.

3. **Limitations on Transfer.** In addition to any other limitation on transfer created by Applicable Laws and the Plan, Purchaser shall not assign, encumber or dispose of any interest in the Shares except in compliance with the Stockholders Agreement.

(a) **Restrictions Binding on Transferees.** All transferees of Shares or any interest therein will receive and hold such Shares or interest subject to the provisions of this Agreement, the Plan, the Stockholders Agreement and/or the Registration Rights Agreement, as applicable, and the terms of the Option Agreement, including, without limitation, Section 7 of the Option Agreement. Any sale or transfer of the Shares shall be void unless the provisions of this Agreement are satisfied.

(b) **Lock-Up Agreement.** The lock-up provisions set forth in Section 7 of the Option Agreement shall apply to the Shares issued upon exercise of the Option hereunder and Purchaser reaffirms Purchaser's obligations set forth therein.

4. **Investment and Taxation Representations.** In connection with the purchase of the Shares, Purchaser represents to the Company the following:

(a) Purchaser is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Shares. Purchaser is purchasing the Shares for investment for Purchaser's own account only and not with a view to, or for resale in connection with, any "distribution" thereof within the meaning of the Securities Act or under any applicable provision of state law. Purchaser does not have any present intention to transfer the Shares to any other person or entity.

(b) Purchaser understands that the Shares have not been registered under the Securities Act by reason of a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of Purchaser's investment intent as expressed herein.

(c) Purchaser further acknowledges and understands that the securities must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available. Purchaser further acknowledges and understands that the Company is under no obligation to register the securities.

(d) Purchaser is familiar with the provisions of Rule 144, promulgated under the Securities Act, which, in substance, permits limited public resale of "restricted securities" acquired, directly or indirectly, from the issuer of the securities (or from an affiliate of such issuer), in a non-public offering subject to the satisfaction of certain conditions. Purchaser understands that the Company provides no assurances as to whether he or she will be able to resell any or all of the Shares pursuant to Rule 144, which rule requires, among other things, that the Company be subject to the reporting requirements of the Exchange Act, that resales of securities take place only after the holder of the Shares has held the Shares for certain specified time periods, and under certain circumstances, that resales of securities be limited in volume and take place only pursuant to brokered transactions. Notwithstanding this Section 4(d), Purchaser acknowledges and agrees to the restrictions set forth in Section 4(e) below.

(e) Purchaser further understands that in the event all of the applicable requirements of Rule 144 are not satisfied, registration under the Securities Act, compliance with Regulation A, or some other registration exemption will be required; and that, notwithstanding the fact that Rule 144 is not exclusive, the Staff of the Securities and Exchange Commission has expressed its opinion that persons proposing to sell private placement securities other than in a registered offering and otherwise than pursuant to Rule 144 will have a substantial burden of proof in establishing that an exemption from registration is available for such offers or sales, and that such persons and their respective brokers who participate in such transactions do so at their own risk.

(f) Purchaser understands that Purchaser may suffer adverse tax consequences as a result of Purchaser's purchase or disposition of the Shares. Purchaser represents that Purchaser has consulted any tax consultants Purchaser deems advisable in connection with the purchase or disposition of the Shares and that Purchaser is not relying on the Company for any tax advice.

5. **Voting Provisions.** As condition precedent to entering into this Agreement, Purchaser shall become a party to the Stockholders Agreement as an "Other Stockholder" by executing an the joinder agreement attached thereto and agreeing to be bound by and subject to the terms of the Stockholders Agreement, including the restrictions on transfer contained therein, and to vote the Shares in the capacity of an "Other Stockholder" as defined in the Stockholders Agreement.

6. **Restrictive Legends and Stop-Transfer Orders.**

(A) **Legends.** Any certificate or certificates representing the Shares shall bear such legends as may be required by the Stockholders Agreement, the Plan or the Registration Rights Agreement, as applicable, as well as any legends required by the Company or applicable state and federal corporate and securities laws.

(b) **Stop-Transfer Notices.** Purchaser agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(c) **Refusal to Transfer.** The Company shall not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so transferred.

7. **No Employment Rights.** Nothing in this Agreement shall affect in any manner whatsoever the right or power of the Company, or a parent, subsidiary or affiliate of the Company, to terminate Purchaser's employment or consulting relationship, for any reason, with or without cause.

8. **Waiver of Statutory Information Rights.** Optionee acknowledges and understands that, but for the waiver made herein, Optionee would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the Company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the Company, if any, under the circumstances and in the manner provided in Section 220 of the Delaware General Corporation Law (any and all such rights, and any and all such other rights of Optionee as may be provided for in Section 220, the "Inspection Rights"). In light of the foregoing, until the first sale of Common Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act of 1933, as amended, Optionee hereby unconditionally and irrevocably waives the Inspection Rights, whether such Inspection Rights would be exercised or pursued directly or indirectly pursuant to Section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights. The foregoing waiver applies to the Inspection Rights of Optionee in Optionee's capacity as a stockholder and shall not affect any rights of a director, in his or her capacity as such, under Section 220. The foregoing waiver shall not apply to any contractual inspection rights of Optionee under any written agreement with the Company.

9. **Miscellaneous.**

(a) **Governing Law.** The validity, interpretation, construction and performance of this Agreement, and all acts and transactions pursuant hereto and the rights and obligations of the parties hereto shall be governed, construed and interpreted in accordance with the laws of the state of Delaware, without giving effect to principles of conflicts of law. For purposes of litigating any dispute that may arise directly or indirectly from this Agreement, the parties hereby submit and consent to the exclusive jurisdiction of the state of Delaware and agree that any such litigation shall be conducted only in the courts of Delaware or the federal courts of the United States located in Delaware and no other courts.

(b) **Entire Agreement.** This Agreement, together with the Option Agreement, the Notice and the Plan, sets forth the entire agreement and understanding of the parties relating to the subject matter herein and supersedes all prior or contemporaneous discussions, understandings and agreements, whether oral or written, between them relating to the subject matter hereof.

(c) **Amendments and Waivers.** No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, shall be effective unless in writing signed by the parties to this Agreement. No delay or failure to require performance of any provision of this Agreement shall constitute a waiver of that provision as to that or any other instance.

(d) **Successors and Assigns.** Except as otherwise provided in this Agreement, this Agreement, and the rights and obligations of the parties hereunder, will be binding upon and inure to the benefit of their respective successors, assigns, heirs, executors, administrators and legal representatives. The Company may assign any of its rights and obligations under this Agreement. No other party to this Agreement may assign, whether voluntarily or by operation of law, any of its rights and obligations under this Agreement, except with the prior written consent of the Company.

(e) **Notices.** Any notice, demand or request required or permitted to be given under this Agreement shall be in writing and shall be deemed sufficient when delivered personally or by overnight courier or sent by email, or 48 hours after being deposited in the U.S. mail as certified or registered mail with postage prepaid, addressed to the party to be notified at such party's address as set forth on the signature page, as subsequently modified by written notice, or if no address is specified on the signature page, at the most recent address set forth in the Company's books and records.

(f) **Severability.** If one or more provisions of this Agreement are held to be unenforceable under applicable law, the parties agree to renegotiate such provision in good faith. In the event that the parties cannot reach a mutually agreeable and enforceable replacement for such provision, then (i) such provision shall be excluded from this Agreement, (ii) the balance of the Agreement shall be interpreted as if such provision were so excluded and (iii) the balance of the Agreement shall be enforceable in accordance with its terms.

(g) **Construction.** This Agreement is the result of negotiations between and has been reviewed by each of the parties hereto and their respective counsel, if any; accordingly, this Agreement shall be deemed to be the product of all of the parties hereto, and no ambiguity shall be construed in favor of or against any one of the parties hereto.

(h) **Counterparts.** This Agreement may be executed in any number of which when so executed and delivered shall be deemed an original, and all of which together shall constitute one and the same agreement.

(i) **Electronic Delivery.** The Company may, in its sole discretion, decide to deliver any documents related to this Agreement by electronic means. Purchaser hereby consents to receive such documents by electronic delivery and agrees to participate through an on-line or electronic system established and maintained by the Company or a third party designated by the Company.

(j) **Compliance with Law.** If at any the Company or its counsel shall be of the opinion that any sale or delivery of Shares pursuant to this Agreement is or may in the circumstances be unlawful, or result in the imposition of excise taxes on the Company under the statutes, rules or regulations of any applicable jurisdiction, the Company shall have no obligation to make such sale or delivery, or to make any application or to effect or to maintain any qualification or registration under the Securities Act or otherwise with respect to Shares, and the right to purchase Shares shall be suspended until, in the opinion of said counsel, such sale or delivery shall be lawful and will not result in the imposition of excise taxes on the Company.

The parties have executed this Exercise Agreement as of the date first set forth above.

THE COMPANY:

TWIST BIOSCIENCE CORPORATION

By: _____
(Signature)

Name: _____

Title: _____

Address: _____

_____

PURCHASER:

_____
(PRINT NAME)

_____
(Signature)

Address: _____

_____

Email: _____

I, , spouse of ("Purchaser"), have read and hereby approve the foregoing Agreement. In consideration of the Company's granting my spouse the right to purchase the Shares as set forth in the Agreement, I hereby agree to be bound irrevocably by the Agreement and further agree that any community property or other such interest that I may have in the Shares shall hereby be similarly bound by the Agreement. I hereby appoint my spouse as my attorney-in-fact with respect to any amendment or exercise of any rights under the Agreement.

Spouse of Purchaser (if applicable)

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

NOTICE OF STOCK OPTION GRANT

_____

Address: _____

_____

You have been granted an Option to purchase Shares of Common Stock of Twist Bioscience Corporation, a Delaware corporation (the "Company"), as provided in this Notice of Stock Option Grant (this "Notice") and subject to the terms and conditions of the Twist Bioscience Corporation 2013 Stock Plan (the "Plan") and the Stock Option Agreement attached hereto, both of which are made a part of this Notice. Unless otherwise defined in this Notice, capitalized terms used but not defined in this Notice shall have the meanings defined in the Plan.

Date of Grant:	_____
Total Number of Shares:	_____
Exercise Price per Share:	USD $_____
Designation of Option:	____ Incentive Stock Option ____ Nonstatutory Stock Option
Expiration Date:	_____
Vesting Commencement Date:	_____
Exercise Schedule:	The Option is immediately exercisable as to all Shares underlying this Option.
Vesting Schedule:	So long as your Continuous Service Status does not terminate (and provided that no vesting shall occur following the Termination Date as defined in Section 5 of the Stock Option Agreement unless otherwise determined by the Company in its sole discretion), the Shares underlying this Option shall vest in accordance with the following schedule: 12/48th of the Total Number of Shares shall vest on the one year anniversary of the Vesting Commencement Date, and 1/48th of the Total Number of Shares shall vest on the same day of each month thereafter (and if there is no corresponding day, on the last day of the month).

Termination Period:	You may exercise this Option for 3 month(s) after the Termination Date, except as otherwise provided in Section 5 of the Stock Option Agreement (but in no event later than the Expiration Date). You are responsible for keeping track of these exercise periods following the Termination Date for any reason. The Company will not provide further notice of such periods.

By your signature and the signature of the Company's representative below or by otherwise accepting or exercising this Option, you and the Company agree that this Option is granted under and governed by the terms and conditions of this Notice, the Plan and the Stock Option Agreement (which includes the Country-Specific Addendum). Further, as a condition to the grant of this Option and/or the delivery of any Shares upon the vesting or exercise of this Option, the Company shall have the right to require that you become party to the Stockholders Agreement and/or the Registration Rights Agreement.

In addition, you agree and acknowledge that your rights to any Shares underlying this Option will vest only as you provide services to the Company or its Subsidiary or Affiliate over time (pursuant to your employment or engagement by a 3rd-party entity and your assignment by such 3rd-party entity to the Company or its Subsidiary or Affiliate), that the grant of this Option is not as consideration for services you rendered to the Company or its Subsidiary or Affiliate (as assigned by such 3rd-party as your employer or hiring entity) prior to your date of hire by such entity or your assignment to the Company or any Subsidiary or Affiliate, and that nothing in this Notice or the attached documents establishes any right to employment nor confers upon you any right to continue in your services to the Company or any Subsidiary or Affiliate for any period of time, nor does it interfere in any way with your right or your employer or hiring entity's right to terminate your relationship and any assignment to the Company or its Subsidiary or Affiliate at any time, for any reason, with or without cause, subject to Applicable Laws.

THE COMPANY:

TWIST BIOSCIENCE CORPORATION

By: _____
(Signature)

Name: _____

Title: _____

OPTIONEE:

_____

_____
(Signature)

Address: _____

_____

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

STOCK OPTION AGREEMENT

1. **Grant of Option.** Twist Bioscience Corporation, a Delaware corporation (the "Company"), hereby grants to ("Optionee"), an option (the "Option") to purchase the total number of shares of Common Stock (the "Shares") set forth in the Notice of Stock Option Grant (the "Notice"), at the exercise price per Share set forth in the Notice (the "Exercise Price") subject to the terms, definitions and provisions of the Twist Bioscience Corporation 2013 Stock Plan (the "Plan") adopted by the Company, which is incorporated in this Stock Option Agreement (this "Agreement") by reference. Unless otherwise defined in this Agreement, the terms used in this Agreement or the Notice shall have the meanings defined in the Plan.

2. **Designation of Option.** This Option is intended to be an Incentive Stock Option as defined in Section 422 of the Code only to the extent so designated in the Notice, and to the extent it is not so designated, or to the extent this Option does not or ceases to qualify as an Incentive Stock Option, it shall be treated as a Nonstatutory Stock Option.

Notwithstanding the above, if designated as an Incentive Stock Option, in the event that the Shares subject to this Option (and all other incentive stock options granted to Optionee by the Company or any Parent or Subsidiary, including under other plans) that first become exercisable in any calendar year have an aggregate Fair Market Value (determined for each Share as of the date of grant of the option covering such Share) in excess of USD $100,000, this Option, to the extent the value thereof is in excess of USD $100,000, shall be treated as a Nonstatutory Stock Option, in accordance with Section 7(c) of the Plan.

3. **Exercise of Option.** This Option shall be exercisable during its term in accordance with the Exercise Schedule set out in the Notice and with the provisions of Section 7(c) of the Plan as follows:

(a) **Right to Exercise.**

(i) This Option may not be exercised for a fraction of a share.

(ii) In the event of Optionee's death, Disability or other termination of Continuous Service Status, the exercisability of this Option is governed by Section 5 below, subject to the limitations contained in this Section 3.

(iii) In no event may this Option be exercised after the Expiration Date set forth in the Notice.

(b) **Method of Exercise.**

(i) This Option shall be exercisable by execution and delivery of the Early Exercise Notice and Restricted Stock Purchase Agreement attached hereto as Exhibit A, the

Exercise Agreement attached hereto as Exhibit B or of any other form of written notice approved for such purpose by the Company which shall state Optionee's election to exercise this Option, the number of Shares in respect of which this Option is being exercised, and such other representations and agreements as to the holder's investment intent with respect to such Shares as may be required by the Company pursuant to the provisions of the Plan. Such written notice shall be signed by Optionee and shall be delivered to the Company by such means as are determined by the Company in its discretion to constitute adequate delivery. The written notice shall be accompanied by payment of the aggregate Exercise Price for the purchased Shares.

(ii) As a condition to the grant, vesting and exercise of this Option and as further set forth in Section 9 of the Plan, Optionee hereby agrees to make adequate provision for the satisfaction of (and will indemnify the Company and any Subsidiary or Affiliate for) any applicable taxes or tax withholdings, social contributions, required deductions, or other payments, if any ("Tax-Related Items"), which arise upon the grant, vesting or exercise of this Option, ownership or disposition of Shares, receipt of dividends, if any, or otherwise in connection with this Option or the Shares, whether by withholding, direct payment to the Company, or otherwise as determined by the Company in its sole discretion. Regardless of any action the Company or any Subsidiary or Affiliate takes with respect to any or all applicable Tax-Related Items, Optionee acknowledges and agrees that the ultimate liability for all Tax-Related Items is and remains Optionee's responsibility and may exceed any amount actually withheld by the Company or any Subsidiary or Affiliate. Optionee further acknowledges and agrees that Optionee is solely responsible for filing all relevant documentation that may be required in relation to this Option or any Tax-Related Items (other than filings or documentation that is the specific obligation of the Company or any Subsidiary or Affiliate pursuant to Applicable Law), such as but not limited to personal income tax returns or reporting statements in relation to the grant, vesting or exercise of this Option, the holding of Shares or any bank or brokerage account, the subsequent sale of Shares, and the receipt of any dividends. Optionee further acknowledges that the Company makes no representations or undertakings regarding the treatment of any Tax-Related Items and does not commit to and is under no obligation to structure the terms or any aspect of the Option to reduce or eliminate Optionee's liability for Tax-Related Items or achieve any particular tax result. Optionee also understands that Applicable Laws may require varying Share or option valuation methods for purposes of calculating Tax-Related Items, and the Company assumes no responsibility or liability in relation to any such valuation or for any calculation or reporting of income or Tax-Related Items that may be required of Optionee under Applicable Laws. Further, if Optionee has become subject to Tax-Related Items in more than one jurisdiction, Optionee acknowledges that the Company or any Subsidiary or Affiliate may be required to withhold or account for Tax-Related Items in more than one jurisdiction.

(iii) The Company is not obligated, and will have no liability for failure to issue or deliver any Shares upon exercise of this Option unless such issuance or delivery would comply with the Applicable Laws, with such compliance determined by the Company in consultation with its legal counsel. Furthermore, Optionee understands that the Applicable Laws of the country in which Optionee is residing or working at the time of grant, vesting, and/or exercise of this Option (including any rules or regulations governing securities, foreign exchange, tax, labor or other matters) may restrict or prevent exercise of this Option. This Option may not be exercised until such time as the Plan has been approved by the holders of capital stock of the Company, or if the issuance of such Shares upon such exercise or the method of payment of

consideration for such Shares would constitute a violation of any Applicable Laws, including any applicable U.S. federal or state securities laws or any other law or regulation, including any rule under Part 221 of Title 12 of the Code of Federal Regulations as promulgated by the Federal Reserve Board. As a condition to the exercise of this Option, the Company may require Optionee to make any representation and warranty to the Company as may be required by the Applicable Laws. Assuming such compliance, for income tax purposes the Shares shall be considered transferred to Optionee on the date on which this Option is exercised with respect to such Shares, subject to Applicable Laws.

(iv) Subject to compliance with Applicable Laws, this Option shall be deemed to be exercised upon receipt by the Company of the appropriate written notice of exercise accompanied by the Exercise Price and the satisfaction of any applicable obligations described in Section 3(b)(ii) above.

4. **Method of Payment.** Unless otherwise specified by the Company in its sole discretion to comply with Applicable Laws or facilitate the administration of the Plan, payment of the Exercise Price shall be by cash or check or, following the initial public offering of the Company's Common Stock, by Cashless Exercise pursuant to which the Optionee delivers an irrevocable direction to a securities broker (on a form prescribed by the Company and according to a procedure established by the Company).

Optionee understands and agrees that, if required by the Company or Applicable Laws, any cross-border cash remittance made to exercise this Option or transfer proceeds received upon the sale of Shares must be made through a locally authorized financial institution or registered foreign exchange agency and may require Optionee to provide to such entity certain information regarding the transaction. Moreover, Optionee understands and agrees that the future value of the underlying Shares is unknown and cannot be predicted with certainty and may decrease in value, even below the Exercise Price. Optionee understands that neither the Company nor any Subsidiary or Affiliate is responsible for any foreign exchange fluctuation between local currency and the United States Dollar or the selection by the Company or any Subsidiary or Affiliate in its sole discretion of an applicable foreign currency exchange rate that may affect the value of the Option (or the calculation of income or Tax-Related Items thereunder).

5. **Termination of Relationship.** Following the date of termination of Optionee's Continuous Service Status for any reason (the "Termination Date"), Optionee may exercise this Option only as set forth in the Notice and this Section 5. If Optionee does not exercise this Option within the Termination Period set forth in the Notice or the termination periods set forth below, this Option shall terminate in its entirety. In no event, may any Option be exercised after the Expiration Date of this Option as set forth in the Notice. For the avoidance of doubt and for purposes of this Option only, termination of Continuous Service Status and the Termination Date will be deemed to occur as of the date Optionee is no longer actively providing services as an Employee or Consultant (except, in certain circumstances, to the extent Optionee is on a Company-approved leave of absence and subject to any Company policy or Applicable Laws regarding such leaves) and will not be extended by any notice period or "garden leave" that may be required contractually or under Applicable Laws, unless otherwise determined by the Company in its sole discretion.

(a) **General Termination.** In the event of termination of Optionee's Continuous Service Status other than as a result of Optionee's Disability or death or Optionee's termination by the Company for Cause, Optionee may, to the extent Optionee is vested in the Optioned Stock, exercise this Option during the Termination Period set forth in the Notice (but in no event later than the Expiration Date).

(b) **Termination upon Disability of Optionee.** In the event of termination of Optionee's Continuous Service Status as a result of Optionee's Disability, Optionee may, but only within 12 month(s) following the Termination Date, exercise this Option to the extent Optionee is vested in the Optioned Stock.

(c) **Death of Optionee.** In the event of termination of Optionee's Continuous Service Status as a result of Optionee's death, or in the event of Optionee's death within 3 month(s) following Optionee's Termination Date, this Option may be exercised at any time within 12 month(s) following the Termination Date, or if later, 12 month(s) following the date of death (but in each case, in no event later than the Expiration Date) by any beneficiaries designated in accordance with Section 16 of the Plan or, if there are no such beneficiaries, by the Optionee's estate, or by a person who acquired the right to exercise the Option by bequest or inheritance, but only to the extent Optionee is vested in this Option.

(d) **Termination for Cause.** In the event of termination of Optionee's Continuous Service Status by the Company for Cause, this Option (including any vested portion thereof) shall immediately terminate in its entirety upon first notification to Optionee of such termination by the Company for Cause. If Optionee's Continuous Service Status is suspended pending an investigation of whether Optionee's Continuous Service Status will be terminated by the Company for Cause, all Optionee's rights under this Option, including the right to exercise this Option, shall be suspended during the investigation period.

6. **Non-Transferability of Option.** This Option may not be transferred in any manner otherwise than by will or by the laws of descent or distribution and may be exercised during the lifetime of Optionee only by him or her, subject to the terms of the Plan and the Stockholders Agreement. The terms of this Option shall be binding upon the executors, administrators, heirs, successors and assigns of Optionee.

7. **Lock-Up Agreement.** Without limitation on anything in the Stockholders Agreement and/or the Registration Rights Agreement, as applicable, to the extent so requested by the Company or the underwriters in connection with the initial public offering of the Company's securities registered under the Securities Act of 1933, as amended, Optionee shall not directly or indirectly offer, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant for the sale of or otherwise dispose of or transfer any shares held by it for such period, not to exceed (a) one hundred eighty (180) days following the effective date of the relevant registration statement filed under the Securities Act in connection with the Company's initial public offering of registrable securities, or (b) ninety (90) days following the effective date of the relevant registration statement in connection with any other public offering of registrable securities, as such underwriter shall specify reasonably and in good faith.

8. **Effect of Agreement.** Optionee acknowledges receipt of a copy of the Plan and represents that he or she is familiar with the terms and provisions thereof (and has had an opportunity to consult counsel regarding the Option terms), and hereby accepts this Option and agrees to be bound by its contractual terms as set forth herein and in the Plan. Optionee hereby agrees to accept as binding, conclusive and final all decisions and interpretations of the Administrator regarding any questions relating to this Option. In the event of a conflict between the terms and provisions of the Plan and the terms and provisions of the Notice and this Agreement, the Plan terms and provisions shall prevail.

9. **Imposition of Other Requirements.** The Company reserves the right, without Optionee's consent, to cancel or forfeit outstanding grants or impose other requirements on Optionee's participation in the Plan, on this Option and the Shares subject to this Option and on any other Award or Shares acquired under the Plan, to the extent the Company determines it is necessary or advisable in order to comply with Applicable Laws or facilitate the administration of the Plan. Optionee agrees to sign any additional agreements or undertakings that may be necessary to accomplish the foregoing. Furthermore, Optionee acknowledges that the Applicable Laws of the country in which Optionee is residing or working at the time of grant, holding, vesting, and exercise of the Option or the holding or sale of Shares received pursuant to the Option (including any rules or regulations governing securities, foreign exchange, tax, labor, or other matters) may subject Optionee to additional procedural or regulatory requirements that Optionee is and will be solely responsible for and must fulfill. If applicable, such requirements may be outlined in but are not limited to the Country-Specific Addendum (the "Addendum") attached hereto, which forms part of this Agreement. Notwithstanding any provision herein, Optionee's participation in the Plan shall be subject to any applicable special terms and conditions or disclosures as set forth in the Addendum. The Optionee also understands and agrees that if the Optionee works, resides, moves to, or otherwise is or becomes subject to Applicable Laws or Company policies of another jurisdiction at any time, certain country-specific notices, disclaimers and/or terms and conditions may apply to him as from the date of grant, unless otherwise determined by the Company in its sole discretion.

10. **Electronic Delivery and Translation.** The Company may, in its sole discretion, decide to deliver any documents related to Optionee's current or future participation in the Plan, this Option, the Shares subject to this Option, any other Company Securities or any other Company-related documents, by electronic means. By accepting this Option, whether electronically or otherwise, Optionee hereby (i) consents to receive such documents by electronic means, (ii) consents to the use of electronic signatures, and (iii) if applicable, agrees to participate in the Plan and/or receive any such documents through an on-line or electronic system established and maintained by the Company or a third party designated by the Company, including but not limited to the use of electronic signatures or click-through electronic acceptance of terms and conditions. To the extent Optionee has been provided with a copy of this Agreement, the Plan, or any other documents relating to this Option in a language other than English, the English language documents will prevail in case of any ambiguities or divergences as a result of translation.

11. **No Acquired Rights or Employment Rights**. In accepting the Option, Optionee acknowledges that the Plan is established voluntarily by the Company, is discretionary in nature, and may be modified, amended, suspended or terminated by the Company at any time. The grant of the Option is voluntary and occasional and does not create any contractual or other right to

receive future grants of Options, other Awards or benefits in lieu of Options, even if Options have been granted repeatedly in the past, and all decisions with respect to future grants of Options or other Awards, if any, will be at the sole discretion of the Company. In addition, Optionee's participation in the Plan is voluntary, and the Option and the Shares subject to the Option are extraordinary items that do not constitute regular compensation for services rendered to the Company or any Subsidiary or Affiliate and are outside the scope of Optionee's employment contract, if any. The Option and the Shares subject to the Option are not intended to replace any pension rights or compensation and are not part of normal or expected salary or compensation for any purpose, including but not limited to calculating severance payments, if any, upon termination.

Nothing contained in this Agreement is intended to constitute or create a contract of employment, nor shall it constitute or create the right to remain associated with or in the employ of the Company or any Subsidiary or Affiliate for any particular period of time. This Agreement shall not interfere in any way with the right of the Company or any Subsidiary or Affiliate to terminate Optionee's employment or service at any time, subject to Applicable Laws.

12. **Data Privacy**. ***Optionee hereby explicitly and unambiguously consents to the collection, use and transfer, whether in electronic or other form, of Optionee's personal data (as described below) by and among, as applicable, the Company and any Subsidiary or Affiliate or third parties as may be selected by the Company, for the exclusive purpose of implementing, administering, and managing Optionee's participation in the Plan. Optionee understands that refusal or withdrawal of consent may affect Optionee's ability to participate in the Plan or to realize benefits from the Option***.

Optionee understands that the Company and any Subsidiary or Affiliate may hold certain personal information about Optionee, including, but not limited to, Optionee's name, home address and telephone number, date of birth, social insurance number or other identification number, salary, nationality, job title, any shares of stock or directorships held in the Company or any Subsidiary or Affiliate, details of all Options or any other entitlement to Shares awarded, canceled, exercised, vested, unvested or outstanding in Optionee's favor ("Personal Data"). Optionee understands that Personal Data may be transferred to any Subsidiary or Affiliate or third parties assisting in the implementation, administration and management of the Plan, that these recipients may be located in the United States, Optionee's country, or elsewhere, and that the recipient's country may have different data privacy laws and protections than Optionee's country.

13. **Optionee Representations (Regulation S).** Optionee represents and warrants that he or she is not a U.S. Person (as defined in Rule 902(k) of Regulation S of the Securities Act of 1933, as amended (the "Securities Act"), as it may be amended from time to time ("Regulation S")) and was not in the United States as of the Date of Grant and is not currently in the United States. Optionee further acknowledges that the Company has not engaged in any directed selling efforts (as such term is defined in Regulation S) in connection with the option to purchase Shares granted by this Agreement. Optionee acknowledges that the grant of this Option and the offer and sale of Shares acquired upon exercise of this Option is being made in compliance with Regulation S which, among other things, restricts the transfer of the Shares underlying the Option as set forth in the Exercise Agreement.

14. **Miscellaneous.**

(a) **Governing Law.** The validity, interpretation, construction and performance of this Agreement, and all acts and transactions pursuant hereto and the rights and obligations of the parties hereto shall be governed, construed and interpreted in accordance with the laws of the state of Delaware, without giving effect to principles of conflicts of law. For purposes of litigating any dispute that may arise directly or indirectly from this Agreement, the parties hereby submit and consent to the exclusive jurisdiction of the state of Delaware and agree that any such litigation shall be conducted only in the courts of Delaware or the federal courts of the United States located in Delaware and no other courts.

(b) **Entire Agreement.** This Agreement, together with the Plan and the Notice, set forth the entire agreement and understanding of the parties relating to the subject matter herein and supersede all prior or contemporaneous discussions, understandings and agreements, whether oral or written, between them relating to the subject matter hereof.

(c) **Amendments and Waivers.** No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, shall be effective unless in writing signed by the parties to this Agreement. No delay or failure to require performance of any provision of this Agreement shall constitute a waiver of that provision as to that or any other instance.

(d) **Successors and Assigns.** Except as otherwise provided in this Agreement, this Agreement, and the rights and obligations of the parties hereunder, will be binding upon and inure to the benefit of their respective successors, assigns, heirs, executors, administrators and legal representatives. The Company may assign any of its rights and obligations under this Agreement. No other party to this Agreement may assign, whether voluntarily or by operation of law, any of its rights and obligations under this Agreement, except with the prior written consent of the Company.

(e) **Notices.** Any notice, demand or request required or permitted to be given under this Agreement shall be in writing and shall be deemed sufficient when delivered personally or by overnight courier or sent by email, or 48 hours after being deposited in the U.S. mail as certified or registered mail with postage prepaid, addressed to the party to be notified at such party's address as set forth on the signature page, as subsequently modified by written notice, or if no address is specified on the signature page, at the most recent address set forth in the Company's books and records.

(f) **Severability.** If one or more provisions of this Agreement are held to be unenforceable under applicable law, the parties agree to renegotiate such provision in good faith. In the event that the parties cannot reach a mutually agreeable and enforceable replacement for such provision, then (i) such provision shall be excluded from this Agreement, (ii) the balance of the Agreement shall be interpreted as if such provision were so excluded and (iii) the balance of the Agreement shall be enforceable in accordance with its terms.

(g) **Construction.** This Agreement is the result of negotiations between and has been reviewed by each of the parties hereto and their respective counsel, if any; accordingly, this Agreement shall be deemed to be the product of all of the parties hereto, and no ambiguity shall be construed in favor of or against any one of the parties hereto.

(h) **Counterparts.** This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, and all of which together shall constitute one and the same agreement.

(i) **Code Section 409A**. It is intended that the Option comply with or be exempt from Section 409A of the Code, and this Agreement shall be limited, construed and interpreted in accordance with such intent; p*rovided*, that for the avoidance of doubt, this provision shall not be construed to require a gross-up payment in respect of any taxes, interest or penalties imposed on the Optionee as a result of Section 409A of the Code, and by accepting this Option grant, the Optionee agrees and acknowledges that the Company be held liable for any applicable costs, taxes, or penalties associated with this Option or this Agreement under Code Section 409A or otherwise.

Country-Specific Addendum

This Addendum includes additional country-specific notices, disclaimers, and/or terms and conditions that apply to individuals who are working or residing in the countries listed below and that may be material to Optionee's participation in the Plan. Such notices, disclaimers, and/or terms and conditions may also apply, as from the date of grant, if the Optionee moves to or otherwise is or becomes subject to the Applicable Laws or company policies of the country listed. However, because foreign exchange regulations and other local laws are subject to frequent change, Optionee is advised to seek advice from his or her own personal legal and tax advisor prior to accepting or exercising an Option or holding or selling Shares acquired under the Plan. The Company is not providing any tax, legal or financial advice, nor is the Company making any recommendations regarding Optionee's acceptance of the Option or participation in the Plan. Unless otherwise noted below, capitalized terms shall have the same meaning assigned to them under the Plan, the Notice of Stock Option Grant and the Stock Option Agreement. This Addendum forms part of the Stock Option Agreement and should be read in conjunction with the Stock Option Agreement and the Plan.

Securities Law Notice: Unless otherwise noted, neither the Company nor the Shares are registered with any local stock exchange or under the control of any local securities regulator outside the United States. The Stock Option Agreement (of which this Addendum is a part), the Notice of Stock Option Grant, the Plan, and any other communications or materials that you may receive regarding participation in the Plan do not constitute advertising or an offering of securities outside the United States, and the issuance of securities described in any Plan-related documents is not intended for public offering or circulation in your jurisdiction.

European Union The following supplements Section 12 of the Stock Option Agreement:

Data Privacy. ***Optionee understands that Personal Data will be held only as long as is necessary to implement, administer and manage the Optionee's participation in the Plan. The Optionee understands that he or she may, at any time, view his or her Personal Data, request additional information about the storage and processing of Personal Data, require any necessary amendments to Personal Data without cost or refuse or withdraw the consents herein by contacting in writing the Company's representative relating to Plan or Option matters, who may be contacted at [insert].***

Belgium **Belgium Option Acceptance.** For Belgian tax purposes you are not permitted to accept this Option grant until after the 60th day following the Offer Date, which is defined under Belgian tax law as the date that the grant (including this Agreement and other relevant documentation) is communicated to you. Any acceptance of this option shall be automatically deemed to be accepted after the 60th day following such Offer Date. You should consult with your personal tax advisor regarding the Option and your liability for income taxes and social contributions.

Denmark

Foreign Account Reporting. Danish resident holders of non-Danish bank accounts or accounts with non-Danish brokers should submit certain forms to the Danish tax authorities:

Erklæring V regarding shares deposited with a non-Danish bank or broker (https://www.skat.dk/SKAT.aspx?oId=90030)
Erklæring K regarding money deposited with a non-Danish bank or broker (https://www.skat.dk/SKAT.aspx?oId=73344

Singapore

Securities Law Notice. This offer and the Shares to be issued hereunder shall be made available through this platform/facility and are offered to you in reliance on the exemption under section 272A (1) of the Securities and Futures Act (Chapter 289) of Singapore (the "SFA"). These offers are not made in or accompanied by a prospectus that is registered by the Monetary Authority of Singapore (the "Authority"). Apart from being subjected to the general resale restriction under Section 257 of the SFA, any and all Shares to be issued hereunder shall therefore not be subsequently sold to any person, unless the offer resulting in such subsequent sale is made in compliance with Subdivisions (2) and (3) of Part XII Division (1), in reliance on subsection (8)(c) or any other exemption under any provision of Subdivision (4) of Part XII Division (1) (other than this subsection), or where at least 6 months have elapsed from the date the securities were acquired under the initial offer, in reliance on the exemption under this subsection.

Director Reporting. If you are a director or shadow director of the Company or an affiliate, you may be subject to special reporting requirements with regard to the acquisition of shares or rights over shares. Please contact your personal legal advisor for further details if you are a director or shadow director.

Exit Tax / Deemed Exercise Rule. If you are deemed by the Singapore tax authorities to have received Options in relation to your employment in Singapore, notwithstanding the fact that you are not employed by the Company or any Subsidiary or Affiliate, please note that if, prior to the exercise of the Options, you are 1) a permanent resident of Singapore and leave Singapore permanently or are transferred out of Singapore; or 2) neither a Singapore citizen nor permanent resident and either cease employment in Singapore or leave Singapore for any period exceeding 3 months, you will likely be taxed on the Options on a "deemed exercise" basis, even if your Options have not yet vested. You should discuss your tax treatment with your personal tax advisor.

United Kingdom The following supplements Section 3(b)(ii) of the Agreement:

Withholding of Tax. If payment or withholding (if applicable) of the Tax-Related Items is not made within ninety (90) days of the end of the UK tax year in which the event giving rise to the Tax-Related Items occurs (the "Due Date") or such other period specified in Section 222(1)(c) of the Income Tax (Earnings and Pensions) Act 2003, the amount of any uncollected Tax-Related Items will constitute a loan owed by Optionee to the Employer (if applicable), effective on the Due Date. Optionee agrees that the loan will bear interest at the then-current Official Rate of Her Majesty's Revenue and Customs ("HMRC"), it will be immediately due and repayable, and the Company or the employer may recover it at any time thereafter by any of the means referred to in Section 3(b)(ii) of the Agreement. Notwithstanding the foregoing, if Optionee is a director or executive officer of the Company (within the meaning of Section 13(k) of the U.S. Securities and Exchange Act of 1934, as amended), Optionee will not be eligible for such a loan to cover the Tax-Related Items. In the event that Optionee is a director or executive officer and the Tax-Related Items are not collected from or paid by Optionee by the Due Date, the amount of any uncollected Tax-Related Items will constitute a benefit to Optionee on which additional income tax and national insurance contributions will be payable. Optionee will be responsible for reporting and paying any income tax due on this additional benefit directly to HMRC under the self-assessment regime.

HMRC National Insurance Contributions. Optionee agrees that:

(a) Tax-Related Items within Section 3(b)(ii) of the Agreement shall include any secondary class 1 (employer) National Insurance Contributions that:

(i) any employer (or former employer) of the Optionee is liable to pay (or reasonably believes it is liable to pay); and

(ii) may be lawfully recovered from the Optionee; and

(b) if required to do so by the Company (at any time when the relevant election can be made) the Optionee shall either:

(i) make a joint election (with the employer or former employer) in the form provided by the Company to transfer to the Optionee the whole or any part of the employer's liability that falls within Section 3(b)(ii) of the Agreement; and

(ii) enter into arrangements required by HM Revenue & Customs (or any other tax authority) to secure the payment of the transferred liability; or

(iii) hereby indemnifies the Company and any Subsidiary or Affiliate against all and any Tax-Related Items which may arise in respect of or in connection with (a) this Option, (b) any option granted or

provided to Optionee by way of rollover, assumption or replacement of this Option, or (c) the Shares or other securities issued or transferred pursuant to the exercise of this Option or any option granted or provided to Optionee by way of rollover, assumption or replacement of this Option.

Restricted Securities Elections. Unless this requirement is waived by the Company, the Optionee shall enter into a joint election (with the appropriate employer) under section 431(1) or section 431(2) of Income Tax (Earnings & Pensions) Act 2003 in respect of:

(a) any Shares acquired (or to be acquired) on exercise of the Option;

(b) any securities acquired (or to be acquired) as a result of any surrender of the Option; and

(c) any securities acquired (or to be acquired) as a result of holding either Shares acquired on exercise of the Option or securities specified in paragraph (b) above or this paragraph (c).

EXHIBIT A

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

EARLY EXERCISE NOTICE AND RESTRICTED STOCK PURCHASE AGREEMENT

This Agreement ("Agreement") is made as of by and between Twist Bioscience Corporation, a Delaware corporation (the "Company"), and ("Purchaser"). To the extent any capitalized terms used in this Agreement are not defined, they shall have the meaning ascribed to them in the Company's 2013 Stock Plan (the "Plan") and the Option Agreement (as defined below).

2. **Exercise of Option.** Subject to the terms and conditions hereof, Purchaser hereby elects to exercise his or her option to purchase shares of the Common Stock (the "Shares") of the Company under and pursuant to the Plan, the Notice of Stock Option Grant and the Stock Option Agreement granted (the "Option Agreement"). Of these Shares, Purchaser has elected to purchase of those Shares which have become vested as of the date hereof under the Vesting Schedule set forth in the Notice of Stock Option Grant (the "Vested Shares") and Shares which have not yet vested under such Vesting Schedule (the "Unvested Shares"). The purchase price for the Shares shall be USD $ per Share for a total purchase price of USD $. The term "Shares" refers to the purchased Shares and all securities received in connection with the Shares pursuant to stock dividends or splits, all securities received in replacement of the Shares in a recapitalization, merger, reorganization, exchange or the like, and all new, substituted or additional securities or other property to which Purchaser is entitled by reason of Purchaser's ownership of the Shares.

3. **Time and Place of Exercise.** The purchase and sale of the Shares under this Agreement shall occur at the principal office of the Company simultaneously with the execution and delivery of this Agreement, the payment of the aggregate exercise price by any method permitted in Section 4 of the Option Agreement, and the satisfaction of any applicable tax, withholding, required deductions or other payments, all in accordance with the provisions of Section 3(b) of the Option Agreement. The Company shall issue the Shares to Purchaser by entering such Shares in Purchaser's name as of such date in the books and records of the Company or, if applicable, a duly authorized transfer agent of the Company, against payment of the exercise price therefor by Purchaser. If applicable, the Company will deliver to Purchaser a certificate representing the Shares as soon as practicable following such date.

4. **Limitations on Transfer.** In addition to any other limitation on transfer created by Applicable Laws and the Plan, Purchaser shall not assign, encumber or dispose of any interest in the Shares while the Shares are subject to the Company's Repurchase Option (as defined below). After any Shares have been released from such Repurchase Option, Purchaser shall not assign, encumber or dispose of any interest in such Shares except in compliance with the Stockholders Agreement.

(a) **Repurchase Option.**

(i) In the event of the voluntary or involuntary termination of Purchaser's Continuous Service Status with the Company for any reason (including, without limitation, resignation, death or Disability), with or without Cause, the Company shall upon the date of such termination (the "Termination Date") have an irrevocable, exclusive option (the "Repurchase Option") for a period of 3 months from such date to repurchase all or any portion of the Unvested Shares (as defined below) held by Purchaser as of the Termination Date at the original purchase price per Share (adjusted for any stock splits, stock dividends and the like) specified in Section 1. As used herein, "Unvested Shares" means Shares that have not yet been released from the Repurchase Option.

(ii) Unless the Company notifies Purchaser within 3 months from the Termination Date that it does not intend to exercise its Repurchase Option with respect to some or all of the Unvested Shares, the Repurchase Option shall be deemed automatically exercised by the Company as of the end of such 3-month period following such termination, provided that the Company may notify Purchaser that it is exercising its Repurchase Option as of a date prior to the end of such 3-month period. Unless Purchaser is otherwise notified by the Company pursuant to the preceding sentence that the Company does not intend to exercise its Repurchase Option as to some or all of the Unvested Shares to which it applies at the time of termination, execution of this Agreement by Purchaser constitutes written notice to Purchaser of the Company's intention to exercise its Repurchase Option with respect to all Unvested Shares to which such Repurchase Option applies. The Company, at its choice, may satisfy its payment obligation to Purchaser with respect to exercise of the Repurchase Option by either (A) delivering a check to Purchaser in the amount of the purchase price for the Unvested Shares being repurchased, or (B) in the event Purchaser is indebted to the Company, canceling an amount of such indebtedness equal to the purchase price for the Unvested Shares being repurchased, or (C) by a combination of (A) and (B) so that the combined payment and cancellation of indebtedness equals such purchase price. In the event of any deemed automatic exercise of the Repurchase Option pursuant to this Section 3(a)(ii) in which Purchaser is indebted to the Company, such indebtedness equal to the purchase price of the Unvested Shares being repurchased shall be deemed automatically canceled as of the end of such 3-month period following termination of Purchaser's employment or consulting relationship unless the Company otherwise satisfies its payment obligations. As a result of any repurchase of Unvested Shares pursuant to this Section 3(a), the Company shall become the legal and beneficial owner of the Unvested Shares being repurchased and shall have all rights and interest therein or related thereto, and the Company shall have the right to transfer to its own name the number of Unvested Shares being repurchased by the Company, without further action by Purchaser.

(iii) One hundred percent (100%) of the Shares shall initially be subject to the Repurchase Option. The Unvested Shares shall be released from the Repurchase Option in accordance with the Vesting Schedule set forth in the Notice of Stock Option Grant until all Shares are released from the Repurchase Option; provided, however, that such scheduled releases from the Repurchase Option shall immediately cease as of the Termination Date. Fractional shares shall be rounded to the nearest whole share.

(b) **Restrictions Binding on Transferees.** All transferees of Shares or any interest therein will receive and hold such Shares or interest subject to the provisions of this

Agreement, the Plan, the Stockholders Agreement and/or the Registration Rights Agreement, as applicable, and the terms of the Option Agreement, including, without limitation, Section 7 of the Option Agreement and, insofar as applicable, the Repurchase Option. In the event the Repurchase Option is deemed exercised by the Company pursuant to Section 3(a)(ii) hereof, the Company may deem any transferee to have transferred the Shares or interest to Purchaser prior to their purchase by the Company, and payment of the purchase price by the Company to such transferee shall be deemed to satisfy Purchaser's obligation to pay such transferee for such Shares or interest, and also to satisfy the Company's obligation to pay Purchaser for such Shares or interest. Any sale or transfer of the Shares shall be void unless the provisions of this Agreement are satisfied.

(c) **Lock-Up Agreement.** The lock-up provisions set forth in Section 7 of the Option Agreement shall apply to the Shares issued upon exercise of the Option hereunder and Purchaser reaffirms Purchaser's obligations set forth therein.

5. **Escrow of Unvested Shares.** For purposes of facilitating the enforcement of the provisions of Section 3(a) above, Purchaser agrees, immediately upon receipt of the stock certificate or, in the case of uncertificated securities, notice of issuance, for the Shares subject to the Repurchase Option, to deliver any such stock certificate(s), as well as a Stock Power in the form attached to this Agreement as Attachment A executed by Purchaser and by Purchaser's spouse (if required for transfer), in blank, to the Secretary of the Company, or the Secretary's designee, to hold such Shares (and such stock certificate(s), if any) and Stock Power in escrow and to take all such actions and to effectuate all such transfers and/or releases as are required in accordance with the terms of this Agreement. Purchaser hereby acknowledges that the Secretary of the Company, or the Secretary's designee, is so appointed as the escrow holder with the foregoing authorities as a material inducement to make this Agreement and that said appointment is coupled with an interest and is accordingly irrevocable. Purchaser agrees that said escrow holder shall not be liable to any party hereof (or to any other party). The escrow holder may rely upon any letter, notice or other document executed by any signature purported to be genuine and may resign at any time. Purchaser agrees that if the Secretary of the Company, or the Secretary's designee, resigns as escrow holder for any or no reason, the Board shall have the power to appoint a successor to serve as escrow holder pursuant to the terms of this Agreement.

6. **Investment and Taxation Representations.** In connection with the purchase of the Shares, Purchaser represents to the Company the following:

(a) Purchaser is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Shares. Purchaser is purchasing the Shares for investment for Purchaser's own account only and not with a view to, or for resale in connection with, any "distribution" thereof within the meaning of the Securities Act or under any applicable provision of state law. Purchaser does not have any present intention to transfer the Shares to any other person or entity.

(b) Purchaser understands that the Shares have not been registered under the Securities Act by reason of a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of Purchaser's investment intent as expressed herein.

(c) Purchaser further acknowledges and understands that the securities must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available and unless any such disposition is in compliance with Regulation S. Purchaser further acknowledges and understands that the Company is under no obligation to register the securities.

(d) Purchaser is familiar with the provisions of Rule 144 and Regulation S (Rules 901 through 905 and the Preliminary Notes thereto), each promulgated under the Securities Act, which, in substance, permits limited public resale of "restricted securities" acquired, directly or indirectly, from the issuer of the securities (or from an affiliate of such issuer), in a non-public offering subject to the satisfaction of certain conditions. Purchaser understands that the Company provides no assurances as to whether he or she will be able to resell any or all of the Shares pursuant to Rule 144, which rule requires, among other things, that the Company be subject to the reporting requirements of the Exchange Act, that resales of securities take place only after the holder of the Shares has held the Shares for certain specified time periods, and under certain circumstances, that resales of securities be limited in volume and take place only pursuant to brokered transactions. Purchaser further understands that the Company provides no assurances as to whether Purchaser will be able to sell any or all of the Shares pursuant to Regulation S. Notwithstanding this Section 5(d), Purchaser acknowledges and agrees to the restrictions set forth in Section 5(e) below.

(e) Purchaser further understands that in the event all of the applicable requirements of Rule 144 or Regulation S are not satisfied, registration under the Securities Act, compliance with Regulation A, or some other registration exemption will be required; and that, notwithstanding the fact that Rule 144 and Regulation S are not exclusive, the Staff of the Securities and Exchange Commission has expressed its opinion that persons proposing to sell private placement securities other than in a registered offering and otherwise than pursuant to Rule 144 or Regulation S will have a substantial burden of proof in establishing that an exemption from registration is available for such offers or sales, and that such persons and their respective brokers who participate in such transactions do so at their own risk.

(f) Purchaser understands that Purchaser may suffer adverse tax consequences as a result of Purchaser's purchase or disposition of the Shares. Purchaser represents that Purchaser has consulted any tax consultants Purchaser deems advisable in connection with the purchase or disposition of the Shares and that Purchaser is not relying on the Company for any tax advice.

(g) Purchaser hereby acknowledges that Purchaser has received, read, and understands this Agreement and attachments thereto and agrees to be bound by its terms and conditions, including (without limitation), Section 9 below. Purchaser has signed and understands and confirms the representations made in the Investor Certificate attached to this Agreement as Exhibit C.

7. **Voting Provisions.** As condition precedent to entering into this Agreement, Purchaser shall become a party to the Stockholders Agreement as an "Other Stockholder" by executing an the joinder agreement attached thereto and agreeing to be bound by and subject to the terms of the Stockholders Agreement, including the restrictions on transfer contained therein, and to vote the Shares in the capacity of an "Other Stockholder" as defined in the Stockholders Agreement.

8. **Restrictive Legends and Stop-Transfer Orders.**

(a) **Legends.** Any certificate or certificates representing the Shares shall bear such legends as may be required by the Stockholders Agreement, the Plan or the Registration Rights Agreement, as applicable, as well as any legends required by the Company or applicable state and federal corporate and securities laws, including, but not limited to, the following legends:

(iv) "THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO CERTAIN RESTRICTIONS ON TRANSFER, INCLUDING ANY APPLICABLE RESALE RESTRICTIONS AND OTHER REQUIREMENTS OF REGULATION S OF THE SECURITIES ACT OF 1933. SUCH TRANSFER RESTRICTIONS ARE BINDING ON TRANSFEREES OF THESE SECURITIES."

(v) "THE SHARES MAY NOT BE MADE SUBJECT TO HEDGING TRANSACTIONS UNLESS SUCH TRANSACTIONS ARE CONDUCTED IN COMPLIANCE WITH THE SECURITIES ACT OF 1933, INCLUDING REGULATION S THEREUNDER."

(b) **Stop-Transfer Notices.** Purchaser agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(c) **Refusal to Transfer.** The Company shall not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so transferred.

9. **No Employment Rights.** Nothing in this Agreement shall affect in any manner whatsoever the right or power of the Company, or a parent, subsidiary or affiliate of the Company, to terminate Purchaser's employment or consulting relationship, for any reason, with or without cause.

10. **Section 83(b) Election.**

(a) Purchaser understands that Section 83(a) of the Internal Revenue Code of 1986, as amended (the "Code"), taxes as ordinary income for a Nonstatutory Stock Option and as alternative minimum taxable income for an Incentive Stock Option the difference between the amount paid for the Shares and the Fair Market Value of the Shares as of the date any restrictions on the Shares lapse. In this context, "restriction" means the right of the Company to buy back the Shares pursuant to the Repurchase Option set forth in Section 3(a) of this Agreement. Purchaser understands that Purchaser may elect to be taxed at the time the Shares are purchased, rather than when and as the Repurchase Option expires, by filing an election under Section 83(b) (an "83(b) Election") of the Code with the Internal Revenue Service within 30 days from the date of purchase. Even if the Fair Market Value of the Shares at the time of the execution of this Agreement equals the amount paid for the Shares, the election must be made to avoid income and alternative minimum tax treatment under Section 83(a) in the future. Purchaser understands that failure to file such an election in a timely manner may result in adverse tax consequences for Purchaser.

Purchaser further understands that an additional copy of such election form should be filed with his or her federal income tax return for the calendar year in which the date of this Agreement falls. Purchaser acknowledges that the foregoing is only a summary of the effect of United States federal income taxation with respect to purchase of the Shares hereunder, and does not purport to be complete, and is not intended or written to be used, and cannot be used, for the purposes of avoiding taxpayer penalties. Purchaser further acknowledges that the Company has directed Purchaser to seek independent advice regarding the applicable provisions of the Code, the income tax laws of any municipality, state or foreign country in which Purchaser may reside, and the tax consequences of Purchaser's death, and Purchaser has consulted, and has been fully advised by, Purchaser's own tax advisor regarding such tax laws and tax consequences or has knowingly chosen not to consult such a tax advisor. Purchaser further acknowledges that neither the Company nor any subsidiary or representative of the Company has made any warranty or representation to Purchaser with respect to the tax consequences of Purchaser's purchase of the Shares or of the making or failure to make an 83(b) Election. PURCHASER (AND NOT THE COMPANY, ITS AGENTS OR ANY OTHER PERSON) SHALL BE SOLELY RESPONSIBLE FOR APPROPRIATELY FILING SUCH FORM WITH THE IRS, EVEN IF PURCHASER REQUESTS THE COMPANY, ITS AGENTS OR ANY OTHER PERSON MAKE THIS FILING ON PURCHASER'S BEHALF.

(b) Purchaser agrees that he or she will execute and deliver to the Company with this executed Agreement a copy of the Acknowledgment and Statement of Decision Regarding Section 83(b) Election (the "Acknowledgment") attached hereto as Attachment B. Purchaser further agrees that he or she will execute and submit with the Acknowledgment a copy of the 83(b) Election attached hereto as Attachment C (for tax purposes in connection with the early exercise of an option) if Purchaser has indicated in the Acknowledgment his or her decision to make such an election.

11. **Waiver of Statutory Information Rights.** Purchaser acknowledges and understands that, but for the waiver made herein, Purchaser would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the Company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the Company, if any, under the circumstances and in the manner provided in Section 220 of the General Corporation Law of Delaware (any and all such rights, and any and all such other rights of Purchaser as may be provided for in Section 220, the "Inspection Rights"). In light of the foregoing, until the first sale of Common Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act of 1933, as amended, Purchaser hereby unconditionally and irrevocably waives the Inspection Rights, whether such Inspection Rights would be exercised or pursued directly or indirectly pursuant to Section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights. The foregoing waiver applies to the Inspection Rights of Purchaser in Purchaser's capacity as a stockholder and shall not affect any rights of a director, in his or her capacity as such, under Section 220. The foregoing waiver shall not apply to any contractual inspection rights of Purchaser under any written agreement with the Company.

12. **Restriction on Transfer of Shares.** Notwithstanding any provisions to the contrary, Purchaser shall not offer or sell any Shares received pursuant to this Agreement in an unregistered transaction to a U.S. Person or for the account or benefit of a U.S. Person prior to the expiration of the one year anniversary (or the six-month anniversary if the Company is a "reporting issuer," as defined in Rule 902 under the Securities Act) of the date on which the Shares are issued by the Company under this Agreement. Any Shares offered or sold prior to the expiration of the one year anniversary (or the six-month anniversary if the Company is a "reporting issuer," as defined in Rule 902 under the Securities Act) of the issuance of the Shares may be offered or sold only pursuant to the following conditions:

(b) the purchaser of the Shares certifies that it is not a U.S. Person and is not acquiring the Shares for the account or benefit of any U.S. Person or is a U.S. Person who purchased the Shares in a transaction that did not require registration under the Securities Act;

(c) the purchaser of the Shares agrees to resell such Shares only in accordance with the provisions of Regulation S, pursuant to registration under the Securities Act, or pursuant to another available exemption or safe harbor from registration under the Securities Act, and agrees not to engage in hedging transactions with regard to the transferred Shares unless in compliance with the Securities Act; and

(d) the certificate evidencing the Shares shall contain restrictive legends to a similar effect as described in Subsection (b) of this Section 11.

Purchaser further acknowledges that other local laws applicable to the Shares may prohibit the offer and sale of any Shares received pursuant to this Agreement to other persons and that prior to making any such offer or sale, Purchaser should consult with his or her own personal legal advisor.

13. **Miscellaneous.**

(a) **Governing Law.** The validity, interpretation, construction and performance of this Agreement, and all acts and transactions pursuant hereto and the rights and obligations of the parties hereto shall be governed, construed and interpreted in accordance with the laws of the state of Delaware, without giving effect to principles of conflicts of law. For purposes of litigating any dispute that may arise directly or indirectly from this Agreement, the parties hereby submit and consent to the exclusive jurisdiction of the state of Delaware and agree that any such litigation shall be conducted only in the courts of Delaware or the federal courts of the United States located in Delaware and no other courts.

(b) **Entire Agreement.** This Agreement, together with the Option Agreement, the Notice and the Plan, sets forth the entire agreement and understanding of the parties relating to the subject matter herein and supersedes all prior or contemporaneous discussions, understandings and agreements, whether oral or written, between them relating to the subject matter hereof.

(c) **Amendments and Waivers.** No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, shall be effective unless in writing signed by the parties to this Agreement. No delay or failure to require performance of any provision of this Agreement shall constitute a waiver of that provision as to that or any other instance.

(d) **Successors and Assigns.** Except as otherwise provided in this Agreement, this Agreement, and the rights and obligations of the parties hereunder, will be binding upon and inure to the benefit of their respective successors, assigns, heirs, executors, administrators and legal representatives. The Company may assign any of its rights and obligations under this Agreement. No other party to this Agreement may assign, whether voluntarily or by operation of law, any of its rights and obligations under this Agreement, except with the prior written consent of the Company.

(e) **Notices.** Any notice, demand or request required or permitted to be given under this Agreement shall be in writing and shall be deemed sufficient when delivered personally or by overnight courier or sent by email, or 48 hours after being deposited in the U.S. mail as certified or registered mail with postage prepaid, addressed to the party to be notified at such party's address as set forth on the signature page, as subsequently modified by written notice, or if no address is specified on the signature page, at the most recent address set forth in the Company's books and records.

(f) **Severability.** If one or more provisions of this Agreement are held to be unenforceable under applicable law, the parties agree to renegotiate such provision in good faith. In the event that the parties cannot reach a mutually agreeable and enforceable replacement for such provision, then (i) such provision shall be excluded from this Agreement, (ii) the balance of the Agreement shall be interpreted as if such provision were so excluded and (iii) the balance of the Agreement shall be enforceable in accordance with its terms.

(g) **Construction.** This Agreement is the result of negotiations between and has been reviewed by each of the parties hereto and their respective counsel, if any; accordingly, this Agreement shall be deemed to be the product of all of the parties hereto, and no ambiguity shall be construed in favor of or against any one of the parties hereto.

(h) **Counterparts.** This Agreement may be executed in any number of which when so executed and delivered shall be deemed an original, and all of which together shall constitute one and the same agreement.

(i) **Electronic Delivery.** The Company may, in its sole discretion, decide to deliver any documents related to this Agreement by electronic means. Purchaser hereby consents to receive such documents by electronic delivery and agrees to participate through an on-line or electronic system established and maintained by the Company or a third party designated by the Company.

(j) **Compliance with Law.** If at any the Company or its counsel shall be of the opinion that any sale or delivery of Shares pursuant to this Agreement is or may in the circumstances be unlawful, or result in the imposition of excise taxes on the Company under the statutes, rules or regulations of any applicable jurisdiction, the Company shall have no obligation to make such sale or delivery, or to make any application or to effect or to maintain any qualification or registration under the Securities Act or otherwise with respect to Shares, and the right to purchase Shares shall be suspended until, in the opinion of said counsel, such sale or delivery shall be lawful and will not result in the imposition of excise taxes on the Company.

The parties have executed this Early Exercise Notice and Restricted Stock Purchase Agreement as of the date first set forth above.

THE COMPANY:

TWIST BIOSCIENCE CORPORATION

By: _____
(Signature)

Name: _____

Title: _____

Address: _____

_____

PURCHASER:

_____

_____
(Signature)

Address: _____

_____

Email: _____

I, , spouse of ("Purchaser"), have read and hereby approve the foregoing Agreement. In consideration of the Company's granting my spouse the right to purchase the Shares as set forth in the Agreement, I hereby agree to be bound irrevocably by the Agreement and further agree that any community property or other such interest that I may have in the Shares shall hereby be similarly bound by the Agreement. I hereby appoint my spouse as my attorney-in-fact with respect to any amendment or exercise of any rights under the Agreement.

Spouse of Purchaser (if applicable)

ATTACHMENT A

STOCK POWER

FOR VALUE RECEIVED, the undersigned ("Holder"), hereby sells, assigns and transfers unto ("Transferee") shares of the Common Stock of Twist Bioscience Corporation, a Delaware corporation (the "Company"), standing in Holder's name on the Company's books as Certificate No. CS- whether held in certificated or uncertificated form, and does hereby irrevocably constitute and appoint to transfer said stock on the books of the Company with full power of substitution in the premises.

Dated: _____

HOLDER:

_____

_____
(Signature)

_____
Spouse of Holder (if applicable)

This Stock Power may only be used as authorized by the Early Exercise Notice and Restricted Stock Purchase Agreement between the Holder and the Company, dated and the exhibits thereto.

Instructions: Please do not fill in any blanks other than the signature line. The purpose of this assignment is to enable the Company to exercise its repurchase option set forth in the Agreement without requiring additional signatures on the part of Holder.

IF YOU WISH TO MAKE A SECTION 83(B) ELECTION, THE FILING OF SUCH ELECTION IS YOUR RESPONSIBILITY.

THE FORM FOR MAKING THIS SECTION 83(B) ELECTION IS ATTACHED TO THIS AGREEMENT.

YOU MUST FILE THIS FORM WITHIN 30 DAYS OF PURCHASING THE SHARES.

YOU (AND NOT THE COMPANY, ANY OF ITS AGENTS OR ANY OTHER PERSON) SHALL BE SOLELY RESPONSIBLE FOR FILING SUCH FORM WITH THE IRS, EVEN IF YOU REQUEST THE COMPANY, ITS AGENTS OR ANY OTHER PERSON TO MAKE THIS FILING ON YOUR BEHALF AND EVEN IF THE COMPANY, ANY OF ITS AGENTS OR ANY OTHER PERSON HAS PREVIOUSLY MADE THIS FILING ON YOUR BEHALF.

The election should be filed by mailing a signed election form by certified mail, return receipt requested to the IRS Service Center where you file your tax returns. See www.irs.gov.

ATTACHMENT B

ACKNOWLEDGMENT AND STATEMENT OF DECISION
REGARDING SECTION 83(b) ELECTION

The undersigned has entered into a stock purchase agreement with Twist Bioscience Corporation, a Delaware corporation (the "Company"), pursuant to which the undersigned is purchasing shares of Common Stock of the Company (the "Shares"). In connection with the purchase of the Shares, the undersigned hereby represents as follows:

1. The undersigned has carefully reviewed the stock purchase agreement pursuant to which the undersigned is purchasing the Shares.

2. The undersigned either [check and complete as applicable]:

(i) has consulted, and has been fully advised by, the undersigned's own tax advisor, , whose business address is , regarding the federal, state and local tax consequences of purchasing the Shares, and particularly regarding the advisability of making elections pursuant to Section 83(b) of the Internal Revenue Code of 1986, as amended (the "Code") and pursuant to the corresponding provisions, if any, of applicable state law; or

(ii) has knowingly chosen not to consult such a tax advisor.

3. The undersigned hereby states that the undersigned has decided [check as applicable]:

(a) to make an election pursuant to Section 83(b) of the Code, and is submitting to the Company, together with the undersigned's executed stock purchase agreement, an executed form entitled "Election Under Section 83(b) of the Internal Revenue Code of 1986;" or

(b) not to make an election pursuant to Section 83(b) of the Code.

4. Neither the Company nor any subsidiary or representative of the Company has made any warranty or representation to the undersigned with respect to the tax consequences of the undersigned's purchase of the Shares or of the making or failure to make an election pursuant to Section 83(b) of the Code or the corresponding provisions, if any, of applicable state law.

Dated: _____

PURCHASER:

_____

(Signature)

_____

Spouse of Purchaser (if applicable)

ATTACHMENT C

ELECTION UNDER SECTION 83(B)
OF THE INTERNAL REVENUE CODE OF 1986

The undersigned taxpayer hereby elects, pursuant to Section 83(b) of the Internal Revenue Code, to include in taxpayer's gross income or alternative minimum taxable income, as applicable, for the current taxable year, the amount of any income that may be taxable to taxpayer in connection with taxpayer's receipt of the property described below:

1. The name, address, taxpayer identification number and taxable year of the undersigned are as follows:

   NAME OF TAXPAYER: _____

   NAME OF SPOUSE: _____

   ADDRESS: _____

   IDENTIFICATION NO. OF TAXPAYER: _____

   IDENTIFICATION NO. OF SPOUSE: _____

   TAXABLE YEAR: _____

2. The property with respect to which the election is made is described as follows:

   _____ shares of the Common Stock of Twist Bioscience Corporation, a Delaware corporation (the "Company").

3. The date on which the property was transferred is: _____

4. The property is subject to the following restrictions:

   Repurchase option at cost in favor of the Company upon termination of taxpayer's employment or consulting relationship.

5. The fair market value at the time of transfer, determined without regard to any restriction other than a restriction which by its terms will never lapse, of such property is: USD $____.

6. The amount (if any) paid for such property: USD $____.

The undersigned has submitted a copy of this statement to the person for whom the services were performed in connection with the undersigned's receipt of the above-described property. The transferee of such property is the person performing the services in connection with the transfer of said property.

The undersigned understands that the foregoing election may not be revoked except with the consent of the Commissioner.

Dated: _____

PURCHASER:

_____

_____
(Signature)

_____
Spouse of Purchaser (if applicable)

EXHIBIT B

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

EXERCISE AGREEMENT

This Exercise Agreement (this "Agreement") is made as of , by and between Twist Bioscience Corporation, a Delaware corporation (the "Company"), and ("Purchaser"). To the extent any capitalized terms used in this Agreement are not defined, they shall have the meaning ascribed to them in the Company's 2013 Stock Plan (the "Plan") and the Option Agreement (as defined below).

1. **Exercise of Option.** Subject to the terms and conditions hereof, Purchaser hereby elects to exercise his or her option to purchase shares of the Common Stock (the "Shares") of the Company under and pursuant to the Plan, the Notice of Stock Option Grant and the Stock Option Agreement granted (the "Option Agreement"). The purchase price for the Shares shall be USD $ per Share, for a total purchase price of USD $.

2. **Time and Place of Exercise.** The purchase and sale of the Shares under this Agreement shall occur at the principal office of the Company simultaneously with the execution and delivery of this Agreement, the payment of the aggregate exercise price by any method permitted in Section 4 of the Option Agreement, and the satisfaction of any applicable tax, withholding, required deductions or other payments, all in accordance with the provisions of Section 3(b) of the Option Agreement. The Company shall issue the Shares to Purchaser by entering such Shares in Purchaser's name as of such date in the books and records of the Company or, if applicable, a duly authorized transfer agent of the Company, against payment of the exercise price therefor by Purchaser. If applicable, the Company will deliver to Purchaser a certificate representing the Shares as soon as practicable following such date.

3. **Limitations on Transfer.** In addition to any other limitation on transfer created by Applicable Laws and the Plan, Purchaser shall not assign, encumber or dispose of any interest in the Shares except in compliance with the Stockholders Agreement.

(a) **Restrictions Binding on Transferees.** All transferees of Shares or any interest therein will receive and hold such Shares or interest subject to the provisions of this Agreement, the Plan, the Stockholders Agreement and/or the Registration Rights Agreement, as applicable, and the terms of the Option Agreement, including, without limitation, Section 7 of the Option Agreement. Any sale or transfer of the Shares shall be void unless the provisions of this Agreement are satisfied.

(b) **Lock-Up Agreement.** The lock-up provisions set forth in Section 7 of the Option Agreement shall apply to the Shares issued upon exercise of the Option hereunder and Purchaser reaffirms Purchaser's obligations set forth therein.

4. **Investment and Taxation Representations.** In connection with the purchase of the Shares, Purchaser represents to the Company the following:

(k) Purchaser is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Shares. Purchaser is purchasing the Shares for investment for Purchaser's own account only and not with a view to, or for resale in connection with, any "distribution" thereof within the meaning of the Securities Act or under any applicable provision of state law. Purchaser does not have any present intention to transfer the Shares to any other person or entity.

(l) Purchaser understands that the Shares have not been registered under the Securities Act by reason of a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of Purchaser's investment intent as expressed herein.

(m) Purchaser further acknowledges and understands that the securities must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available and unless any such disposition is in compliance with Regulation S. Purchaser further acknowledges and understands that the Company is under no obligation to register the securities.

(n) Purchaser is familiar with the provisions of Rule 144 and Regulation S (Rules 901 through 905 and the Preliminary Notes thereto), each promulgated under the Securities Act, which, in substance, permits limited public resale of "restricted securities" acquired, directly or indirectly, from the issuer of the securities (or from an affiliate of such issuer), in a non-public offering subject to the satisfaction of certain conditions. Purchaser understands that the Company provides no assurances as to whether he or she will be able to resell any or all of the Shares pursuant to Rule 144, which rule requires, among other things, that the Company be subject to the reporting requirements of the Exchange Act, that resales of securities take place only after the holder of the Shares has held the Shares for certain specified time periods, and under certain circumstances, that resales of securities be limited in volume and take place only pursuant to brokered transactions. Purchaser further understands that the Company provides no assurances as to whether Purchaser will be able to sell any or all of the Shares pursuant to Regulation S. Notwithstanding this Section 5(d), Purchaser acknowledges and agrees to the restrictions set forth in Section 5(e) below.

(o) Purchaser further understands that in the event all of the applicable requirements of Rule 144 or Regulation S are not satisfied, registration under the Securities Act, compliance with Regulation A, or some other registration exemption will be required; and that, notwithstanding the fact that Rule 144 and Regulation S are not exclusive, the Staff of the Securities and Exchange Commission has expressed its opinion that persons proposing to sell private placement securities other than in a registered offering and otherwise than pursuant to Rule 144 or Regulation S will have a substantial burden of proof in establishing that an exemption from registration is available for such offers or sales, and that such persons and their respective brokers who participate in such transactions do so at their own risk.

(p) Purchaser understands that Purchaser may suffer adverse tax consequences as a result of Purchaser's purchase or disposition of the Shares. Purchaser represents that Purchaser has consulted any tax consultants Purchaser deems advisable in connection with the purchase or disposition of the Shares and that Purchaser is not relying on the Company for any tax advice.

(q) Purchaser hereby acknowledges that Purchaser has received, read, and understands this Agreement and attachments thereto and agrees to be bound by its terms and conditions, including (without limitation), Section 9 below. Purchaser has signed and understands and confirms the representations made in the Investor Certificate attached to this Agreement as Exhibit C.

5. **Voting Provisions.** As condition precedent to entering into this Agreement, Purchaser shall become a party to the Stockholders Agreement as an "Other Stockholder" by executing an the joinder agreement attached thereto and agreeing to be bound by and subject to the terms of the Stockholders Agreement, including the restrictions on transfer contained therein, and to vote the Shares in the capacity of an "Other Stockholder" as defined in the Stockholders Agreement.

6. **Restrictive Legends and Stop-Transfer Orders.**

(r) **Legends.** Any certificate or certificates representing the Shares shall bear such legends as may be required by the Stockholders Agreement, the Plan or the Registration Rights Agreement, as applicable, as well as any legends required by the Company or applicable state and federal corporate and securities laws, including, but not limited to, the following legends:

(i) "THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO CERTAIN RESTRICTIONS ON TRANSFER, INCLUDING ANY APPLICABLE RESALE RESTRICTIONS AND OTHER REQUIREMENTS OF REGULATION S OF THE SECURITIES ACT OF 1933. SUCH TRANSFER RESTRICTIONS ARE BINDING ON TRANSFEREES OF THESE SECURITIES."

(ii) "THE SHARES MAY NOT BE MADE SUBJECT TO HEDGING TRANSACTIONS UNLESS SUCH TRANSACTIONS ARE CONDUCTED IN COMPLIANCE WITH THE SECURITIES ACT OF 1933, INCLUDING REGULATION S THEREUNDER."

(a) **Stop-Transfer Notices.** Purchaser agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(b) **Refusal to Transfer.** The Company shall not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so transferred.

7. **No Employment Rights.** Nothing in this Agreement shall affect in any manner whatsoever the right or power of the Company, or a parent, subsidiary or affiliate of the Company, to terminate Purchaser's employment or consulting relationship, for any reason, with or without cause.

8. **Waiver of Statutory Information Rights.** Optionee acknowledges and understands that, but for the waiver made herein, Optionee would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the Company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the Company, if any, under the circumstances and in the manner provided in Section 220 of the Delaware General Corporation Law (any and all such rights, and any and all such other rights of Optionee as may be provided for in Section 220, the "Inspection Rights"). In light of the foregoing, until the first sale of Common Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act of 1933, as amended, Optionee hereby unconditionally and irrevocably waives the Inspection Rights, whether such Inspection Rights would be exercised or pursued directly or indirectly pursuant to Section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights. The foregoing waiver applies to the Inspection Rights of Optionee in Optionee's capacity as a stockholder and shall not affect any rights of a director, in his or her capacity as such, under Section 220. The foregoing waiver shall not apply to any contractual inspection rights of Optionee under any written agreement with the Company.

9. **Restriction on Transfer of Shares.** Notwithstanding any provisions to the contrary, Purchaser shall not offer or sell any Shares received pursuant to this Agreement in an unregistered transaction to a U.S. Person or for the account or benefit of a U.S. Person prior to the expiration of the one year anniversary (or the six-month anniversary if the Company is a "reporting issuer," as defined in Rule 902 under the Securities Act) of the date on which the Shares are issued by the Company under this Agreement. Any Shares offered or sold prior to the expiration of the one year anniversary (or the six-month anniversary if the Company is a "reporting issuer," as defined in Rule 902 under the Securities Act) of the issuance of the Shares may be offered or sold only pursuant to the following conditions:

(e) the purchaser of the Shares certifies that it is not a U.S. Person and is not acquiring the Shares for the account or benefit of any U.S. Person or is a U.S. Person who purchased the Shares in a transaction that did not require registration under the Securities Act;

(f) the purchaser of the Shares agrees to resell such Shares only in accordance with the provisions of Regulation S, pursuant to registration under the Securities Act, or pursuant to another available exemption or safe harbor from registration under the Securities Act, and agrees not to engage in hedging transactions with regard to the transferred Shares unless in compliance with the Securities Act; and

(g) the certificate evidencing the Shares shall contain restrictive legends to a similar effect as described in Subsection (b) of this Section 9.

Purchaser further acknowledges that other local laws applicable to the Shares may prohibit the offer and sale of any Shares received pursuant to this Agreement to other persons and that prior to making any such offer or sale, Purchaser should consult with his or her own personal legal advisor.

10. **Miscellaneous.**

(a) **Governing Law.** The validity, interpretation, construction and performance of this Agreement, and all acts and transactions pursuant hereto and the rights and obligations of the parties hereto shall be governed, construed and interpreted in accordance with the laws of the state of Delaware, without giving effect to principles of conflicts of law. For purposes of litigating any dispute that may arise directly or indirectly from this Agreement, the parties hereby submit and consent to the exclusive jurisdiction of the state of Delaware and agree that any such litigation shall be conducted only in the courts of Delaware or the federal courts of the United States located in Delaware and no other courts.

(b) **Entire Agreement.** This Agreement, together with the Option Agreement, the Notice and the Plan, sets forth the entire agreement and understanding of the parties relating to the subject matter herein and supersedes all prior or contemporaneous discussions, understandings and agreements, whether oral or written, between them relating to the subject matter hereof.

(c) **Amendments and Waivers.** No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, shall be effective unless in writing signed by the parties to this Agreement. No delay or failure to require performance of any provision of this Agreement shall constitute a waiver of that provision as to that or any other instance.

(d) **Successors and Assigns.** Except as otherwise provided in this Agreement, this Agreement, and the rights and obligations of the parties hereunder, will be binding upon and inure to the benefit of their respective successors, assigns, heirs, executors, administrators and legal representatives. The Company may assign any of its rights and obligations under this Agreement. No other party to this Agreement may assign, whether voluntarily or by operation of law, any of its rights and obligations under this Agreement, except with the prior written consent of the Company.

(e) **Notices.** Any notice, demand or request required or permitted to be given under this Agreement shall be in writing and shall be deemed sufficient when delivered personally or by overnight courier or sent by email, or 48 hours after being deposited in the U.S. mail as certified or registered mail with postage prepaid, addressed to the party to be notified at such party's address as set forth on the signature page, as subsequently modified by written notice, or if no address is specified on the signature page, at the most recent address set forth in the Company's books and records.

(f) **Severability.** If one or more provisions of this Agreement are held to be unenforceable under applicable law, the parties agree to renegotiate such provision in good faith. In the event that the parties cannot reach a mutually agreeable and enforceable replacement for such provision, then (i) such provision shall be excluded from this Agreement, (ii) the balance of the Agreement shall be interpreted as if such provision were so excluded and (iii) the balance of the Agreement shall be enforceable in accordance with its terms.

(g) **Construction.** This Agreement is the result of negotiations between and has been reviewed by each of the parties hereto and their respective counsel, if any; accordingly, this Agreement shall be deemed to be the product of all of the parties hereto, and no ambiguity shall be construed in favor of or against any one of the parties hereto.

(h) **Counterparts.** This Agreement may be executed in any number of which when so executed and delivered shall be deemed an original, and all of which together shall constitute one and the same agreement.

(i) **Electronic Delivery.** The Company may, in its sole discretion, decide to deliver any documents related to this Agreement by electronic means. Purchaser hereby consents to receive such documents by electronic delivery and agrees to participate through an on-line or electronic system established and maintained by the Company or a third party designated by the Company.

(j) **Compliance with Law.** If at any the Company or its counsel shall be of the opinion that any sale or delivery of Shares pursuant to this Agreement is or may in the circumstances be unlawful, or result in the imposition of excise taxes on the Company under the statutes, rules or regulations of any applicable jurisdiction, the Company shall have no obligation to make such sale or delivery, or to make any application or to effect or to maintain any qualification or registration under the Securities Act or otherwise with respect to Shares, and the right to purchase Shares shall be suspended until, in the opinion of said counsel, such sale or delivery shall be lawful and will not result in the imposition of excise taxes on the Company.

The parties have executed this Exercise Agreement as of the date first set forth above.

THE COMPANY:

TWIST BIOSCIENCE CORPORATION

By: _____
(Signature)

Name: _____

Title: _____

Address: _____

_____

PURCHASER:

_____

_____
(Signature)

Address: _____

_____

Email: _____

I, , spouse of ("Purchaser"), have read and hereby approve the foregoing Agreement. In consideration of the Company's granting my spouse the right to purchase the Shares as set forth in the Agreement, I hereby agree to be bound irrevocably by the Agreement and further agree that any community property or other such interest that I may have in the Shares shall hereby be similarly bound by the Agreement. I hereby appoint my spouse as my attorney-in-fact with respect to any amendment or exercise of any rights under the Agreement.

Spouse of Purchaser (if applicable)

EXHIBIT C

Investor Certificate

(for purposes of compliance with Regulation S
if you are a foreign national or employed outside the United States)

In issuing the shares of Common Stock (the "Shares") of Twist Bioscience Corporation, a Delaware corporation (the "Company") pursuant to the Notice of Stock Option Grant and the Stock Option Agreement granted and Exercise Agreement made and entered into as of (together, the "Agreement"), the Company intends to rely on Regulation S of the Securities Act ("Regulation S") in reliance on the following representations made by the undersigned in connection with the undersigned's receipt of the Shares:

1. The undersigned is not a natural person resident in the United States, a partnership or corporation organized under the laws of the United States or otherwise a "U.S. Person" (as defined under Regulation S; a copy of such definition is attached hereto) or acting for the benefit or account of a U.S. Person;

2. The undersigned understands that the Shares have not been not been registered under the Securities Act;

3. The undersigned agrees (a) to resell the Shares only in accordance with the provisions of Regulation S, pursuant to registration under the Securities Act or pursuant to another available exemption from registration (the availability of such exemption being reflected by an opinion of counsel acceptable to the Company), and (b) not to engage in hedging transactions with regard to such securities unless in compliance with the Securities Act (including Regulation S thereunder);

4. The undersigned understands that a legend will be placed on all certificates evidencing the Shares reflecting the restrictions upon transfer set forth in paragraph (3) above, and that the Company is required to refuse to register any transfer of securities not made in accordance with the provisions of Regulation S, pursuant to registration under the Securities Act, or pursuant to an available exemption from registration; and

5. The undersigned agrees not to offer or sell the Shares to any U.S. Person, or for the account or benefit of a U.S. Person prior to the expiration of the one year anniversary (or the six-month anniversary if the Company is a "reporting issuer," as defined in Rule 902 under the Securities Act) of the date on which the Shares underlying the Option were issued by the Company pursuant to the Agreement, unless the Shares are sold in a transaction exempt from the registration requirements of the Securities Act or pursuant to a registration statement effective under the Securities Act.

Dated: _____

Signature: _____

Print Name: _____

Attachment to Investor Certificate

As defined in Regulation 902(k) of Regulation S under the Securities Act of 1933, as amended, the term "U.S. Person" means:

(i) any natural person resident in the United States;

(ii) any partnership or corporation organized or incorporated under the laws of the United States;

(iii) any estate of which any executor or administrator is a U.S. person;

(iv) any trust of which any trustee is a U.S. person;

(v) any agency or branch of a foreign entity located in the United States;

(vi) any non-discretionary account or similar account (other than an estate or trust) held by a dealer or other fiduciary for the benefit or account of a U.S. person;

(vii) any discretionary account or similar account (other than an estate or trust) held by a dealer or other fiduciary organized, incorporated, or (if an individual) resident in the United States; and

(viii) any partnership or corporation if: (1) organized or incorporated under the laws of any foreign jurisdiction; and (2) formed by a U.S. person principally for the purpose of investing in securities not registered under the Securities Act, unless it is organized or incorporated, and owned, by accredited investors (as defined in Rule 501(a) of the Securities Act) who are not natural persons, estates or trusts.

The following are not U.S. Persons:

(i) any discretionary account or similar account (other than an estate or trust) held for the benefit or account of a non-U.S. person by a dealer or other professional fiduciary organized, incorporated, or (if an individual) resident in the United States;

(ii) any estate of which a professional fiduciary acting as executor or administrator is a U.S. person if: (1) an executor or administrator of the estate who is not a U.S. person has sole or shared investment discretion with respect to the assets of the estate; and (2) the estate is governed by foreign law;

(iii) any trust of which any professional fiduciary acting as trustee is a U.S. person, if a trustee who is not a U.S. person has sole or shared investment discretion with respect to the trust assets, and no beneficiary of the trust (and no settlor if the trust is revocable) is a U.S. person;

(iv) an employee benefit plan established and administered in accordance with the law of a country other than the United States and customary practices and documentation of such country;

(v) any agency or branch of a U.S. person located outside the United States if (1) any agency or branch operates for valid business reasons; and (2) the agency or branch is engaged in the business of insurance or banking and is subject to substantive insurance or banking regulation, respectively, in the jurisdiction where located; and

(vi) the International Monetary Fund, the International Bank for Reconstruction and Development, the Inter-American Development Bank, the Asian Development Bank, the African Development Bank, the United Nations, and their agencies, affiliates and pension plans, and any other similar international organizations, their agencies, affiliates and pension plans.

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

RESTRICTED STOCK PURCHASE AGREEMENT

This Restricted Stock Purchase Agreement (this "Agreement") is made as of by and between Twist Bioscience Corporation, a Delaware corporation (the "Company"), and ("Purchaser") pursuant to the Company's 2013 Stock Plan (the "Plan"). To the extent any capitalized terms used in this Agreement are not defined, they shall have the meaning ascribed to them in the Plan.

1. **Sale of Stock.** Subject to the terms and conditions of this Agreement, on the Purchase Date (as defined below) the Company will issue and sell to Purchaser, and Purchaser agrees to purchase from the Company, shares of the Company's Common Stock at a purchase price of $ per share for a total purchase price of $. The term "Shares" refers to the all of the shares purchased hereunder and all securities received in connection with the Shares pursuant to stock dividends or splits, all securities received in replacement of the Shares in a recapitalization, merger, reorganization, exchange or the like, and all new, substituted or additional securities or other property to which Purchaser is entitled by reason of Purchaser's ownership of the Shares. By Purchaser's signature and the signature of the Company's representative below, Purchaser and the Company agree that this acquisition of Shares is governed by the terms and conditions of this Agreement and the Twist Bioscience Corporation 2013 Stock Plan which is made a part of this Agreement. As a condition to the delivery of any Shares hereunder, the Company shall have the right to require that Purchaser become party to the Stockholders Agreement and/or the Registration Rights Agreement.

2. **Purchase.** The purchase and sale of the Shares under this Agreement shall occur at the principal office of the Company simultaneously with the execution and delivery of this Agreement by the parties, the payment of the aggregate purchase price by any method permitted by the Company and authorized under the Plan, and the satisfaction of any applicable tax, withholding obligations, required deductions or other payments, all in accordance with the Plan (the "Purchase Date"). The Company shall issue the Shares to Purchaser by entering such Shares in Purchaser's name as of such date in the books and records of the Company or, if applicable, a duly authorized transfer agent of the Company, against payment of the purchase price therefor by Purchaser. If applicable, the Company will deliver to Purchaser a certificate representing the Shares as soon as practicable following such date.

3. **Limitations on Transfer.** In addition to any other limitation on transfer created by Applicable Laws, the Plan the Stockholders Agreement or the Registration Rights Agreement, as the case may be, Purchaser shall not assign, encumber or dispose of any interest in the Shares while the Shares are subject to the Company's Repurchase Option (as defined below). After any Shares have been released from such Repurchase Option, Purchaser shall not assign, encumber or dispose of any interest in such Shares except in compliance with Applicable Laws and the Stockholders Agreement.

(a) **Repurchase Option.**

(i) Without limitation on anything in the Stockholders Agreement and/or the Registration Rights Agreement, as applicable, in the event of the voluntary or involuntary termination of Purchaser's Continuous Service Status for any reason (including due to death or Disability or by the Company with or without Cause), the Company shall upon the date of such termination (the "Termination Date") have an irrevocable, exclusive option (the "Repurchase Option") for a period of three months from such date to repurchase all or any portion of the Unvested Shares (as defined below) held by Purchaser as of the Termination Date at the lesser of (A) the original purchase price per Share (adjusted for any stock splits, stock dividends and the like) specified in Section 1 and (B) the Fair Market Value of such Shares. As used in this Agreement, "Unvested Shares" means Shares that have not yet been released from the Repurchase Option.

(ii) Unless the Company notifies Purchaser within three months from the Termination Date that it does not intend to exercise its Repurchase Option with respect to some or all of the Unvested Shares, the Repurchase Option shall be deemed automatically exercised by the Company as of the end of such three-month period following such Termination Date, provided that the Company may notify Purchaser that it is exercising its Repurchase Option as of a date prior to the end of such three-month period. Unless Purchaser is otherwise notified by the Company pursuant to the preceding sentence that the Company does not intend to exercise its Repurchase Option as to some or all of the Unvested Shares to which it applies at the time of termination, execution of this Agreement by Purchaser constitutes written notice to Purchaser of the Company's intention to exercise its Repurchase Option with respect to all Unvested Shares to which such Repurchase Option applies. The Company, at its choice, may satisfy its payment obligation to Purchaser with respect to exercise of the Repurchase Option by either (A) delivering a check to Purchaser in the amount of the purchase price for the Unvested Shares being repurchased, or (B) in the event Purchaser is indebted to the Company, canceling an amount of such indebtedness equal to the purchase price for the Unvested Shares being repurchased, or (C) by a combination of (A) and (B) so that the combined payment and cancellation of indebtedness equals such purchase price. In the event of any deemed automatic exercise of the Repurchase Option pursuant to this Section 3(a)(ii) in which Purchaser is indebted to the Company, such indebtedness equal to the purchase price of the Unvested Shares being repurchased shall be deemed automatically canceled as of the end of the three-month period following the Termination Date unless the Company otherwise satisfies its payment obligations. As a result of any repurchase of Unvested Shares pursuant to this Section 3(a), the Company shall become the legal and beneficial owner of the Unvested Shares being repurchased and shall have all rights and interest therein or related thereto, and the Company shall have the right to transfer to its own name the number of Unvested Shares being repurchased by the Company, without further action by Purchaser.

(iii) 100% of the Shares shall initially be subject to the Repurchase Option (the "Vesting Shares"). [25% of the Vesting Shares shall be released from the Repurchase Option on , and an additional 1/48th of the total Vesting Shares shall be released from the Repurchase Option on the same day of each month thereafter (and if there is no corresponding day, on the last day of the month)], until all Vesting Shares are released from the Repurchase Option; provided, however, that such scheduled releases from the Repurchase Option shall immediately cease as of the Termination Date. Fractional shares shall be rounded to the nearest whole share.

(b) **Assignment.** The right of the Company to purchase any part of the Shares may be assigned in whole or in part to any holder or holders of capital stock of the Company or other persons or organizations.

(c) **Restrictions Binding on Transferees.** All transferees of Shares or any interest therein will receive and hold such Shares or interest subject to the provisions of this Agreement, the Plan, the Stockholders Agreement and/or the Registration Rights Agreement, as applicable, including, insofar as applicable, the Repurchase Option. Any sale or transfer of the Shares shall be void unless the provisions of this Agreement are satisfied.

(d) **Lock-Up Agreement.** Without limitation on anything in the Stockholders Agreement and/or the Registration Rights Agreement, as applicable, to the extent so requested by the Company or the underwriters in connection with the initial public offering of the Company's securities registered under the Securities Act of 1933, as amended, Purchaser shall not directly or indirectly offer, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant for the sale of or otherwise dispose of or transfer any shares held by it for such period, not to exceed (a) one hundred eighty (180) days following the effective date of the relevant registration statement filed under the Securities Act in connection with the Company's initial public offering of registrable securities, or (b) ninety (90) days following the effective date of the relevant registration statement in connection with any other public offering of registrable securities, as such underwriter shall specify reasonably and in good faith.

4. **Escrow of Unvested Shares.** For purposes of facilitating the enforcement of the provisions of Section 3 above, Purchaser agrees, immediately upon receipt of the certificate(s) for the Shares subject to the Repurchase Option, to deliver such certificate(s), together with an Assignment Separate from Certificate in the form attached to this Agreement as Exhibit A executed by Purchaser and by Purchaser's spouse (if required for transfer), in blank, to the Secretary of the Company, or the Secretary's designee, to hold such certificate(s) and Assignment Separate from Certificate in escrow and to take all such actions and to effectuate all such transfers and/or releases as are required in accordance with the terms of this Agreement. Purchaser hereby acknowledges that the Secretary of the Company, or the Secretary's designee, is so appointed as the escrow holder with the foregoing authorities as a material inducement to make this Agreement and that said appointment is coupled with an interest and is accordingly irrevocable. Purchaser agrees that said escrow holder shall not be liable to any party hereof (or to any other party). The escrow holder may rely upon any letter, notice or other document executed by any signature purported to be genuine and may resign at any time. Purchaser agrees that if the Secretary of the Company, or the Secretary's designee, resigns as escrow holder for any or no reason, the Board shall have the power to appoint a successor to serve as escrow holder pursuant to the terms of this Agreement.

5. **Investment and Taxation Representations.** In connection with the purchase of the Shares, Purchaser represents to the Company the following:

(a) Purchaser is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Shares. Purchaser is purchasing the Shares for investment

for Purchaser's own account only and not with a view to, or for resale in connection with, any "distribution" thereof within the meaning of the Securities Act or under any applicable provision of state law. Purchaser does not have any present intention to transfer the Shares to any other person or entity.

(b) Purchaser understands that the Shares have not been registered under the Securities Act by reason of a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of Purchaser's investment intent as expressed herein.

(c) Purchaser further acknowledges and understands that the securities must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available. Purchaser further acknowledges and understands that the Company is under no obligation to register the securities.

(d) Purchaser is familiar with the provisions of Rule 144, promulgated under the Securities Act, which, in substance, permits limited public resale of "restricted securities" acquired, directly or indirectly, from the issuer of the securities (or from an affiliate of such issuer), in a non-public offering subject to the satisfaction of certain conditions. Purchaser understands that the Company provides no assurances as to whether he or she will be able to resell any or all of the Shares pursuant to Rule 144, which rule requires, among other things, that the Company be subject to the reporting requirements of the Exchange Act, that resales of securities take place only after the holder of the Shares has held the Shares for certain specified time periods, and under certain circumstances, that resales of securities be limited in volume and take place only pursuant to brokered transactions. Notwithstanding this Section 5(d), Purchaser acknowledges and agrees to the restrictions set forth in Section 5(e) below.

(e) Purchaser further understands that in the event all of the applicable requirements of Rule 144 are not satisfied, registration under the Securities Act, compliance with Regulation A, or some other registration exemption will be required; and that, notwithstanding the fact that Rule 144 is not exclusive, the Staff of the Securities and Exchange Commission has expressed its opinion that persons proposing to sell private placement securities other than in a registered offering and otherwise than pursuant to Rule 144 will have a substantial burden of proof in establishing that an exemption from registration is available for such offers or sales, and that such persons and their respective brokers who participate in such transactions do so at their own risk.

(f) Purchaser understands that Purchaser may suffer adverse tax consequences as a result of Purchaser's purchase or disposition of the Shares. Purchaser represents that Purchaser has consulted any tax consultants Purchaser deems advisable in connection with the purchase or disposition of the Shares and that Purchaser is not relying on the Company for any tax advice.

6. **Voting Provisions.** As condition precedent to entering into this Agreement, Purchaser shall become a party to the Stockholders Agreement as an "Other Stockholder" by executing an the joinder agreement attached thereto and agreeing to be bound by and subject to the terms of the Stockholders Agreement, including the restrictions on transfer contained therein, and to vote the Shares in the capacity of an "Other Stockholder" as defined in the Stockholders Agreement.

7. **Restrictive Legends and Stop-Transfer Orders.**

(a) **Legends.** Any certificate or certificates representing the Shares shall bear such legends as may be required by the Stockholders Agreement, the Plan or the Registration Rights Agreement, as applicable, as well as any legends required by the Company or applicable state and federal corporate and securities laws.

(b) **Stop-Transfer Notices.** Purchaser agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(c) **Refusal to Transfer.** The Company shall not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so transferred.

8. **No Employment Rights.** Nothing in this Agreement shall affect in any manner whatsoever the right or power of the Company, or a parent, subsidiary or affiliate of the Company, to terminate Purchaser's employment or consulting relationship, for any reason, with or without cause.

9. **Section 83(b) Election.** Purchaser agrees that he will execute and deliver to the Company with this executed Agreement a copy of the Acknowledgment and Statement of Decision Regarding Section 83(b) Election (the "Acknowledgment"), attached hereto as Exhibit B and, if Purchaser decides to file an election (an "83(b) Election") under Section 83(b) of the Internal Revenue Code of 1986, as amended (the "Code"), a copy of the 83(b) Election, attached hereto as Exhibit C. Purchaser further acknowledges that the Company has directed Purchaser to seek independent advice regarding the applicable provisions of the Code, the income tax laws of any municipality, state or foreign country in which Purchaser may reside, and the tax consequences of Purchaser's death.

10. **Waiver of Statutory Information Rights.** Purchaser acknowledges and understands that, but for the waiver made herein, Purchaser would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the Company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the Company, if any, under the circumstances and in the manner provided in Section 220 of the Delaware General Corporation Law (any and all such rights, and any and all such other rights of Purchaser as may be provided for in Section 220, the "Inspection Rights"). In light of the foregoing, until the first sale of Common Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act of 1933, as amended, Purchaser hereby unconditionally and irrevocably waives the Inspection Rights, whether such Inspection Rights would be exercised or pursued directly or indirectly pursuant to Section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any

claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights. The foregoing waiver applies to the Inspection Rights of Purchaser in Purchaser's capacity as a stockholder and shall not affect any rights of a director, in his or her capacity as such, under Section 220. The foregoing waiver shall not apply to any contractual inspection rights of Purchaser under any written agreement with the Company.

11. **Miscellaneous.**

(a) **Governing Law.** The validity, interpretation, construction and performance of this Agreement, and all acts and transactions pursuant hereto and the rights and obligations of the parties hereto shall be governed, construed and interpreted in accordance with the laws of the state of Delaware, without giving effect to principles of conflicts of law. For purposes of litigating any dispute that may arise directly or indirectly from this Agreement, the parties hereby submit and consent to the exclusive jurisdiction of the state of Delaware and agree that any such litigation shall be conducted only in the courts of Delaware or the federal courts of the United States located in Delaware and no other courts.

(b) **Entire Agreement.** This Agreement and the Plan set forth the entire agreement and understanding of the parties relating to the subject matter herein and supersede all prior or contemporaneous discussions, understandings and agreements, whether oral or written, between them relating to the subject matter hereof. In the event of any conflict between the Plan and this Agreement, the Plan will control.

(c) **Amendments and Waivers.** No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, shall be effective unless in writing signed by the parties to this Agreement. No delay or failure to require performance of any provision of this Agreement shall constitute a waiver of that provision as to that or any other instance.

(d) **Successors and Assigns.** Except as otherwise provided in this Agreement, this Agreement, and the rights and obligations of the parties hereunder, will be binding upon and inure to the benefit of their respective successors, assigns, heirs, executors, administrators and legal representatives. The Company may assign any of its rights and obligations under this Agreement. No other party to this Agreement may assign, whether voluntarily or by operation of law, any of its rights and obligations under this Agreement, except with the prior written consent of the Company.

(e) **Notices.** Any notice, demand or request required or permitted to be given under this Agreement shall be in writing and shall be deemed sufficient when delivered personally or by overnight courier or sent by email, or 48 hours after being deposited in the U.S. mail as certified or registered mail with postage prepaid, addressed to the party to be notified at such party's address as set forth on the signature page, as subsequently modified by written notice, or if no address is specified on the signature page, at the most recent address set forth in the Company's books and records.

(f) **Severability.** If one or more provisions of this Agreement are held to be unenforceable under applicable law, the parties agree to renegotiate such provision in good faith.

In the event that the parties cannot reach a mutually agreeable and enforceable replacement for such provision, then (i) such provision shall be excluded from this Agreement, (ii) the balance of the Agreement shall be interpreted as if such provision were so excluded and (iii) the balance of the Agreement shall be enforceable in accordance with its terms.

(g) **Construction.** This Agreement is the result of negotiations between and has been reviewed by each of the parties hereto and their respective counsel, if any; accordingly, this Agreement shall be deemed to be the product of all of the parties hereto, and no ambiguity shall be construed in favor of or against any one of the parties hereto.

(h) **Counterparts.** This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, and all of which together shall constitute one and the same agreement.

(i) **Electronic Delivery.** The Company may, in its sole discretion, decide to deliver any documents related to this Agreement by electronic means. By accepting this Award, Purchaser hereby consents to receive such documents by electronic delivery and agrees to participate through an on-line or electronic system established and maintained by the Company or a third party designated by the Company.

(j) **Imposition of Other Requirements.** The Company reserves the right to impose other requirements on Purchaser's participation in the Plan and on any Award or Shares acquired under the Plan, to the extent the Company determines it is necessary or advisable in order to comply with Applicable Law or facilitate the administration of the Plan. Purchaser agrees to sign any additional agreements or undertakings that may be necessary to accomplish the foregoing, including, without limitation, the Stockholders Agreement and/or the Registration Rights Agreement. Furthermore, Purchaser acknowledges that the laws of the country in which Purchaser is working at the time of grant of this Agreement, the purchase, vesting or sale of Shares received pursuant to this Agreement (including any rules or regulations governing securities, foreign exchange, tax, labor, or other matters) may subject Purchaser to additional procedural or regulatory requirements that Purchaser is and will be solely responsible for and must fulfill.

(k) **Compliance with Law.** If at any the Company or its counsel shall be of the opinion that any sale or delivery of Shares pursuant to this Agreement is or may in the circumstances be unlawful, or result in the imposition of excise taxes on the Company under the statutes, rules or regulations of any applicable jurisdiction, the Company shall have no obligation to make such sale or delivery, or to make any application or to effect or to maintain any qualification or registration under the Securities Act or otherwise with respect to Shares, and the right to purchase Shares shall be suspended until, in the opinion of said counsel, such sale or delivery shall be lawful and will not result in the imposition of excise taxes on the Company.

(l) **Code Section 409A.** It is intended that the Shares comply with or be exempt from Section 409A of the Code, and this Agreement shall be limited, construed and interpreted in accordance with such intent; p*rovided*, that for the avoidance of doubt, this provision shall not be construed to require a gross-up payment in respect of any taxes, interest or penalties imposed on the Purchaser as a result of Section 409A of the Code, and by purchasing the Shares pursuant to this Agreement, the Purchaser agrees and acknowledges that the Company be held liable for any applicable costs, taxes, or penalties associated with the Shares or this Agreement under Code Section 409A or otherwise.

[Signature Page Follows]

The parties have executed this Restricted Stock Purchase Agreement as of the date first set forth above.

THE COMPANY:

TWIST BIOSCIENCE CORPORATION

By: _____
(Signature)

Name: _____

Title: _____

Address: _____

_____

PURCHASER:

_____
(PRINT NAME)

By: _____
(Signature)

Name: _____

Title: _____

Address: _____

_____

Email: _____

I, , spouse of ("Purchaser"), have read and hereby approve the foregoing Agreement. In consideration of the Company's granting my spouse the right to purchase the Shares as set forth in the Agreement, I hereby agree to be bound irrevocably by the Agreement and further agree that any community property or other such interest that I may have in the Shares shall hereby be similarly bound by the Agreement. I hereby appoint my spouse as my attorney-in-fact with respect to any amendment or exercise of any rights under the Agreement.

Spouse of Purchaser (if applicable)

EXHIBIT A

ASSIGNMENT SEPARATE FROM CERTIFICATE

FOR VALUE RECEIVED and pursuant to that certain Restricted Stock Purchase Agreement between the undersigned ("Purchaser") and Twist Bioscience Corporation, a Delaware corporation (the "Company"), dated (the "Agreement"), Purchaser hereby sells, assigns and transfers unto the Company ( ) shares of the Common Stock of the Company, standing in Purchaser's name on the Company's books and represented by Certificate No. , and does hereby irrevocably constitute and appoint to transfer said stock on the books of the Company with full power of substitution in the premises. THIS ASSIGNMENT MAY ONLY BE USED AS AUTHORIZED BY THE AGREEMENT AND THE EXHIBITS THERETO.

Dated: _____

PURCHASER:

_____
(PRINT NAME)

By: _____
(Signature)

Name: _____

Title: _____

Address: _____

_____

Email: _____

_____
Spouse of Purchaser (if applicable)

Instructions: Please do not fill in any blanks other than the signature line. The purpose of this assignment is to enable the Company to exercise its repurchase option set forth in the Agreement without requiring additional signatures on the part of Purchaser.

EXHIBIT B

ACKNOWLEDGMENT AND STATEMENT OF DECISION
REGARDING SECTION 83(b) ELECTION

The undersigned has entered into a stock purchase agreement with Twist Bioscience Corporation, a Delaware corporation (the "Company"), pursuant to which the undersigned is purchasing shares of Common Stock of the Company (the "Shares"). In connection with the purchase of the Shares, the undersigned hereby represents as follows:

1. The undersigned has carefully reviewed the stock purchase agreement pursuant to which the undersigned is purchasing the Shares.

2. The undersigned either [check and complete as applicable]:

(a) has consulted, and has been fully advised by, the undersigned's own tax advisor, , whose business address is , regarding the federal, state and local tax consequences of purchasing the Shares, and particularly regarding the advisability of making elections pursuant to Section 83(b) of the Internal Revenue Code of 1986, as amended (the "Code") and pursuant to the corresponding provisions, if any, of applicable state law; or

(b) has knowingly chosen not to consult such a tax advisor.

3. The undersigned hereby states that the undersigned has decided [check as applicable]:

(a) to make an election pursuant to Section 83(b) of the Code, and is submitting to the Company, together with the undersigned's executed stock purchase agreement, an executed form entitled "Election Under Section 83(b) of the Internal Revenue Code of 1986;" or

(b) not to make an election pursuant to Section 83(b) of the Code.

4. Neither the Company nor any subsidiary or representative of the Company has made any warranty or representation to the undersigned with respect to the tax consequences of the undersigned's purchase of the Shares or of the making or failure to make an election pursuant to Section 83(b) of the Code or the corresponding provisions, if any, of applicable state law.

Dated: _____

PURCHASER:

_____
(PRINT NAME)

_____
(Signature)

Address: _____

_____

_____
Spouse of Purchaser (if applicable)

EXHIBIT C

ELECTION UNDER SECTION 83(B)
OF THE INTERNAL REVENUE CODE OF 1986

The undersigned taxpayer hereby elects, pursuant to Section 83(b) of the Internal Revenue Code, to include in taxpayer's gross income for the current taxable year, the amount of any compensation taxable to taxpayer in connection with taxpayer's receipt of the property described below:

1. The name, address, taxpayer identification number and taxable year of the undersigned are as follows:

   NAME OF TAXPAYER: _____

   NAME OF SPOUSE: _____

   ADDRESS: _____

   IDENTIFICATION NO. OF TAXPAYER: _____

   IDENTIFICATION NO. OF SPOUSE: _____

   TAXABLE YEAR: _____

2. The property with respect to which the election is made is described as follows:

   _____ shares of the Common Stock of Twist Bioscience Corporation, a Delaware corporation (the "Company").

3. The date on which the property was transferred is: _____

4. The property is subject to the following restrictions:

   Repurchase option at cost in favor of the Company upon termination of taxpayer's employment or consulting relationship, which repurchase option will be released over time subject to the taxpayer's continued service to the Company.

5. The fair market value at the time of transfer, determined without regard to any restriction other than a restriction which by its terms will never lapse, of such property is: $____ per share (or $____ in the aggregate).

6. The amount (if any) paid for such property: $____ per share (or $____ in the aggregate).

The undersigned has submitted a copy of this statement to the person for whom the services were performed in connection with the undersigned's receipt of the above-described property. The transferee of such property is the person performing the services in connection with the transfer of said property.

The undersigned understands that the foregoing election may not be revoked except with the consent of the Commissioner.

Dated: _____

PURCHASER:

_____
(PRINT NAME)

_____
(Signature)

Address: _____

_____

_____
Spouse of Purchaser (if applicable)

RECEIPT

Twist Bioscience Corporation, a Delaware corporation (the "Company"), hereby acknowledges receipt of:

- A check in the amount of $

given by as consideration for Common Stock Certificate for shares of Common Stock of the Company.

Dated: _____

THE COMPANY:

TWIST BIOSCIENCE CORPORATION

By: _____
(Signature)

Name: _____

Title: _____

RECEIPT AND CONSENT

The undersigned hereby acknowledges receipt of a photocopy of Common Stock Certificate for shares of Common Stock of Twist Bioscience Corporation, a Delaware corporation (the "Company").

The undersigned further acknowledges that the Secretary of the Company, or his or her designee, is acting as escrow holder pursuant to the Restricted Stock Purchase Agreement that Purchaser has previously entered into with the Company. As escrow holder, the Secretary of the Company, or his or her designee, holds the original of the aforementioned certificate issued in the undersigned's name.

Dated: _____

PURCHASER:

_____
(PRINT NAME)

By: _____
(Signature)

Name: _____

Title: _____

Address: _____

_____

Email: _____

_____
Spouse of Purchaser (if applicable)

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

RESTRICTED STOCK AGREEMENT

This Restricted Stock Agreement (this "Agreement") is made as of by and between Twist Bioscience Corporation, a Delaware corporation (the "Company"), and ("Participant") pursuant to the Company's 2013 Stock Plan (the "Plan"). To the extent any capitalized terms used in this Agreement are not defined, they shall have the meaning ascribed to them in the Plan.

1. **Grant of Restricted Stock.** Subject to the terms and conditions of this Agreement, the Company hereby grants to Participant shares of the Company's Common Stock (the "Shares") as consideration for services rendered by Participant to the Company. The term "Shares" refers to the number of Shares granted and all securities received in connection with the Shares pursuant to stock dividends or splits, all securities received in replacement of the Shares in a recapitalization, merger, reorganization, exchange or the like, and all new, substituted or additional securities or other property to which Participant is entitled by reason of Participant's ownership of the Shares. The Company shall issue the Shares to Participant by entering such Shares in Participant's name as of such date in the books and records of the Company or, if applicable, a duly authorized transfer agent of the Company. If applicable, the Company will deliver to Participant a certificate representing the Shares as soon as practicable following the date hereof. By Participant's signature and the signature of the Company's representative below, Participant and the Company agree that this grant of Shares is governed by the terms and conditions of this Agreement and the Twist Bioscience Corporation 2013 Stock Plan which is made a part of this Agreement. As a condition to the delivery of any Shares hereunder, the Company shall have the right to require that Participant become party to the Stockholders Agreement and/or the Registration Rights Agreement.

2. **Vesting Schedule.** of the total Shares shall vest on , and an additional of the total Shares shall vest on the corresponding day of each month thereafter (and if there is no corresponding day, the last day of the month), subject to Participant's Continuous Service Status through such vesting date. Fractional shares shall be rounded down to the nearest whole share. Shares that have not yet vested as of a given time pursuant to this vesting schedule are referred to herein as "Unvested Shares."

3. **Limitations on Transfer.** In addition to any other limitation on transfer created by Applicable Laws and the Plan, Participant shall not assign, encumber or dispose of any interest in the Shares while the Shares are unvested and subject to forfeiture, as described below. After any Shares have vested and are no longer subject to forfeiture as described below, Participant shall not assign, encumber or dispose of any interest in such Shares except in compliance with the Stockholders Agreement.

(a) **Forfeiture Upon Termination of Participant's Continuous Service Status.** Notwithstanding any contrary provision of this Agreement, in the event of any voluntary or involuntary termination of Participant's Continuous Service Status prior to vesting pursuant to

the Vesting Schedule set forth in Section 2 above for any reason (including due to death or Disability or by the Company with or without Cause), the then Unvested Shares will thereupon be forfeited and automatically transferred to and reacquired by the Company at no cost to the Company upon the date of such termination and Participant will have no further rights or interests with respect to such Unvested Shares.

(b) **Restrictions Binding on Transferees.** All transferees of Shares or any interest therein will receive and hold such Shares or interest subject to the provisions of this Agreement, the Plan, the Stockholders Agreement and/or the Registration Rights Agreement, as applicable, including, insofar as applicable, the forfeiture provision in Section 3(a) above. Any sale or transfer of the Shares shall be void unless the provisions of this Agreement are satisfied.

(c) **Lock-Up Agreement.** Without limitation on anything in the Stockholders Agreement and/or the Registration Rights Agreement, as applicable, to the extent so requested by the Company or the underwriters in connection with the initial public offering of the Company's securities registered under the Securities Act of 1933, as amended, Participant shall not directly or indirectly offer, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant for the sale of or otherwise dispose of or transfer any shares held by it for such period, not to exceed (a) one hundred eighty (180) days following the effective date of the relevant registration statement filed under the Securities Act in connection with the Company's initial public offering of registrable securities, or (b) ninety (90) days following the effective date of the relevant registration statement in connection with any other public offering of registrable securities, as such underwriter shall specify reasonably and in good faith.

4. **Escrow of Unvested Shares.** For purposes of facilitating the enforcement of the provisions of Section 3(a) above, Participant agrees, immediately upon receipt of the stock certificate or, in the case of uncertificated securities, notice of issuance, for the Unvested Shares, to deliver any such stock certificate(s), as well as a Stock Power in the form attached to this Agreement as Attachment A executed by Participant and by Participant's spouse (if required for transfer), in blank, to the Secretary of the Company, or the Secretary's designee, to hold such Shares (and such stock certificate(s), if any) and Stock Power in escrow and to take all such actions and to effectuate all such transfers and/or releases as are required in accordance with the terms of this Agreement. Participant hereby acknowledges that the Secretary of the Company, or the Secretary's designee, is so appointed as the escrow holder with the foregoing authorities as a material inducement to make this Agreement and that said appointment is coupled with an interest and is accordingly irrevocable. Participant agrees that said escrow holder shall not be liable to any party hereof (or to any other party). The escrow holder may rely upon any letter, notice or other document executed by any signature purported to be genuine and may resign at any time. Participant agrees that if the Secretary of the Company, or the Secretary's designee, resigns as escrow holder for any or no reason, the Board shall have the power to appoint a successor to serve as escrow holder pursuant to the terms of this Agreement.

5. **Investment and Taxation Representations.** In connection with the receipt of the Shares, Participant represents to the Company the following:

(a) Participant is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Shares. Participant is receiving the Shares for investment for Participant's own account only and not with a view to, or for resale in connection with, any "distribution" thereof within the meaning of the Securities Act or under any applicable provision of state law. Participant does not have any present intention to transfer the Shares to any other person or entity.

(b) Participant understands that the Shares have not been registered under the Securities Act by reason of a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of Participant's investment intent as expressed herein.

(c) Participant further acknowledges and understands that the securities must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available. Participant further acknowledges and understands that the Company is under no obligation to register the securities.

(d) Participant is familiar with the provisions of Rule 144, promulgated under the Securities Act, which, in substance, permits limited public resale of "restricted securities" acquired, directly or indirectly, from the issuer of the securities (or from an affiliate of such issuer), in a non-public offering subject to the satisfaction of certain conditions. Participant understands that the Company provides no assurances as to whether he or she will be able to resell any or all of the Shares pursuant to Rule 144, which rule requires, among other things, that the Company be subject to the reporting requirements of the Exchange Act, that resales of securities take place only after the holder of the Shares has held the Shares for certain specified time periods, and under certain circumstances, that resales of securities be limited in volume and take place only pursuant to brokered transactions. Notwithstanding this Section 5(d), Participant acknowledges and agrees to the restrictions set forth in Section 5(e) below.

(e) Participant further understands that in the event all of the applicable requirements of Rule 144 are not satisfied, registration under the Securities Act, compliance with Regulation A, or some other registration exemption will be required; and that, notwithstanding the fact that Rule 144 is not exclusive, the Staff of the Securities and Exchange Commission has expressed its opinion that persons proposing to sell private placement securities other than in a registered offering and otherwise than pursuant to Rule 144 will have a substantial burden of proof in establishing that an exemption from registration is available for such offers or sales, and that such persons and their respective brokers who participate in such transactions do so at their own risk.

(f) Participant understands that Participant may suffer adverse tax consequences as a result of Participant's receipt or disposition of the Shares. Participant represents that Participant has consulted any tax consultants Participant deems advisable in connection with the receipt or disposition of the Shares and that Participant is not relying on the Company for any tax advice.

6. **Voting Provisions.** As condition precedent to entering into this Agreement, Participant shall become a party to the Stockholders Agreement as an "Other Stockholder" by

executing an the joinder agreement attached thereto and agreeing to be bound by and subject to the terms of the Stockholders Agreement, including the restrictions on transfer contained therein, and to vote the Shares in the capacity of an "Other Stockholder" as defined in the Stockholders Agreement.

7. **Restrictive Legends and Stop-Transfer Orders.**

(a) **Legends.** Any certificate or certificates representing the Shares shall bear such legends as may be required by the Stockholders Agreement, the Plan or the Registration Rights Agreement, as applicable, as well as any legends required by the Company or applicable state and federal corporate and securities laws.

(b) **Stop-Transfer Notices.** Participant agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(c) **Refusal to Transfer.** The Company shall not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so transferred.

8. **No Employment Rights.** Nothing in this Agreement shall affect in any manner whatsoever the right or power of the Company, or a parent, subsidiary or affiliate of the Company, to terminate Participant's employment or consulting relationship, for any reason, with or without cause.

9. **Section 83(b) Election.** Participant understands that Section 83(a) of the Internal Revenue Code of 1986, as amended (the "Code"), taxes as ordinary income the difference between the amount paid, if any, for the Shares and the Fair Market Value of the Shares as of each vesting date. Participant understands that Participant may elect to be taxed at the time the Shares are granted, rather than when such Shares vest, by filing an election under Section 83(b) (an "83(b) Election") of the Code with the Internal Revenue Service within thirty (30) days from the date of grant of the restricted stock award. Even if the Fair Market Value of the Shares at the time of the execution of this Agreement equals the amount paid for the Shares, the election must be made to avoid income under Section 83(a) in the future. Participant understands that failure to file such an election in a timely manner may result in adverse tax consequences for Participant. Participant further understands that an additional copy of such election form should be filed with Participant's federal income tax return for the calendar year in which the date of this Agreement falls. Participant acknowledges that the foregoing is only a summary of the effect of United States federal income taxation with respect to grant of the Shares hereunder, does not purport to be complete, and is not intended or written to be used, and cannot be used, for the purposes of avoiding taxpayer penalties. Participant further acknowledges that the Company has directed Participant to seek independent advice regarding the applicable provisions of the Code, the income tax laws of any municipality, state or foreign country in which Participant may reside, and the tax consequences of Participant's death, and Participant has consulted, and has been fully advised by,

Participant's own tax advisor regarding such tax laws and tax consequences or has knowingly chosen not to consult such a tax advisor. Participant further acknowledges that neither the Company nor any subsidiary or representative of the Company has made any warranty or representation to Participant with respect to the tax consequences of Participant's receipt of the Shares or of the making or failure to make an 83(b) Election. PARTICIPANT (AND NOT THE COMPANY, ITS AGENTS OR ANY OTHER PERSON) SHALL BE SOLELY RESPONSIBLE FOR APPROPRIATELY FILING SUCH FORM WITH THE IRS, EVEN IF PARTICIPANT REQUESTS THE COMPANY, ITS AGENTS OR ANY OTHER PERSON MAKE THIS FILING ON PARTICIPANT'S BEHALF.

Participant agrees that Participant will execute and deliver to the Company with this executed Agreement a copy of the Acknowledgment and Statement of Decision Regarding Section 83(b) Election (the "Acknowledgment"), attached hereto as Attachment B and, if Participant decides to make an 83(b) Election, a copy of the 83(b) Election, attached hereto as Attachment C.

10. **Waiver of Statutory Information Rights.** Participant acknowledges and understands that, but for the waiver made herein, Participant would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the Company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the Company, if any, under the circumstances and in the manner provided in Section 220 of the General Corporation Law of Delaware (any and all such rights, and any and all such other rights of Participant as may be provided for in Section 220, the "Inspection Rights"). In light of the foregoing, until the first sale of Common Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act of 1933, as amended, Participant hereby unconditionally and irrevocably waives the Inspection Rights, whether such Inspection Rights would be exercised or pursued directly or indirectly pursuant to Section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights. The foregoing waiver applies to the Inspection Rights of Participant in Participant's capacity as a stockholder and shall not affect any rights of a director, in his or her capacity as such, under Section 220. The foregoing waiver shall not apply to any contractual inspection rights of Participant under any written agreement with the Company.

11. **Miscellaneous.**

(a) **Governing Law.** The validity, interpretation, construction and performance of this Agreement, and all acts and transactions pursuant hereto and the rights and obligations of the parties hereto shall be governed, construed and interpreted in accordance with the laws of the state of Delaware, without giving effect to principles of conflicts of law. For purposes of litigating any dispute that may arise directly or indirectly from this Agreement, the parties hereby submit and consent to the exclusive jurisdiction of the state of Delaware and agree that any such litigation shall be conducted only in the courts of Delaware or the federal courts of the United States located in Delaware and no other courts.

(b) **Entire Agreement.** This Agreement and the Plan set forth the entire agreement and understanding of the parties relating to the subject matter herein and supersede all prior or contemporaneous discussions, understandings and agreements, whether oral or written, between them relating to the subject matter hereof. In the event of any conflict between the Plan and this Agreement, the Plan will control.

(c) **Amendments and Waivers.** No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, shall be effective unless in writing signed by the parties to this Agreement. No delay or failure to require performance of any provision of this Agreement shall constitute a waiver of that provision as to that or any other instance.

(d) **Successors and Assigns.** Except as otherwise provided in this Agreement, this Agreement, and the rights and obligations of the parties hereunder, will be binding upon and inure to the benefit of their respective successors, assigns, heirs, executors, administrators and legal representatives. The Company may assign any of its rights and obligations under this Agreement. No other party to this Agreement may assign, whether voluntarily or by operation of law, any of its rights and obligations under this Agreement, except with the prior written consent of the Company.

(e) **Notices.** Any notice, demand or request required or permitted to be given under this Agreement shall be in writing and shall be deemed sufficient when delivered personally or by overnight courier or sent by email, or 48 hours after being deposited in the U.S. mail as certified or registered mail with postage prepaid, addressed to the party to be notified at such party's address as set forth on the signature page, as subsequently modified by written notice, or if no address is specified on the signature page, at the most recent address set forth in the Company's books and records.

(f) **Severability.** If one or more provisions of this Agreement are held to be unenforceable under Applicable Law, the parties agree to renegotiate such provision in good faith. In the event that the parties cannot reach a mutually agreeable and enforceable replacement for such provision, then (i) such provision shall be excluded from this Agreement, (ii) the balance of the Agreement shall be interpreted as if such provision were so excluded and (iii) the balance of the Agreement shall be enforceable in accordance with its terms.

(g) **Construction.** This Agreement is the result of negotiations between and has been reviewed by each of the parties hereto and their respective counsel, if any; accordingly, this Agreement shall be deemed to be the product of all of the parties hereto, and no ambiguity shall be construed in favor of or against any one of the parties hereto.

(h) **Counterparts.** This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, and all of which together shall constitute one and the same agreement. Execution of a facsimile or scanned copy will have the same force and effect as execution of an original, and a facsimile or scanned signature will be deemed an original and valid signature.

(i) **Electronic Delivery.** The Company may, in its sole discretion, decide to deliver any documents related to this Agreement or any notices required by applicable law or the Company's Certificate of Incorporation or Bylaws by email or any other electronic means. Participant hereby consents to (i) conduct business electronically (ii) receive such documents and notices by such electronic delivery and (iii) sign documents electronically and agrees to participate through an on-line or electronic system established and maintained by the Company or a third party designated by the Company.

(j) **Compliance with Law.** If at any the Company or its counsel shall be of the opinion that any sale or delivery of Shares pursuant to this Agreement is or may in the circumstances be unlawful, or result in the imposition of excise taxes on the Company under the statutes, rules or regulations of any applicable jurisdiction, the Company shall have no obligation to make such sale or delivery, or to make any application or to effect or to maintain any qualification or registration under the Securities Act or otherwise with respect to Shares, and the right to purchase Shares shall be suspended until, in the opinion of said counsel, such sale or delivery shall be lawful and will not result in the imposition of excise taxes on the Company.

[Signature Page Follows]

The parties have executed this Restricted Stock Agreement as of the date first set forth above.

THE COMPANY:

TWIST BIOSCIENCE CORPORATION

By: _____
(Signature)
Name: _____
Title: _____

Address: _____

_____

PARTICIPANT:

_____
(PRINT NAME)

By: _____
(Signature)
Name: _____
Title: _____

Address: _____

_____

Email: _____

I, , spouse of ("Participant"), have read and hereby approve the foregoing Agreement. In consideration of the Company's granting my spouse the right to receive the Shares as set forth in the Agreement, I hereby agree to be bound irrevocably by the Agreement and further agree that any community property or other such interest that I may have in the Shares shall hereby be similarly bound by the Agreement. I hereby appoint my spouse as my attorney-in-fact with respect to any amendment or exercise or waiver of any rights under the Agreement.

Spouse of Participant (if applicable)

ATTACHMENT A

STOCK POWER

FOR VALUE RECEIVED, the undersigned ("Holder"), hereby sells, assigns and transfers unto ("Transferee") shares of the Common Stock of Twist Bioscience Corporation, a Delaware corporation (the "Company"), standing in Holder's name on the Company's books as Certificate No. CS- whether held in certificated or uncertificated form, and does hereby irrevocably constitute and appoint to transfer said stock on the books of the Company with full power of substitution in the premises.

Dated: _____

HOLDER:

_____
(PRINT NAME)

_____
(Signature)

_____
Spouse of Holder (if applicable)

This Stock Power may only be used as authorized by the Restricted Stock Agreement between the Holder and the Company, dated and the exhibits thereto.

Instructions: Please do not fill in any blanks other than the signature line. The purpose of this Stock Power is to enable the Company to transfer the Unvested Shares to the Company upon termination of Holder's Continuous Service Status without requiring additional signatures on the part of Holder.

IF YOU WISH TO MAKE A SECTION 83(B) ELECTION, THE FILING OF SUCH ELECTION IS YOUR RESPONSIBILITY.

THE FORM FOR MAKING THIS SECTION 83(B) ELECTION IS ATTACHED TO THIS AGREEMENT.

YOU MUST FILE THIS FORM WITHIN 30 DAYS OF PURCHASING THE SHARES.

YOU (AND NOT THE COMPANY, ANY OF ITS AGENTS OR ANY OTHER PERSON) SHALL BE SOLELY RESPONSIBLE FOR FILING SUCH FORM WITH THE IRS, EVEN IF YOU REQUEST THE COMPANY, ITS AGENTS OR ANY OTHER PERSON TO MAKE THIS FILING ON YOUR BEHALF AND EVEN IF THE COMPANY, ANY OF ITS AGENTS OR ANY OTHER PERSON HAS PREVIOUSLY MADE THIS FILING ON YOUR BEHALF.

ATTACHMENT B

ACKNOWLEDGMENT AND STATEMENT OF DECISION
REGARDING SECTION 83(b) ELECTION

The undersigned has entered into a restricted stock agreement with Twist Bioscience Corporation, a Delaware corporation (the "Company"), pursuant to which the undersigned has been granted shares of Common Stock of the Company (the "Shares"). In connection with the receipt of the Shares, the undersigned hereby represents as follows:

1. The undersigned has carefully reviewed the restricted stock agreement pursuant to which the undersigned is receiving the Shares.

2. The undersigned either [check and complete as applicable]:

   (a) has consulted, and has been fully advised by, the undersigned's own tax advisor, , whose business address is , regarding the federal, state and local tax consequences of receiving the Shares, and particularly regarding the advisability of making elections pursuant to Section 83(b) of the Internal Revenue Code of 1986, as amended (the "Code") and pursuant to the corresponding provisions, if any, of applicable state law; or

   (b) has knowingly chosen not to consult such a tax advisor.

3. The undersigned hereby states that the undersigned has decided [check as applicable]:

   (a) to make an election pursuant to Section 83(b) of the Code, and is submitting to the Company, together with the undersigned's executed restricted stock agreement, an executed form entitled "Election Under Section 83(b) of the Internal Revenue Code of 1986;" or

   (b) not to make an election pursuant to Section 83(b) of the Code.

4. Neither the Company nor any subsidiary or representative of the Company has made any warranty or representation to the undersigned with respect to the tax consequences of the undersigned's receipt of the Shares or of the making or failure to make an election pursuant to Section 83(b) of the Code or the corresponding provisions, if any, of applicable state law.

Dated: _____

PARTICIPANT:

_____
(PRINT NAME)

_____
(Signature)

_____
Spouse of Participant (if applicable)

ATTACHMENT C

ELECTION UNDER SECTION 83(B)
OF THE INTERNAL REVENUE CODE OF 1986

The undersigned taxpayer hereby elects, pursuant to Section 83(b) of the Internal Revenue Code, to include in taxpayer's gross income for the current taxable year, the amount of any compensation taxable to taxpayer in connection with taxpayer's receipt of the property described below:

1. The name, address, taxpayer identification number and taxable year of the undersigned are as follows:

   NAME OF TAXPAYER: _____

   NAME OF SPOUSE: _____

   ADDRESS: _____

   IDENTIFICATION NO. OF TAXPAYER: _____

   IDENTIFICATION NO. OF SPOUSE: _____

   TAXABLE YEAR: _____

2. The property with respect to which the election is made is described as follows:

   _____ shares of the Common Stock of Twist Bioscience Corporation, a Delaware corporation (the "Company").

3. The date on which the property was transferred is: _____

4. The property is subject to the following restrictions:

   The Shares may not be transferred and are subject to forfeiture under the terms of an agreement between the taxpayer and the Company. These restrictions lapse upon the satisfaction of certain conditions contained in such agreement, including continued service.

5. The fair market value at the time of transfer, determined without regard to any restriction other than a restriction which by its terms will never lapse, of such property is: USD $____.

6. The amount (if any) paid for such property: USD $____.

The undersigned has submitted a copy of this statement to the person for whom the services were performed in connection with the undersigned's receipt of the above-described property. The transferee of such property is the person performing the services in connection with the transfer of said property.

The undersigned understands that the foregoing election may not be revoked except with the consent of the Commissioner.

Dated: _____

PARTICIPANT:

_____
(Signature)

_____
Spouse of Participant (if applicable)

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

NOTICE OF STOCK OPTION GRANT

_____

Address: _____

_____

You have been granted an Option to purchase Shares of Common Stock of Twist Bioscience Corporation, a Delaware corporation (the "Company"), as provided in this Notice of Stock Option Grant (this "Notice") and subject to the terms and conditions of the Twist Bioscience Corporation 2013 Stock Plan and its Israeli Addendum (the "Plan") and the Stock Option Agreement attached hereto, all of which are made a part of this Notice. Unless otherwise defined in this Notice, capitalized terms used but not defined in this Notice shall have the meanings defined in the Plan.

Date of Grant:	
Total Number of Shares:	
Exercise Price per Share:	
Designation of Option:	Israeli Tax Status 102 Capital Gain Track Award 102 Ordinary Income Track Award 102 Non-Trustee Award 3(9) Award
Expiration Date:	
Vesting Commencement Date:	
Exercise Schedule:	The Option is immediately exercisable as to all Shares underlying this Option.
Vesting Schedule:	So long as your Continuous Service Status does not terminate, the Shares underlying this Option shall vest in accordance with the following schedule: [12/48th of the Total Number of Shares shall vest on the one year anniversary of the Vesting Commencement Date, and 1/48th of the Total Number of Shares shall vest on the same day of each month thereafter (and if there is no corresponding day, on the last day of the month).]

Termination Period:	You may exercise this Option for 3 month(s) after termination of your Continuous Service Status, except as otherwise provided in Section 5 of the Stock Option Agreement (but in no event later than the Expiration Date). You are responsible for keeping track of these exercise periods following the termination of your Continuous Service Status for any reason. The Company will not provide further notice of such periods.

By your signature and the signature of the Company's representative below, you and the Company agree that this Option is granted under and governed by the terms and conditions of this Notice, the Plan and the Stock Option Agreement. Further, as a condition to the grant of this Option and/or the delivery of any Shares upon the vesting or exercise of this Option, the Company shall have the right to require that you become party to the Stockholders Agreement and/or the Registration Rights Agreement.

In addition, you agree and acknowledge that your rights to any Shares underlying this Option will be earned only as you provide services to the Company over time, that the grant of this Option is not as consideration for services you rendered to the Company prior to your date of hire, and that nothing in this Notice or the attached documents confers upon you any right to continue your employment or consulting relationship with the Company for any period of time, nor does it interfere in any way with your right or the Company's right to terminate that relationship at any time, for any reason, with or without cause. For purposes of this paragraph, the term "Company" will be interpreted to include any Parent, Subsidiary or Affiliate.

To the extent the Option is designated above as either a 102 Capital Gain Track Award or a 102 Ordinary Income Track Award, the Optionee declares and acknowledges that he or she: (i) fully understands that Section 102 applies to the Option specified in this Notice; and (ii) understands the provisions of Section 102, the tax track chosen and the implications thereof. In addition, the terms of the Option shall also be subject to the terms of the Trust Agreement between the Company and the Trustee, as well as the requirements of the Israeli Income Tax Commissioner. The grant of the Option is conditioned upon the Optionee signing all documents requested by the Company, the Affiliate or the Trustee, in accordance with the Trust Agreement. ***A copy of the Trust Agreement is available for the Optionee's review, during normal working hours at his or her Affiliate's offices.***

[*Signature Page Follows*]

THE COMPANY:

TWIST BIOSCIENCE CORPORATION

By: _____
(Signature)

Name: _____
Title: _____

OPTIONEE:

_____
(Signature)

Address: _____
_____

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

STOCK OPTION AGREEMENT

1. **Grant of Option.** Twist Bioscience Corporation, a Delaware corporation (the "Company"), hereby grants to ("Optionee"), an option (the "Option") to purchase the total number of shares of Common Stock (the "Shares") set forth in the Notice of Stock Option Grant (the "Notice"), at the exercise price per Share set forth in the Notice (the "Exercise Price") subject to the terms, definitions and provisions of the Twist Bioscience Corporation 2013 Stock Plan and its Israeli Addendum (the "Plan") adopted by the Company, which is incorporated in this Stock Option Agreement (this "Agreement") by reference. Unless otherwise defined in this Agreement, the terms used in this Agreement or the Notice shall have the meanings defined in the Plan.

2. **Designation of Option.** This Option is intended to be an Incentive Stock Option as defined in Section 422 of the Code only to the extent so designated in the Notice, and to the extent it is not so designated, or to the extent this Option does not or ceases to qualify as an Incentive Stock Option, it shall be treated as a Nonstatutory Stock Option.

Notwithstanding the above, if designated as an Incentive Stock Option, in the event that the Shares subject to this Option (and all other incentive stock options granted to Optionee by the Company or any Parent or Subsidiary, including under other plans) that first become exercisable in any calendar year have an aggregate Fair Market Value (determined for each Share as of the date of grant of the option covering such Share) in excess of $100,000, this Option, to the extent the value thereof is in excess of $100,000, shall be treated as a Nonstatutory Stock Option, in accordance with Section 7(c) of the Plan.

Notwithstanding anything to the contrary, including the indication under "Designation of Option" above, the Company or the Affiliate shall be under no duty to ensure, and no representation or commitment is made by the Company or the Affiliate, as the case may be, that this Option qualifies or will qualify under any particular tax treatment (such as Section 102 or any other treatment), nor shall the Company or the Affiliate be required to take any action for the qualification of any Option under such tax treatment. The Company or the Affiliate shall have no liability of any kind or nature in the event that, for any reason whatsoever, this Option does not qualify for any particular tax treatment.

3. **Exercise of Option.** This Option shall be exercisable during its term in accordance with the Exercise Schedule set out in the Notice and with the provisions of Section 7(c) of the Plan as follows:

(a) **Right to Exercise.**

(i) This Option may not be exercised for a fraction of a share.

(ii) In the event of Optionee's death, Disability or other termination of Continuous Service Status, the exercisability of this Option is governed by Section 5 below, subject to the limitations contained in this Section 3.

(iii) In no event may this Option be exercised after the Expiration Date set forth in the Notice.

(b) **Method of Exercise.**

(i) This Option shall be exercisable by execution and delivery of the Early Exercise Notice and Restricted Stock Purchase Agreement attached hereto as Exhibit A, the Exercise Agreement attached hereto as Exhibit B or of any other form of written notice approved for such purpose by the Company which shall state Optionee's election to exercise this Option, the number of Shares in respect of which this Option is being exercised, and such other representations and agreements as to the holder's investment intent with respect to such Shares as may be required by the Company pursuant to the provisions of the Plan. Such written notice shall be signed by Optionee and shall be delivered to the Company by such means as are determined by the Company in its discretion to constitute adequate delivery. The written notice shall be accompanied by payment of the aggregate Exercise Price for the purchased Shares.

(ii) As a condition to the exercise of this Option and subject to Section 9 of the Plan, Optionee agrees to make adequate provision for federal, state, Israeli or other applicable tax, withholding, required deductions or other payments, if any, which arise upon the grant, vesting or exercise of this Option, or disposition of Shares, whether by withholding, direct payment to the Company, or otherwise, as determined by the Company in its sole discretion.

(iii) The Company is not obligated, and will have no liability for failure, to issue or deliver any Shares upon exercise of this Option unless such issuance or delivery would comply with the Applicable Laws, with such compliance determined by the Company in consultation with its legal counsel. This Option may not be exercised until such time as the Plan has been approved by the holders of capital stock of the Company, or if the issuance of such Shares upon such exercise or the method of payment of consideration for such Shares would constitute a violation of any Applicable Laws, including any applicable U.S. federal or state securities laws or any other law or regulation, including any rule under Part 221 of Title 12 of the Code of Federal Regulations as promulgated by the Federal Reserve Board. As a condition to the exercise of this Option, the Company may require Optionee to make any representation and warranty to the Company as may be required by the Applicable Laws. Assuming such compliance, for income tax purposes the Shares shall be considered transferred to Optionee on the date on which this Option is exercised with respect to such Shares.

(iv) With respect to 102 Trustee Award, the Shares issued upon exercise of such 102 Trustee Award shall be issued to and in the name of the Trustee on behalf of Optionee, and shall be held by the Trustee in trust on behalf of Optionee; *provided*, *however*, that in the event the Optionee elects to receive the Shares directly to his/her possession, the transfer from the Trustee shall be subject to the payment of any and all applicable taxes by the Optionee, to the satisfaction of each of the Trustee and the Company, until the full payment of required taxes, as applicable.

(v) Subject to compliance with Applicable Laws, this Option shall be deemed to be exercised upon receipt by the Company of the appropriate written notice of exercise accompanied by the Exercise Price and the satisfaction of any applicable obligations described in Section 3(b)(ii) above.

4. **Method of Payment.** Payment of the Exercise Price shall be by cash or check or, following the initial public offering of the Company's Common Stock and subject to the receipt of any required tax ruling, if applicable, by Cashless Exercise pursuant to which the Optionee delivers an irrevocable direction to a securities broker (on a form prescribed by the Company and according to a procedure established by the Company).[1]

5. **Termination of Relationship.** Following the date of termination of Optionee's Continuous Service Status for any reason (the "Termination Date"), Optionee may exercise this Option only as set forth in the Notice and this Section 5. If Optionee does not exercise this Option within the Termination Period set forth in the Notice or the termination periods set forth below, this Option shall terminate in its entirety. In no event, may any Option be exercised after the Expiration Date of this Option as set forth in the Notice.

(a) **General Termination.** In the event of termination of Optionee's Continuous Service Status other than as a result of Optionee's Disability or death or Optionee's termination by the Company for Cause, Optionee may, to the extent Optionee is vested in the Optioned Stock at the date of such termination, exercise this Option during the Termination Period set forth in the Notice (but in no event later than the Expiration Date).

(b) **Termination upon Disability of Optionee.** In the event of termination of Optionee's Continuous Service Status as a result of Optionee's Disability, Optionee may, but only within 12 month(s) following the Termination Date, exercise this Option to the extent Optionee is vested in the Optioned Stock.

(c) **Death of Optionee.** In the event of termination of Optionee's Continuous Service Status as a result of Optionee's death, or in the event of Optionee's death within 3 month(s) following Optionee's Termination Date, this Option may be exercised at any time within 12 month(s) following the Termination Date, or if later, 12 month(s) following the date of death (but in each case, in no event later than the Expiration Date) by any beneficiaries designated in accordance with Section 16 of the Plan or, if there are no such beneficiaries, by the Optionee's estate, or by a person who acquired the right to exercise the Option by bequest or inheritance, but only to the extent Optionee is vested in this Option.

(d) **Termination for Cause.** In the event of termination of Optionee's Continuous Service Status by the Company for Cause, this Option (including any vested portion thereof) shall immediately terminate in its entirety upon first notification to Optionee of such termination by the Company for Cause. If Optionee's Continuous Service Status is suspended pending an investigation of whether Optionee's Continuous Service Status will be terminated by the Company for Cause, all Optionee's rights under this Option, including the right to exercise this Option, shall be suspended during the investigation period.

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[1] ***Note:*** ***Any cashless exercise (i.e., the surrender of shares having a fair market value equal to the exercise price) of a 102 Trustee Award is subject to the ITA's pre-approval***.

6. **Non-Transferability of Option.** This Option may not be transferred in any manner otherwise than by will or by the laws of descent or distribution and may be exercised during the lifetime of Optionee only by him or her, subject to the terms of the Plan and the Stockholders Agreement. The terms of this Option shall be binding upon the executors, administrators, heirs, successors and assigns of Optionee. With respect to 102 Trustee Award, Optionee shall not sell, assign, transfer, pledge, give as a collateral, or grant any right to any third party or release from trust any Option and any Share received and/or any additional rights, including bonus shares that may be distributed to the Optionee in connection with such 102 Trustee Award (the "Additional Rights"), which will be allocated to the Trustee on behalf of the Optionee and shall be held in trust or controlled by the Trustee for the benefit of the Optionee, until at least the lapse of the Required Holding Period. Notwithstanding the above, if any such sale or release occurs during the Required Holding Period, the sanctions under Section 102 shall apply to and shall be borne by the Optionee. At the end of the Required Holding Period, the Options or Shares underlying the Options or any Additional Rights may be transferred to the Optionee upon his or her demand, but only under the condition that the tax due in accordance with Section 102 is paid to the satisfaction of the Trustee and the Company. With respect to any Award granted by the Company pursuant to Section 102(c) of the Ordinance (which provides for ordinary income Awards administered by the Trustee), the Award and all rights (if any) that accrue thereon shall be allocated or issued to the Trustee, who shall hold such Award and all rights accrued thereon (if any) in trust for the benefit of the Optionee and/or the Company, as the case may be, until the full payment of required taxes arising from such Award and/or rights accrued thereon (if any).

7. **Lock-Up Agreement.** Without limitation on anything in the Stockholders Agreement and/or the Registration Rights Agreement, as applicable, to the extent so requested by the Company or the underwriters in connection with the initial public offering of the Company's securities registered under the Securities Act of 1933, as amended, Optionee shall not directly or indirectly offer, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant for the sale of or otherwise dispose of or transfer any shares held by it for such period, not to exceed (a) one hundred eighty (180) days following the effective date of the relevant registration statement filed under the Securities Act in connection with the Company's initial public offering of registrable securities, or (b) ninety (90) days following the effective date of the relevant registration statement in connection with any other public offering of registrable securities, as such underwriter shall specify reasonably and in good faith.

8. **Tax Consultation**. The Optionee is advised to consult with a tax advisor with respect to the tax consequences of exercising the Option hereunder or disposing of the Shares issued upon exercise of the Options. The Company does not assume any responsibility to advise the Optionee on such matters, which shall remain solely the responsibility of the Optionee.

9. **Irrevocable Proxy**. As a material precondition to the Company's grant of Options and issuance of Shares in accordance with the Plan, the Optionee hereby executes an irrevocable proxy in the form attached hereto as Exhibit C (and, if applicable, instructs the Trustee to sign such proxy, as requested by the Company), to the Company which shall designate such person or

persons (with a right of substitution) from time to time as determined by the Administrator (and in the absence of such determination, the CEO or Chairman of the Board, ex officio). The provisions of this Section shall apply to the Optionee and to any purchaser, assignee or transferee of any Shares.

10. **Effect of Agreement.** Optionee acknowledges receipt of a copy of the Plan and represents that he or she is familiar with the terms and provisions thereof (and has had an opportunity to consult counsel regarding the Option terms), and hereby accepts this Option and agrees to be bound by its contractual terms as set forth herein and in the Plan. Optionee hereby agrees to accept as binding, conclusive and final all decisions and interpretations of the Administrator regarding any questions relating to this Option. In the event of a conflict between the terms and provisions of the Plan and the terms and provisions of the Notice and this Agreement, the Plan terms and provisions shall prevail.

11. **Imposition of Other Requirements.** The Company reserves the right to impose other requirements on Optionee's participation in the Plan, on the Option and on any Award or Shares acquired under the Plan, to the extent the Company determines it is necessary or advisable in order to comply with Applicable Laws or facilitate the administration of the Plan. Optionee agrees to sign any additional agreements or undertakings that may be necessary to accomplish the foregoing, including, without limitation, the Stockholders Agreement and/or the Registration Rights Agreement. Furthermore, Optionee acknowledges that the laws of the country in which Optionee is working at the time of grant, vesting and exercise of the Option or the sale of Shares received pursuant to this Agreement (including any rules or regulations governing securities, foreign exchange, tax, labor, or other matters) may subject Optionee to additional procedural or regulatory requirements that Optionee is and will be solely responsible for and must fulfill.

12. **Electronic Delivery.** The Company may, in its sole discretion, decide to deliver any documents related to Optionee's current or future participation in the Plan by electronic means or to request Optionee's consent to participate in the Plan by electronic means. By accepting this Option grant, Optionee hereby consents to receive such documents by electronic delivery and subject to the receipt of any required tax ruling, if applicable, agrees to participate in the Plan through an on-line or electronic system established and maintained by the Company or a third party designated by the Company. ***[Note: With respect to Options granted under Section 102 of the Ordinance, an electronic signature must be approved by the ITA in advance.]***

13. **Miscellaneous.**

(a) **Governing Law.** The validity, interpretation, construction and performance of this Agreement, and all acts and transactions pursuant hereto and the rights and obligations of the parties hereto shall be governed, construed and interpreted in accordance with the laws of the state of Delaware, without giving effect to principles of conflicts of law; *provided* that with respect to any Option granted under Israeli law the tax treatment and the tax rules and regulations applying hereto shall be the Ordinance. For purposes of litigating any dispute that may arise directly or indirectly from this Agreement, the parties hereby submit and consent to the exclusive jurisdiction of the state of Delaware and agree that any such litigation shall be conducted only in the courts of Delaware or the federal courts of the United States located in Delaware and no other courts.

(b) **Entire Agreement.** This Agreement, together with the Plan and the Notice, set forth the entire agreement and understanding of the parties relating to the subject matter herein and supersede all prior or contemporaneous discussions, understandings and agreements, whether oral or written, between them relating to the subject matter hereof.

(c) **Amendments and Waivers.** No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, shall be effective unless in writing signed by the parties to this Agreement. No delay or failure to require performance of any provision of this Agreement shall constitute a waiver of that provision as to that or any other instance.

(d) **Successors and Assigns.** Except as otherwise provided in this Agreement, this Agreement, and the rights and obligations of the parties hereunder, will be binding upon and inure to the benefit of their respective successors, assigns, heirs, executors, administrators and legal representatives. The Company may assign any of its rights and obligations under this Agreement. No other party to this Agreement may assign, whether voluntarily or by operation of law, any of its rights and obligations under this Agreement, except with the prior written consent of the Company.

(e) **Notices.** Any notice, demand or request required or permitted to be given under this Agreement shall be in writing and shall be deemed sufficient when delivered personally or by overnight courier or sent by email, or 48 hours after being deposited in the U.S. mail as certified or registered mail with postage prepaid, addressed to the party to be notified at such party's address as set forth on the signature page, as subsequently modified by written notice, or if no address is specified on the signature page, at the most recent address set forth in the Company's books and records.

(f) **Severability.** If one or more provisions of this Agreement are held to be unenforceable under applicable law, the parties agree to renegotiate such provision in good faith. In the event that the parties cannot reach a mutually agreeable and enforceable replacement for such provision, then (i) such provision shall be excluded from this Agreement, (ii) the balance of the Agreement shall be interpreted as if such provision were so excluded and (iii) the balance of the Agreement shall be enforceable in accordance with its terms.

(g) **Construction.** This Agreement is the result of negotiations between and has been reviewed by each of the parties hereto and their respective counsel, if any; accordingly, this Agreement shall be deemed to be the product of all of the parties hereto, and no ambiguity shall be construed in favor of or against any one of the parties hereto.

(h) **Counterparts.** This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, and all of which together shall constitute one and the same agreement.

(i) **Code Section 409A**. It is intended that the Option comply with or be exempt from Section 409A of the Code, and this Agreement shall be limited, construed and interpreted in accordance with such intent; p*rovided*, that for the avoidance of doubt, this provision shall not be construed to require a gross-up payment in respect of any taxes, interest or penalties

imposed on the Optionee as a result of Section 409A of the Code, and by accepting this Option grant, the Optionee agrees and acknowledges that the Company be held liable for any applicable costs, taxes, or penalties associated with this Option or this Agreement under Code Section 409A or otherwise.

EXHIBIT A

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

EARLY EXERCISE NOTICE AND RESTRICTED STOCK PURCHASE AGREEMENT

This Agreement ("Agreement") is made as of by and between Twist Bioscience Corporation, a Delaware corporation (the "Company"), and ("Purchaser"). To the extent any capitalized terms used in this Agreement are not defined, they shall have the meaning ascribed to them in the Company's 2013 Stock Plan and its Israeli Addendum (the "Plan") and the Option Agreement (as defined below).

1. **Exercise of Option.** Subject to the terms and conditions hereof, Purchaser hereby elects to exercise his or her option to purchase shares of the Common Stock (the "Shares") of the Company under and pursuant to the Plan, the Notice of Stock Option Grant and the Stock Option Agreement granted (the "Option Agreement"). Of these Shares, Purchaser has elected to purchase of those Shares which have become vested as of the date hereof under the Vesting Schedule set forth in the Notice of Stock Option Grant (the "Vested Shares") and Shares which have not yet vested under such Vesting Schedule (the "Unvested Shares"). The purchase price for the Shares shall be $0.00001 per Share for a total purchase price of $. The term "Shares" refers to the purchased Shares and all securities received in connection with the Shares pursuant to stock dividends or splits, all securities received in replacement of the Shares in a recapitalization, merger, reorganization, exchange or the like, and all new, substituted or additional securities or other property to which Purchaser is entitled by reason of Purchaser's ownership of the Shares.

2. **Time and Place of Exercise.** The purchase and sale of the Shares under this Agreement shall occur at the principal office of the Company simultaneously with the execution and delivery of this Agreement, the payment of the aggregate exercise price by any method permitted in Section 4 of the Option Agreement, and the satisfaction of any applicable tax, withholding, required deductions or other payments, all in accordance with the provisions of Section 3(b) of the Option Agreement. The Company shall issue the Shares to Purchaser by entering such Shares in Purchaser's name as of such date in the books and records of the Company or, if applicable, a duly authorized transfer agent of the Company, against payment of the exercise price therefor by Purchaser. With respect to 102 Trustee Award, the Shares issued upon exercise of such 102 Trustee Award shall be issued to and in the name of the Trustee on behalf of Optionee, and shall be held by the Trustee in trust on behalf of Optionee. If applicable, the Company will deliver to Purchaser a certificate representing the Shares as soon as practicable following such date.

3. **Limitations on Transfer.** In addition to any other limitation on transfer created by Applicable Laws, the Plan and the Option Agreement, Purchaser shall not assign, encumber or dispose of any interest in the Shares while the Shares are subject to the Company's Repurchase Option (as defined below). After any Shares have been released from such Repurchase Option, Purchaser shall not assign, encumber or dispose of any interest in such Shares except in compliance with the Stockholders Agreement, the Plan and the Option Agreement.

(a) **Repurchase Option.**

(i) In the event of the voluntary or involuntary termination of Purchaser's Continuous Service Status with the Company for any reason (including, without limitation, resignation, death or Disability), with or without Cause, the Company shall upon the date of such termination (the "Termination Date") have an irrevocable, exclusive option (the "Repurchase Option") for a period of 3 months from such date to repurchase all or any portion of the Unvested Shares (as defined below) held by Purchaser as of the Termination Date at the original purchase price per Share (adjusted for any stock splits, stock dividends and the like) specified in Section 1. As used herein, "Unvested Shares" means Shares that have not yet been released from the Repurchase Option.

(ii) Unless the Company notifies Purchaser within 3 months from the Termination Date that it does not intend to exercise its Repurchase Option with respect to some or all of the Unvested Shares, the Repurchase Option shall be deemed automatically exercised by the Company as of the end of such 3-month period following such termination, provided that the Company may notify Purchaser that it is exercising its Repurchase Option as of a date prior to the end of such 3-month period. Unless Purchaser is otherwise notified by the Company pursuant to the preceding sentence that the Company does not intend to exercise its Repurchase Option as to some or all of the Unvested Shares to which it applies at the time of termination, execution of this Agreement by Purchaser constitutes written notice to Purchaser of the Company's intention to exercise its Repurchase Option with respect to all Unvested Shares to which such Repurchase Option applies. The Company, at its choice, may satisfy its payment obligation to Purchaser with respect to exercise of the Repurchase Option by either (A) delivering a check to Purchaser in the amount of the purchase price for the Unvested Shares being repurchased, or (B) in the event Purchaser is indebted to the Company, canceling an amount of such indebtedness equal to the purchase price for the Unvested Shares being repurchased, or (C) by a combination of (A) and (B) so that the combined payment and cancellation of indebtedness equals such purchase price. In the event of any deemed automatic exercise of the Repurchase Option pursuant to this Section 3(a)(ii) in which Purchaser is indebted to the Company, such indebtedness equal to the purchase price of the Unvested Shares being repurchased shall be deemed automatically canceled as of the end of such 3-month period following termination of Purchaser's employment or consulting relationship unless the Company otherwise satisfies its payment obligations. As a result of any repurchase of Unvested Shares pursuant to this Section 3(a), the Company shall become the legal and beneficial owner of the Unvested Shares being repurchased and shall have all rights and interest therein or related thereto, and the Company shall have the right to transfer to its own name the number of Unvested Shares being repurchased by the Company, without further action by Purchaser.

(iii) One hundred percent (100%) of the Shares shall initially be subject to the Repurchase Option. The Unvested Shares shall be released from the Repurchase Option in accordance with the Vesting Schedule set forth in the Notice of Stock Option Grant until all Shares are released from the Repurchase Option; provided, however, that such scheduled releases from the Repurchase Option shall immediately cease as of the Termination Date. Fractional shares shall be rounded to the nearest whole share.

(b) **Restrictions Binding on Transferees.** All transferees of Shares or any interest therein will receive and hold such Shares or interest subject to the provisions of this Agreement, the Plan, the Stockholders Agreement and/or the Registration Rights Agreement, as applicable, and the terms of the Option Agreement, including, without limitation, Section 7 of the Option Agreement and, insofar as applicable, the Repurchase Option. In the event the Repurchase Option is deemed exercised by the Company pursuant to Section 3(a)(ii) hereof, the Company may deem any transferee to have transferred the Shares or interest to Purchaser prior to their purchase by the Company, and payment of the purchase price by the Company to such transferee shall be deemed to satisfy Purchaser's obligation to pay such transferee for such Shares or interest, and also to satisfy the Company's obligation to pay Purchaser for such Shares or interest. Any sale or transfer of the Shares shall be void unless the provisions of this Agreement are satisfied.

(c) **Lock-Up Agreement.** The lock-up provisions set forth in Section 7 of the Option Agreement shall apply to the Shares issued upon exercise of the Option hereunder and Purchaser reaffirms Purchaser's obligations set forth therein.

4. **Escrow of Unvested Shares.** For purposes of facilitating the enforcement of the provisions of Section 3(a) above, Purchaser agrees, immediately upon receipt of the stock certificate or, in the case of uncertificated securities, notice of issuance, for the Shares subject to the Repurchase Option, to deliver any such stock certificate(s), as well as a Stock Power in the form attached to this Agreement as Attachment A executed by Purchaser and by Purchaser's spouse (if required for transfer), in blank, to the Secretary of the Company, or the Secretary's designee, to hold such Shares (and such stock certificate(s), if any) and Stock Power in escrow and to take all such actions and to effectuate all such transfers and/or releases as are required in accordance with the terms of this Agreement. Purchaser hereby acknowledges that the Secretary of the Company, or the Secretary's designee, is so appointed as the escrow holder with the foregoing authorities as a material inducement to make this Agreement and that said appointment is coupled with an interest and is accordingly irrevocable. Purchaser agrees that said escrow holder shall not be liable to any party hereof (or to any other party). The escrow holder may rely upon any letter, notice or other document executed by any signature purported to be genuine and may resign at any time. Purchaser agrees that if the Secretary of the Company, or the Secretary's designee, resigns as escrow holder for any or no reason, the Board shall have the power to appoint a successor to serve as escrow holder pursuant to the terms of this Agreement.

5. **Investment and Taxation Representations.** In connection with the purchase of the Shares, Purchaser represents to the Company the following:

(a) Purchaser is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Shares. Purchaser is purchasing the Shares for investment for Purchaser's own account only and not with a view to, or for resale in connection with, any "distribution" thereof within the meaning of the Securities Act or under any applicable provision of state law. Purchaser does not have any present intention to transfer the Shares to any other person or entity.

(b) Purchaser understands that the Shares have not been registered under the Securities Act by reason of a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of Purchaser's investment intent as expressed herein.

(c) Purchaser further acknowledges and understands that the securities must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available. Purchaser further acknowledges and understands that the Company is under no obligation to register the securities.

(d) Purchaser is familiar with the provisions of Rule 144, promulgated under the Securities Act, which, in substance, permits limited public resale of "restricted securities" acquired, directly or indirectly, from the issuer of the securities (or from an affiliate of such issuer), in a non-public offering subject to the satisfaction of certain conditions. Purchaser understands that the Company provides no assurances as to whether he or she will be able to resell any or all of the Shares pursuant to Rule 144, which rule requires, among other things, that the Company be subject to the reporting requirements of the Exchange Act, that resales of securities take place only after the holder of the Shares has held the Shares for certain specified time periods, and under certain circumstances, that resales of securities be limited in volume and take place only pursuant to brokered transactions. Notwithstanding this Section 5(d), Purchaser acknowledges and agrees to the restrictions set forth in Section 5(e) below.

(e) Purchaser further understands that in the event all of the applicable requirements of Rule 144 are not satisfied, registration under the Securities Act, compliance with Regulation A, or some other registration exemption will be required; and that, notwithstanding the fact that Rule 144 is not exclusive, the Staff of the Securities and Exchange Commission has expressed its opinion that persons proposing to sell private placement securities other than in a registered offering and otherwise than pursuant to Rule 144 will have a substantial burden of proof in establishing that an exemption from registration is available for such offers or sales, and that such persons and their respective brokers who participate in such transactions do so at their own risk.

(f) Purchaser understands that Purchaser may suffer adverse tax consequences as a result of Purchaser's purchase or disposition of the Shares. Purchaser represents that Purchaser has consulted any tax consultants Purchaser deems advisable in connection with the purchase or disposition of the Shares and that Purchaser is not relying on the Company for any tax advice.

6. **Voting Provisions.** As condition precedent to entering into this Agreement, Purchaser shall become a party to the Stockholders Agreement as an "Other Stockholder" by executing an the joinder agreement attached thereto and agreeing to be bound by and subject to the terms of the Stockholders Agreement, including the restrictions on transfer contained therein, and to vote the Shares in the capacity of an "Other Stockholder" as defined in the Stockholders Agreement.

7. **Restrictive Legends and Stop-Transfer Orders.**

(a) **Legends.** Any certificate or certificates representing the Shares shall bear such legends as may be required by the Stockholders Agreement, the Plan or the Registration Rights Agreement, as applicable, as well as any legends required by the Company or applicable state and federal corporate and securities laws.

(b) **Stop-Transfer Notices.** Purchaser agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(c) **Refusal to Transfer.** The Company shall not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so transferred.

8. **No Employment Rights.** Nothing in this Agreement shall affect in any manner whatsoever the right or power of the Company, or a parent, subsidiary or affiliate of the Company, to terminate Purchaser's employment or consulting relationship, for any reason, with or without cause.

9. **Section 83(b) Election.** To the extent Purchase is or may become subject to taxation in the United States, this Section 9 shall apply.

(a) Purchaser understands that Section 83(a) of the Internal Revenue Code of 1986, as amended (the "Code"), taxes as ordinary income for a Nonstatutory Stock Option and as alternative minimum taxable income for an Incentive Stock Option the difference between the amount paid for the Shares and the Fair Market Value of the Shares as of the date any restrictions on the Shares lapse. In this context, "restriction" means the right of the Company to buy back the Shares pursuant to the Repurchase Option set forth in Section 3(a) of this Agreement. Purchaser understands that Purchaser may elect to be taxed at the time the Shares are purchased, rather than when and as the Repurchase Option expires, by filing an election under Section 83(b) (an "83(b) Election") of the Code with the Internal Revenue Service within 30 days from the date of purchase. Even if the Fair Market Value of the Shares at the time of the execution of this Agreement equals the amount paid for the Shares, the election must be made to avoid income and alternative minimum tax treatment under Section 83(a) in the future. Purchaser understands that failure to file such an election in a timely manner may result in adverse tax consequences for Purchaser. Purchaser further understands that an additional copy of such election form should be filed with his or her federal income tax return for the calendar year in which the date of this Agreement falls. Purchaser acknowledges that the foregoing is only a summary of the effect of United States federal income taxation with respect to purchase of the Shares hereunder, and does not purport to be complete, and is not intended or written to be used, and cannot be used, for the purposes of avoiding taxpayer penalties. Purchaser further acknowledges that the Company has directed Purchaser to seek independent advice regarding the applicable provisions of the Code, the income tax laws of any municipality, state or foreign country in which Purchaser may reside, and the tax consequences of Purchaser's death, and Purchaser has consulted, and has been fully advised by, Purchaser's own tax advisor regarding such tax laws and tax consequences or has knowingly chosen not to consult such a tax advisor. Purchaser further acknowledges that neither the Company nor any subsidiary or representative of the Company has made any warranty or representation to Purchaser with respect to the tax consequences of Purchaser's purchase of the Shares or of the making or failure to make an 83(b) Election. PURCHASER (AND NOT THE COMPANY, ITS AGENTS OR ANY OTHER PERSON) SHALL BE SOLELY RESPONSIBLE FOR

APPROPRIATELY FILING SUCH FORM WITH THE IRS, EVEN IF PURCHASER REQUESTS THE COMPANY, ITS AGENTS OR ANY OTHER PERSON MAKE THIS FILING ON PURCHASER'S BEHALF.

(b) Purchaser agrees that he or she will execute and deliver to the Company with this executed Agreement a copy of the Acknowledgment and Statement of Decision Regarding Section 83(b) Election (the "Acknowledgment") attached hereto as Attachment B. Purchaser further agrees that he or she will execute and submit with the Acknowledgment a copy of the 83(b) Election attached hereto as Attachment C (for tax purposes in connection with the early exercise of an option) if Purchaser has indicated in the Acknowledgment his or her decision to make such an election.

10. **Waiver of Statutory Information Rights.** Purchaser acknowledges and understands that, but for the waiver made herein, Purchaser would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the Company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the Company, if any, under the circumstances and in the manner provided in Section 220 of the General Corporation Law of Delaware (any and all such rights, and any and all such other rights of Purchaser as may be provided for in Section 220, the "Inspection Rights"). In light of the foregoing, until the first sale of Common Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act of 1933, as amended, Purchaser hereby unconditionally and irrevocably waives the Inspection Rights, whether such Inspection Rights would be exercised or pursued directly or indirectly pursuant to Section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights. The foregoing waiver applies to the Inspection Rights of Purchaser in Purchaser's capacity as a stockholder and shall not affect any rights of a director, in his or her capacity as such, under Section 220. The foregoing waiver shall not apply to any contractual inspection rights of Purchaser under any written agreement with the Company.

11. **Miscellaneous.**

(a) **Governing Law.** The validity, interpretation, construction and performance of this Agreement, and all acts and transactions pursuant hereto and the rights and obligations of the parties hereto shall be governed, construed and interpreted in accordance with the laws of the state of Delaware, without giving effect to principles of conflicts of law. For purposes of litigating any dispute that may arise directly or indirectly from this Agreement, the parties hereby submit and consent to the exclusive jurisdiction of the state of Delaware and agree that any such litigation shall be conducted only in the courts of Delaware or the federal courts of the United States located in Delaware and no other courts.

(b) **Entire Agreement.** This Agreement, together with the Option Agreement, the Notice and the Plan, sets forth the entire agreement and understanding of the parties relating to the subject matter herein and supersedes all prior or contemporaneous discussions, understandings and agreements, whether oral or written, between them relating to the subject matter hereof.

(c) **Amendments and Waivers.** No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, shall be effective unless in writing signed by the parties to this Agreement. No delay or failure to require performance of any provision of this Agreement shall constitute a waiver of that provision as to that or any other instance.

(d) **Successors and Assigns.** Except as otherwise provided in this Agreement, this Agreement, and the rights and obligations of the parties hereunder, will be binding upon and inure to the benefit of their respective successors, assigns, heirs, executors, administrators and legal representatives. The Company may assign any of its rights and obligations under this Agreement. No other party to this Agreement may assign, whether voluntarily or by operation of law, any of its rights and obligations under this Agreement, except with the prior written consent of the Company.

(e) **Notices.** Any notice, demand or request required or permitted to be given under this Agreement shall be in writing and shall be deemed sufficient when delivered personally or by overnight courier or sent by email, or 48 hours after being deposited in the U.S. mail as certified or registered mail with postage prepaid, addressed to the party to be notified at such party's address as set forth on the signature page, as subsequently modified by written notice, or if no address is specified on the signature page, at the most recent address set forth in the Company's books and records.

(f) **Severability.** If one or more provisions of this Agreement are held to be unenforceable under applicable law, the parties agree to renegotiate such provision in good faith. In the event that the parties cannot reach a mutually agreeable and enforceable replacement for such provision, then (i) such provision shall be excluded from this Agreement, (ii) the balance of the Agreement shall be interpreted as if such provision were so excluded and (iii) the balance of the Agreement shall be enforceable in accordance with its terms.

(g) **Construction.** This Agreement is the result of negotiations between and has been reviewed by each of the parties hereto and their respective counsel, if any; accordingly, this Agreement shall be deemed to be the product of all of the parties hereto, and no ambiguity shall be construed in favor of or against any one of the parties hereto.

(h) **Counterparts.** This Agreement may be executed in any number of which when so executed and delivered shall be deemed an original, and all of which together shall constitute one and the same agreement.

(i) **Electronic Delivery.** The Company may, in its sole discretion, decide to deliver any documents related to this Agreement by electronic means. Purchaser hereby consents to receive such documents by electronic delivery and agrees to participate through an on-line or electronic system established and maintained by the Company or a third party designated by the Company.

(j) **Compliance with Law.** If at any the Company or its counsel shall be of the opinion that any sale or delivery of Shares pursuant to this Agreement is or may in the circumstances be unlawful, or result in the imposition of excise taxes on the Company under the

statutes, rules or regulations of any applicable jurisdiction, the Company shall have no obligation to make such sale or delivery, or to make any application or to effect or to maintain any qualification or registration under the Securities Act or otherwise with respect to Shares, and the right to purchase Shares shall be suspended until, in the opinion of said counsel, such sale or delivery shall be lawful and will not result in the imposition of excise taxes on the Company.

The parties have executed this Early Exercise Notice and Restricted Stock Purchase Agreement as of the date first set forth above.

THE COMPANY:

TWIST BIOSCIENCE CORPORATION

By: _____
(Signature)

Name: _____

Title: _____

Address: _____

_____

PURCHASER:

_____
(Signature)

Address: _____

_____

Email: _____

I, , spouse of ("Purchaser"), have read and hereby approve the foregoing Agreement. In consideration of the Company's granting my spouse the right to purchase the Shares as set forth in the Agreement, I hereby agree to be bound irrevocably by the Agreement and further agree that any community property or other such interest that I may have in the Shares shall hereby be similarly bound by the Agreement. I hereby appoint my spouse as my attorney-in-fact with respect to any amendment or exercise of any rights under the Agreement.

Spouse of Purchaser (if applicable)

ATTACHMENT A

STOCK POWER

FOR VALUE RECEIVED, the undersigned ("Holder"), hereby sells, assigns and transfers unto ("Transferee") shares of the Common Stock of Twist Bioscience Corporation, a Delaware corporation (the "Company"), standing in Holder's name on the Company's books as Certificate No. CS- whether held in certificated or uncertificated form, and does hereby irrevocably constitute and appoint to transfer said stock on the books of the Company with full power of substitution in the premises.

Dated: _____

HOLDER:

_____
(Signature)

_____
Spouse of Holder (if applicable)

This Stock Power may only be used as authorized by the Early Exercise Notice and Restricted Stock Purchase Agreement between the Holder and the Company, dated and the exhibits thereto.

Instructions: Please do not fill in any blanks other than the signature line. The purpose of this assignment is to enable the Company to exercise its repurchase option set forth in the Agreement without requiring additional signatures on the part of Holder.

IF YOU WISH TO MAKE A SECTION 83(B) ELECTION, THE FILING OF SUCH ELECTION IS YOUR RESPONSIBILITY.

THE FORM FOR MAKING THIS SECTION 83(B) ELECTION IS ATTACHED TO THIS AGREEMENT.

YOU MUST FILE THIS FORM WITHIN 30 DAYS OF PURCHASING THE SHARES.

YOU (AND NOT THE COMPANY, ANY OF ITS AGENTS OR ANY OTHER PERSON) SHALL BE SOLELY RESPONSIBLE FOR FILING SUCH FORM WITH THE IRS, EVEN IF YOU REQUEST THE COMPANY, ITS AGENTS OR ANY OTHER PERSON TO MAKE THIS FILING ON YOUR BEHALF AND EVEN IF THE COMPANY, ANY OF ITS AGENTS OR ANY OTHER PERSON HAS PREVIOUSLY MADE THIS FILING ON YOUR BEHALF.

The election should be filed by mailing a signed election form by certified mail, return receipt requested to the IRS Service Center where you file your tax returns. See www.irs.gov.

ATTACHMENT B

ACKNOWLEDGMENT AND STATEMENT OF DECISION
REGARDING SECTION 83(b) ELECTION

The undersigned has entered into a stock purchase agreement with Twist Bioscience Corporation, a Delaware corporation (the "Company"), pursuant to which the undersigned is purchasing shares of Common Stock of the Company (the "Shares"). In connection with the purchase of the Shares, the undersigned hereby represents as follows:

1. The undersigned has carefully reviewed the stock purchase agreement pursuant to which the undersigned is purchasing the Shares.

2. The undersigned either [check and complete as applicable]:

(a) has consulted, and has been fully advised by, the undersigned's own tax advisor, , whose business address is , regarding the federal, state and local tax consequences of purchasing the Shares, and particularly regarding the advisability of making elections pursuant to Section 83(b) of the Internal Revenue Code of 1986, as amended (the "Code") and pursuant to the corresponding provisions, if any, of applicable state law; or

(b) has knowingly chosen not to consult such a tax advisor.

3. The undersigned hereby states that the undersigned has decided [check as applicable]:

(c) to make an election pursuant to Section 83(b) of the Code, and is submitting to the Company, together with the undersigned's executed stock purchase agreement, an executed form entitled "Election Under Section 83(b) of the Internal Revenue Code of 1986;" or

(d) not to make an election pursuant to Section 83(b) of the Code.

4. Neither the Company nor any subsidiary or representative of the Company has made any warranty or representation to the undersigned with respect to the tax consequences of the undersigned's purchase of the Shares or of the making or failure to make an election pursuant to Section 83(b) of the Code or the corresponding provisions, if any, of applicable state law.

Dated: _____

PURCHASER:

_____
(Signature)

_____
Spouse of Purchaser (if applicable)

ATTACHMENT C

ELECTION UNDER SECTION 83(B)
OF THE INTERNAL REVENUE CODE OF 1986

The undersigned taxpayer hereby elects, pursuant to Section 83(b) of the Internal Revenue Code, to include in taxpayer's gross income or alternative minimum taxable income, as applicable, for the current taxable year, the amount of any income that may be taxable to taxpayer in connection with taxpayer's receipt of the property described below:

1. The name, address, taxpayer identification number and taxable year of the undersigned are as follows:

   NAME OF TAXPAYER: _____

   NAME OF SPOUSE: _____

   ADDRESS: _____

   IDENTIFICATION NO. OF TAXPAYER: _____

   IDENTIFICATION NO. OF SPOUSE: _____

   TAXABLE YEAR: _____

2. The property with respect to which the election is made is described as follows:

   _____ shares of the Common Stock of Twist Bioscience Corporation, a Delaware corporation (the "Company").

3. The date on which the property was transferred is: _____

4. The property is subject to the following restrictions:

   Repurchase option at cost in favor of the Company upon termination of taxpayer's employment or consulting relationship.

5. The fair market value at the time of transfer, determined without regard to any restriction other than a restriction which by its terms will never lapse, of such property is: $____.

6. The amount (if any) paid for such property: $____.

The undersigned has submitted a copy of this statement to the person for whom the services were performed in connection with the undersigned's receipt of the above-described property. The transferee of such property is the person performing the services in connection with the transfer of said property.

The undersigned understands that the foregoing election may not be revoked except with the consent of the Commissioner.

Dated: _____

PURCHASER:

_____
(Signature)

_____
Spouse of Purchaser (if applicable)

EXHIBIT A

TWIST BIOSCIENCE CORPORATION

2013 STOCK PLAN

EXERCISE AGREEMENT

This Exercise Agreement (this "Agreement") is made as of , by and between Twist Bioscience Corporation, a Delaware corporation (the "Company"), and ("Purchaser"). To the extent any capitalized terms used in this Agreement are not defined, they shall have the meaning ascribed to them in the Company's 2013 Stock Plan and its Israeli Addendum (the "Plan") and the Option Agreement (as defined below).

1. **Exercise of Option.** Subject to the terms and conditions hereof, Purchaser hereby elects to exercise his or her option to purchase shares of the Common Stock (the "Shares") of the Company under and pursuant to the Plan, the Notice of Stock Option Grant and the Stock Option Agreement granted (the "Option Agreement"). The purchase price for the Shares shall be $0.00001 per Share, for a total purchase price of $.

2. **Time and Place of Exercise.** The purchase and sale of the Shares under this Agreement shall occur at the principal office of the Company simultaneously with the execution and delivery of this Agreement, the payment of the aggregate exercise price by any method permitted in Section 4 of the Option Agreement, and the satisfaction of any applicable tax, withholding, required deductions or other payments, all in accordance with the provisions of Section 3(b) of the Option Agreement. The Company shall issue the Shares to Purchaser by entering such Shares in Purchaser's name as of such date in the books and records of the Company or, if applicable, a duly authorized transfer agent of the Company, against payment of the exercise price therefor by Purchaser. With respect to 102 Trustee Award, the Shares issued upon exercise of such 102 Trustee Award shall be issued to and in the name of the Trustee on behalf of Optionee, and shall be held by the Trustee in trust on behalf of Optionee. If applicable, the Company will deliver to Purchaser a certificate representing the Shares as soon as practicable following such date.

3. **Limitations on Transfer.** In addition to any other limitation on transfer created by Applicable Laws, the Plan and the Option Agreement, Purchaser shall not assign, encumber or dispose of any interest in the Shares except in compliance with the Stockholders Agreement, the Plan and the Option Agreement.

(a) **Restrictions Binding on Transferees.** All transferees of Shares or any interest therein will receive and hold such Shares or interest subject to the provisions of this Agreement, the Plan, the Stockholders Agreement and/or the Registration Rights Agreement, as applicable, and the terms of the Option Agreement, including, without limitation, Section 7 of the Option Agreement. Any sale or transfer of the Shares shall be void unless the provisions of this Agreement are satisfied.

(b) **Lock-Up Agreement.** The lock-up provisions set forth in Section 7 of the Option Agreement shall apply to the Shares issued upon exercise of the Option hereunder and Purchaser reaffirms Purchaser's obligations set forth therein.

4. **Investment and Taxation Representations.** In connection with the purchase of the Shares, Purchaser represents to the Company the following:

(a) Purchaser is aware of the Company's business affairs and financial **condition** and has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Shares. Purchaser is purchasing the Shares for investment for Purchaser's own account only and not with a view to, or for resale in connection with, any "distribution" thereof within the meaning of the Securities Act or under any applicable provision of state law. Purchaser does not have any present intention to transfer the Shares to any other person or entity.

(b) Purchaser understands that the Shares have not been registered under the Securities Act by reason of a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of Purchaser's investment intent as expressed herein.

(c) Purchaser further acknowledges and understands that the securities must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available. Purchaser further acknowledges and understands that the Company is under no obligation to register the securities.

(d) Purchaser is familiar with the provisions of Rule 144, promulgated under the Securities Act, which, in substance, permits limited public resale of "restricted securities" acquired, directly or indirectly, from the issuer of the securities (or from an affiliate of such issuer), in a non-public offering subject to the satisfaction of certain conditions. Purchaser understands that the Company provides no assurances as to whether he or she will be able to resell any or all of the Shares pursuant to Rule 144, which rule requires, among other things, that the Company be subject to the reporting requirements of the Exchange Act, that resales of securities take place only after the holder of the Shares has held the Shares for certain specified time periods, and under certain circumstances, that resales of securities be limited in volume and take place only pursuant to brokered transactions. Notwithstanding this Section 4(d), Purchaser acknowledges and agrees to the restrictions set forth in Section 4(e) below.

(e) Purchaser further understands that in the event all of the applicable **requirements** of Rule 144 are not satisfied, registration under the Securities Act, compliance with Regulation A, or some other registration exemption will be required; and that, notwithstanding the fact that Rule 144 is not exclusive, the Staff of the Securities and Exchange Commission has expressed its opinion that persons proposing to sell private placement securities other than in a registered offering and otherwise than pursuant to Rule 144 will have a substantial burden of proof in establishing that an exemption from registration is available for such offers or sales, and that such persons and their respective brokers who participate in such transactions do so at their own risk.

(f) Purchaser understands that Purchaser may suffer adverse tax consequences as a result of Purchaser's purchase or disposition of the Shares. Purchaser represents that Purchaser has consulted any tax consultants Purchaser deems advisable in connection with the purchase or disposition of the Shares and that Purchaser is not relying on the Company for any tax advice.

5. **Voting Provisions.** As condition precedent to entering into this Agreement, Purchaser shall become a party to the Stockholders Agreement as an "Other Stockholder" by executing an the joinder agreement attached thereto and agreeing to be bound by and subject to the terms of the Stockholders Agreement, including the restrictions on transfer contained therein, and to vote the Shares in the capacity of an "Other Stockholder" as defined in the Stockholders Agreement.

6. **Restrictive Legends and Stop-Transfer Orders**.

(a) **Legends.** Any certificate or certificates representing the Shares shall bear **such** legends as may be required by the Stockholders Agreement, the Plan or the Registration Rights Agreement, as applicable, as well as any legends required by the Company or applicable state and federal corporate and securities laws.

(b) **Stop-Transfer Notices.** Purchaser agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(c) **Refusal to Transfer.** The Company shall not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the **provisions** of this Agreement or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so transferred.

7. **No Employment Rights.** Nothing in this Agreement shall affect in any manner whatsoever the **right** or power of the Company, or a parent, subsidiary or affiliate of the Company, to terminate Purchaser's employment or consulting relationship, for any reason, with or without cause.

8. **Waiver of Statutory Information Rights.** Optionee acknowledges and understands that, but for the waiver made herein, Optionee would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the Company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the Company, if any, under the circumstances and in the manner provided in Section 220 of the Delaware General Corporation Law (any and all such rights, and any and all such other rights of Optionee as may be provided for in Section 220, the "Inspection Rights"). In light of the foregoing, until the first sale of Common Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act of 1933, as amended, Optionee hereby unconditionally and irrevocably waives the Inspection Rights, whether such Inspection Rights would be exercised or pursued directly or indirectly pursuant to Section 220 or

otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights. The foregoing waiver applies to the Inspection Rights of Optionee in Optionee's capacity as a stockholder and shall not affect any rights of a director, in his or her capacity as such, under Section 220. The foregoing waiver shall not apply to any contractual inspection rights of Optionee under any written agreement with the Company.

9. **Miscellaneous**.

(a) **Governing Law.** The validity, interpretation, construction and performance of this Agreement, and all acts and transactions pursuant hereto and the rights and obligations of the parties hereto shall be governed, construed and interpreted in accordance with the laws of the state of Delaware, without giving effect to principles of conflicts of law. For purposes of litigating any dispute that may arise directly or indirectly from this Agreement, the parties hereby submit and consent to the exclusive jurisdiction of the state of Delaware and agree that any such litigation shall be conducted only in the courts of Delaware or the federal courts of the United States located in Delaware and no other courts.

(b) **Entire Agreement.** This Agreement, together with the Option Agreement, the Notice and the Plan, sets forth the entire agreement and understanding of the parties **relating** to the subject matter herein and supersedes all prior or contemporaneous discussions, understandings and agreements, whether oral or written, between them relating to the subject matter hereof.

(c) **Amendments and Waivers.** No modification of or amendment to this **Agreement**, nor any waiver of any rights under this Agreement, shall be effective unless in writing signed by the parties to this Agreement. No delay or failure to require performance of any provision of this Agreement shall constitute a waiver of that provision as to that or any other instance.

(d) **Successors and Assigns.** Except as otherwise provided in this Agreement, this Agreement, and the rights and obligations of the parties hereunder, will be binding upon and inure to the benefit of their respective successors, assigns, heirs, executors, administrators and legal representatives. The Company may assign any of its rights and obligations under this Agreement. No other party to this Agreement may assign, whether voluntarily or by operation of law, any of its rights and obligations under this Agreement, except with the prior written consent of the Company.

(e) **Notices.** Any notice, demand or request required or permitted to be given under this Agreement shall be in writing and shall be deemed sufficient when delivered personally or by overnight courier or sent by email, or 48 hours after being **deposited** in the U.S. mail as certified or registered mail with postage prepaid, addressed to the party to be notified at such party's address as set forth on the signature page, as subsequently modified by written notice, or if no address is specified on the signature page, at the most recent address set forth in the Company's books and records.

(f) **Severability.** If one or more provisions of this Agreement are held to be unenforceable under applicable law, the parties agree to renegotiate such provision in good faith. In the event that the parties cannot reach a mutually agreeable and enforceable replacement for such provision, then (i) such provision shall be excluded from this Agreement, (ii) the balance of the Agreement shall be interpreted as if such provision were so excluded and (iii) the balance of the Agreement shall be enforceable in accordance with its terms.

(g) **Construction.** This Agreement is the result of negotiations between and has been reviewed by each of the parties hereto and their respective counsel, if any; accordingly, **this** Agreement shall be deemed to be the product of all of the parties hereto, and no ambiguity shall be construed in favor of or against any one of the parties hereto.

(h) **Counterparts.** This Agreement may be executed in any number of which when so executed and delivered shall be deemed an original, and all of which together shall constitute one and the same agreement.

(i) **Electronic Delivery.** The Company may, in its sole discretion, decide to deliver any documents related to this Agreement by electronic means. Purchaser hereby consents to receive such documents by electronic delivery and agrees to participate through an on-line or electronic system established and maintained by the Company or a third party designated by the Company.

(j) **Compliance with Law.** If at any the Company or its counsel shall be of the **opinion** that any sale or delivery of Shares pursuant to this Agreement is or may in the circumstances be unlawful, or result in the imposition of excise taxes on the Company under the statutes, rules or regulations of any applicable jurisdiction, the Company shall have no obligation to make such sale or delivery, or to make any application or to effect or to maintain any qualification or registration under the Securities Act or otherwise with respect to Shares, and the right to purchase Shares shall be suspended until, in the opinion of said counsel, such sale or delivery shall be lawful and will not result in the imposition of excise taxes on the Company.

The parties have executed this Exercise Agreement as of the date first set forth above.

THE COMPANY:

TWIST BIOSCIENCE CORPORATION

By: _____
(Signature)

Name: _____

Title: _____

Address: _____

_____

PURCHASER:

_____
(Signature)

Address: _____

_____

Email: _____

I, , spouse of ("Purchaser"), have read and hereby approve the foregoing Agreement. In consideration of the Company's granting my spouse the right to purchase the Shares as set forth in the Agreement, I hereby agree to be bound irrevocably by the Agreement and further agree that any community property or other such interest that I may have in the Shares shall hereby be similarly bound by the Agreement. I hereby appoint my spouse as my attorney-in-fact with respect to any amendment or exercise of any rights under the Agreement.

Spouse of Purchaser (if applicable)

EXHIBIT C
TWIST BIOSCIENCE CORPORATION.
(the "Company")

Irrevocable Proxy and power of attorney

Unless otherwise defined, capitalized terms used herein shall have the meaning ascribed to them under the Company's Stock Plan and are incorporated herein by reference.

I, the undersigned, hereby irrevocably appoints the Company, which shall designate such person or persons as determined by the Administrator (and in the absence of such determination, the CEO or Chairman of the Board of Directors of the Company, ex officio), with full power of substitution, as my proxy and attorney-in-fact to: (i) cause any number of shares, of any class, of the Company owned by me or by the Trustee for my benefit, under the Plan or any other share incentive or option plan of the Company, and any other shares or securities issued or distributed in respect thereto or in substitution or exchange thereof, at any time and from time to time, and as may be adjusted (collectively, the "Shares"), to be counted as present at any and all Shareholders Meetings (as defined below); (ii) represent me and to vote in my name at any and all Shareholders Meetings in respect of the Shares; (iii) sign and execute on my behalf any written resolutions or consents in lieu of a Shareholder Meeting or any other consent, in respect of the Shares; (iv) exercise or fail to exercise, in the proxyholder's sole and absolute discretion, any rights or obligations attached to any and all Shares, and sign on my behalf any document or instrument relating to such rights or obligations, including, without limitation, shareholders agreements, documents concerning rights of bring along, tag along, first refusal, preemptive rights, co-sale rights, information rights, registration rights, lock-up/market stand-off and any other rights or obligations, if any, whether included in the incorporation documents of the Company or any other document or instrument as shall be from time to time (which exercise may impose on the undersigned monetary liability in connection with a Merger/Sale); and (v) agree to the offer to effect a Merger/Sale on the terms approved by the Board (and the Shares held by me or for my benefit shall be included in the shares of the Company approving the terms of such Merger/Sale for the purpose of satisfying any required majority), sell all of the Shares held by me or for my benefit, in accordance with the instructions then issued by the Board, whose determination shall be final, and sign on my behalf any document or instrument relating thereto, including, without limitation, share transfer documents, as are required to affect a compulsory sale of Shares in connection with a Merger/Sale pursuant to the Plan; (vi) receive all notices and communications with respect to the above, including, without limitation, notices of any Shareholders Meeting (including any adjournment or postponement thereof) or any written resolution or consent in lieu thereof. "Shareholders Meetings" shall mean any meeting of the shareholders of the Company, however called, whether an extraordinary or annual meeting and whether of the share capital as one class or of any class thereof, and including any adjournment or postponement thereof), or any act or consent of shareholders of the Company (whether of the share capital as one class or of any class thereof) under the Company's Articles of Association or otherwise.

In any Shareholders Meeting or written consent in lieu thereof, the Shares shall be voted by the proxy holder, unless directed otherwise by the Board, in the same proportion as the result

of the vote at the Shareholders Meeting in respect of which the Shares are being voted, and in any act or consent of shareholders under the Company's Articles of Association or otherwise, such Shares shall be cast by the proxy holder, unless directed otherwise by the Board, in the same proportion as the result of the shareholders' act or consent.

As long as this proxy and power of attorney is in effect, any and all voting rights I may have with respect to the Shares shall be exercised exclusively by this proxy and power of attorney. The undersigned hereby revokes any proxy(ies) and power of attorney heretofore given in respect of the Shares to any person(s) and agrees not to give any other proxies or and power of attorney in derogation or preventing the undersigned from complying with its obligations hereof, until such time as this proxy is no longer in full force and effect. The undersigned acknowledges and agrees that this proxy shall be irrevocable and is a special power of attorney coupled with an interest sufficient in law to support an irrevocable power and shall survive the bankruptcy, death, adjudication of incompetence or the like of undersigned. This proxy and power of attorney shall survive the transfer of Shares, until duly replaced by a similar power and power of attorney executed by the transferee. The Company is an intended third party beneficiary of this proxy and power of attorney. Any person holding or exercising such voting proxies is doing so solely in his/her capacity as the proxy holder and not individually. This proxy shall terminate and be of no further force and effect immediately after the listing for trading on a stock exchange or market or trading system of shares of the Company or of the Successor Corporation (as such term is defined in the Plan).

IN WITNESS WHEREOF, the undersigned has executed this IRREVOCABLE PROXY as of the date written below.

Signature: _____

Printed Name: _____

ID number: _____

Date: _____

Exhibit 10.10

FOURTH AMENDED AND RESTATED LOAN AND SECURITY AGREEMENT

THIS FOURTH AMENDED AND RESTATED LOAN AND SECURITY AGREEMENT (this "**Agreement**") dated as of September 6, 2017 (the "**Effective Date**"), by and among **SILICON VALLEY BANK**, a California corporation ("**Bank**"), **TWIST BIOSCIENCE CORPORATION**, a Delaware corporation ("**Twist Bioscience**"), and **GENOME COMPILER CORPORATION**, a Delaware corporation ("**Genome Compiler**") (but only so long as Genome Compiler remains in existence), **TWIST BIO COMPUTING, LLC**, a Delaware limited liability company ("**Computing**"), **TWIST PHARMACEUTICAL SOLUTIONS, LLC**, a Delaware limited liability company ("**Pharmaceutical**" and together with Twist Bioscience, Genome Compiler and Computing, each a "**Co-Borrower**" and collectively, "**Co-Borrowers**"), provides the terms on which Bank shall lend to Co-Borrowers and Co-Borrowers shall repay Bank and amends and restates, in its entirety, that certain Third Amended and Restated Loan and Security Agreement by and between Bank and Twist Bioscience dated as of April 5, 2016 (as amended from time to time, the "**Original Agreement**"). The parties agree as follows:

1. ACCOUNTING AND OTHER TERMS

Accounting terms not defined in this Agreement shall be construed following GAAP. Calculations and determinations must be made following GAAP. Capitalized terms not otherwise defined in this Agreement shall have the meanings set forth in Section 13. All other terms contained in this Agreement, unless otherwise indicated, shall have the meaning provided by the Code to the extent such terms are defined therein.

2. LOAN AND TERMS OF PAYMENT

2.1 Promise to Pay. Co-Borrowers hereby unconditionally promise to pay Bank the outstanding principal amount of all Credit Extensions and accrued and unpaid interest thereon as and when due in accordance with this Agreement.

2.2 Revolving Line.

(a) Availability. Subject to the terms and conditions of this Agreement and to deduction of Reserves, Bank shall, in its good faith business discretion, make Advances not exceeding the Availability Amount. Amounts borrowed under the Revolving Line may be repaid and, prior to the Revolving Line Maturity Date, reborrowed, subject to the applicable terms and conditions precedent herein.

(b) Termination; Repayment. The Revolving Line terminates on the Revolving Line Maturity Date, when the principal amount of all Advances, the unpaid interest thereon, and all other Obligations relating to the Revolving Line shall be immediately due and payable.

2.3 Cash Management Services Sublimit. Co-Borrowers may use up to Two Million Dollars ($2,000,000) of the Revolving Line for Bank's cash management services which may include merchant services, direct deposit of payroll, business credit card, and check cashing services identified in Bank's various cash management services agreements (collectively, the "**Cash Management Services**"). Any amounts Bank pays on behalf of Co-Borrowers for any Cash Management Services will be treated as Advances under the Revolving Line and will accrue interest at the interest rate applicable to Advances.

2.4 Growth Capital Advances.

(a) Availability. Subject to the terms and conditions of this Agreement, Bank agrees to make Growth Capital Advances to Co-Borrowers in three (3) tranches: "**Tranche A**", "**Tranche B**" and "**Tranche C**". On the Effective Date, or as soon thereafter as all conditions precedent to the initial Credit Extension have been satisfied, Bank shall make a Growth Capital Advance under Tranche A to Co-Borrowers in a principal amount equal to Ten Million Dollars ($10,000,000) (the "**Tranche A Growth Capital Advance**"), which shall be used to refinance all Obligations owing from Co-Borrowers to Bank pursuant to the Original Agreement and for working capital. Thereafter, during the Tranche B Draw Period, Co-Borrower may request one (1) Growth Capital Advance under Tranche B, in a principal amount equal to Five Million Dollars ($5,000,000) (the "**Tranche B Growth Capital Advance**"). During the Tranche C Draw Period, Co-Borrowers may request one (1) Growth Capital Advances under Tranche C, in a principal amount equal to Five Million Dollars ($5,000,000) (the "**Tranche C Growth Capital Advance**" and together with the Tranche A Growth Capital Advance and the Tranche B Growth Capital Advance, each a "**Growth Capital Advance**" and collectively, the "**Growth Capital Advances**"). The aggregate outstanding amount of the Growth Capital Advances shall not exceed the Growth Capital Line.

(b) Interest Payments. With respect to each Growth Capital Advance, commencing on the first Payment Date following the Funding Date of such Growth Capital Advance and continuing on the Payment Date of each month thereafter, Co-Borrowers shall make monthly payments of interest, in arrears, on the principal amount of such Growth Capital Advance at the rate set forth in Section 2.6(a).

(c) Repayment. Growth Capital Advances shall be "interest-only" during the Interest-Only Period, with interest due and payable in accordance with Section 2.3(d) hereof. Thereafter, the Growth Capital Advances shall be payable in equal monthly installments of principal plus accrued and unpaid interest (each a "Growth Capital Advance Payment") beginning on the Amortization Start Date and continuing on the first (1st) day of each month thereafter. Borrower's final Growth Capital Advance Payment, due on the Growth Capital Maturity Date, shall include all outstanding principal and accrued and unpaid interest on the Growth Capital Advances. After repayment, no Growth Capital Advance may be reborrowed.

(d) Prepayment.

(i) Mandatory Prepayment Upon an Acceleration. If the Growth Capital Advances are accelerated following the occurrence and during the continuance of an Event of Default, Co-Borrowers shall immediately pay to Bank an amount equal to the sum of (A) all outstanding principal, plus accrued and unpaid interest with respect to Growth Capital Advances, (B) the Final Payment, (C) the Prepayment Fee, and (D) all other sums, if any, that shall have become due and payable hereunder in connection with the Growth Capital Advances.

(ii) Voluntary Prepayment. Co-Borrowers shall have the option to prepay all, but not less than all, of the Growth Capital Advances advanced by Bank under this Agreement, provided Co-Borrowers (A) deliver written notice to Bank of its election to prepay such Growth Capital Advances at least ten (10) Business Days prior to such prepayment, (B) pays, on the date of such prepayment (w) all outstanding principal, plus accrued and unpaid interest thereon, (x) the Final Payment, (y) the Prepayment Fee, and (z) all other sums, if any, that shall have become due and payable hereunder in connection with the Growth Capital Advances.

2.5 Overadvances. If, at any time, the sum of the outstanding principal amount of any Advances, including any amounts used for Cash Management Services, exceeds the lesser of either the Revolving Line or the Borrowing Base, Co-Borrowers shall immediately pay to Bank in cash the amount of such excess (such excess, the "**Overadvance**"). Without limiting Co-Borrowers' obligation to repay Bank any Overadvance, Co-Borrowers agree to pay Bank interest on the outstanding amount of any Overadvance, on demand, at a per annum rate equal to the rate that is otherwise applicable to Advances plus five percent (5.0%).

2.6 Payment of Interest on the Credit Extensions.

(a) Interest Rates.

(i) Advances. Subject to Section 2.6(b), the principal amount outstanding under the Revolving Line shall accrue interest at a floating per annum rate equal to one percentage point (1.00%) above the Prime Rate, which interest shall be payable monthly in accordance with Section 2.6(d) below.

(ii) Growth Capital Advances. Subject to Section 2.6(b), the principal amount outstanding for each Growth Capital Advance shall accrue interest at a floating per annum rate equal to three percentage points (3.00%) above the Prime Rate, which interest shall be payable monthly in accordance with Section 2.6(d) below.

(b) Default Rate. Immediately upon the occurrence and during the continuance of an Event of Default, Obligations shall bear interest at a rate per annum which is five percentage points (5.00%) above the rate that is otherwise applicable thereto (the "**Default Rate**"). Fees and expenses which are required to be paid by Co-Borrowers pursuant to the Loan Documents (including, without limitation, Bank Expenses) but are not paid when due shall bear interest until paid at a rate equal to the highest rate applicable to the Obligations. Payment or acceptance of the increased interest rate provided in this Section 2.6(b) is not a permitted alternative to timely payment and shall not constitute a waiver of any Event of Default or otherwise prejudice or limit any rights or remedies of Bank.

(c) Adjustment to Interest Rate. Changes to the interest rate of any Credit Extension based on changes to the Prime Rate shall be effective on the effective date of any change to the Prime Rate and to the extent of any such change.

(d) Payment; Interest Computation. Interest is payable monthly on the Payment Date of each month and shall be computed on the basis of a three hundred sixty (360) day year for the actual number of days elapsed. In computing interest, (i) all payments received after 12:00 p.m. Pacific time on any day shall be deemed received at the opening of business on the next Business Day, and (ii) the date of the making of any Credit Extension shall be included and the date of payment shall be excluded; provided, however, that if any Credit Extension is repaid on the same day on which it is made, such day shall be included in computing interest on such Credit Extension.

2.7 Fees. Co-Borrowers shall pay to Bank:

(a) Commitment Fee. A fully earned, non-refundable commitment fee of Twenty-Five Thousand Dollars ($25,000), on the Effective Date;

(b) Final Payment. The Final Payment, when due hereunder;

(c) Prepayment Fee. The Prepayment Fee, if and when due hereunder;

(d) Anniversary Fee. A non-refundable anniversary fee of Two Hundred Thousand Dollars ($200,000) (the "Anniversary Fee") is earned as of the Effective Date and is due and payable on the earliest to occur of (i) one quarter payable on each of the 1st, 2nd, 3rd and 4th anniversaries of the Effective Date (for avoidance of doubt Fifty Thousand Dollars ($50,000) of such fee shall be due on each such anniversary), (ii) the termination of this Agreement or (iii) the occurrence and continuance of an Event of Default and an acceleration by Bank of the Obligations under this Agreement and the other Loan Documents.

(e) Revolving Line Termination Fee. The Revolving Line Termination Fee, if and when due hereunder; and

(f) Bank Expenses. All Bank Expenses (including reasonable attorneys' fees and expenses for documentation and negotiation of this Agreement, which, assuming two (2) reasonable turns of the Loan Documents shall not exceed Twenty-Five Thousand Dollars ($25,000) plus out-of-pocket costs for diligence, filing fees and related items on the Effective Date) incurred through and after the Effective Date, when due (or, if no stated due date, upon demand by Bank).

(g) Fees Fully Earned. Unless otherwise provided in this Agreement or in a separate writing by Bank, Co-Borrowers shall not be entitled to any credit, rebate, or repayment of any fees earned by Bank pursuant to this Agreement notwithstanding any termination of this Agreement or the suspension or termination of Bank's obligation to make loans and advances hereunder. Bank may deduct amounts owing by Co-Borrowers under the clauses of this Section 2.7 pursuant to the terms of Section 2.8(c). Bank shall provide Co-Borrowers written notice of deductions made from the Designated Deposit Account pursuant to the terms of the clauses of this Section 2.7.

2.8 Payments; Application of Payments; Debit of Accounts.

(a) All payments to be made by Co-Borrowers under any Loan Document shall be made in immediately available funds in Dollars, without setoff or counterclaim, before 12:00 p.m. Pacific time on the date when due. Payments of principal and/or interest received after 12:00 p.m. Pacific time are considered received at the opening of business on the next Business Day. When a payment is due on a day that is not a Business Day, the payment shall be due the next Business Day, and additional fees or interest, as applicable, shall continue to accrue until paid.

(b) Bank has the exclusive right to determine the order and manner in which all payments with respect to the Obligations may be applied. Co-Borrowers shall have no right to specify the order or the accounts to which Bank shall allocate or apply any payments required to be made by Co-Borrowers to Bank or otherwise received by Bank under this Agreement when any such allocation or application is not specified elsewhere in this Agreement.

(c) Bank may debit any of Co-Borrowers' deposit accounts, including the Designated Deposit Account, for principal and interest payments or any other amounts Co-Borrowers owe Bank when due. These debits shall not constitute a set-off.

2.9 Withholding. Payments received by Bank from Co-Borrowers under this Agreement will be made free and clear of and without deduction for any and all present or future taxes, levies, imposts, duties, deductions, withholdings, assessments, fees or other charges imposed by any Governmental Authority (including any interest, additions to tax or penalties applicable thereto). Specifically, however, if at any time any Governmental Authority, applicable law, regulation or international agreement requires Co-Borrowers to make any withholding or deduction from any such payment or other sum payable hereunder to Bank, Co-Borrowers hereby covenant and agree that the amount due from Co-Borrowers with respect to such payment or other sum payable hereunder will be increased to the extent necessary to ensure that, after the making of such required withholding or deduction, Bank receives a net sum equal to the sum which it would have received had no withholding or deduction been required, and Co-Borrowers shall pay the full amount withheld or deducted to the relevant Governmental Authority. Co-Borrowers will, upon request, furnish Bank with proof reasonably satisfactory to Bank indicating that Co-Borrowers have made such withholding payment; provided, however, that Co-Borrowers need not make any withholding payment if the amount or validity of such withholding payment is contested in good faith by appropriate and timely proceedings and as to which payment in full is bonded or reserved against by Co-Borrowers. The agreements and obligations of Co-Borrowers contained in this Section 2.9 shall survive the termination of this Agreement.

3. CONDITIONS OF LOANS

3.1 Conditions Precedent to Initial Credit Extension. Bank's obligation to make the initial Credit Extension is subject to the condition precedent that Bank shall have received, in form and substance satisfactory to Bank, such documents, and completion of such other matters, as Bank may reasonably deem necessary or appropriate, including, without limitation:

(a) duly executed original signatures to the Loan Documents;

(b) duly executed original signatures to the Warrants, together with a capitalization table and copies of Co-Borrowers' equity documents;

(c) except as provided by Section 3.3 hereof, each Co-Borrower's Operating Documents and long-form good standing certificates of each Co-Borrower certified by the Secretary of State (or equivalent agency) of such Co-Borrower's jurisdiction of organization or formation and each jurisdiction in which such Co-Borrower is qualified to conduct business, each as of a date no earlier than thirty (30) days prior to the Effective Date;

(d) duly executed original signatures to the completed Borrowing Resolutions for each Co-Borrower;

(e) certified copies, dated as of a recent date, of financing statement searches, as Bank may request, accompanied by written evidence (including any UCC termination statements) that the Liens indicated in any such financing statements either constitute Permitted Liens or have been or, in connection with the initial Credit Extension, will be terminated or released;

(f) the Perfection Certificate of each Co-Borrower, together with the duly executed original signature thereto;

(g) a landlord's consent in favor of Bank for each of Co-Borrowers' leased locations having Collateral with a fair market value of at least One Hundred Thousand Dollars ($100,000) by the respective landlord thereof, together with the duly executed original signatures thereto (but only to the extent not already delivered to Bank);

(h) evidence satisfactory to Bank that the insurance policies and endorsements required by Section 6.5 hereof are in full force and effect, together with appropriate evidence showing lender loss payable and/or additional insured clauses or endorsements in favor of Bank;

(i) the completion of the Initial Audit; and

(j) payment of the fees and Bank Expenses then due as specified in Section 2.7 hereof.

3.2 Conditions Precedent to all Credit Extensions. Bank's obligations to make each Credit Extension, including the initial Credit Extension, is subject to the following conditions precedent:

(a) timely receipt of (i) the Credit Extension request and any materials and documents required by Section 3.5 and (ii) with respect to the request for Growth Capital Advances, an executed Payment/Advance Form and any materials and documents required by Section 3.5;

(b) the representations and warranties in this Agreement shall be true, accurate, and complete in all material respects on the date of the proposed Credit Extension and/or of the Payment/Advance Form, as applicable, and on the Funding Date of each Credit Extension; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date, and no Event of Default shall have occurred and be continuing or result from the Credit Extension. Each Credit Extension is each Co-Borrower's representation and warranty on that date that the representations and warranties in this Agreement remain true, accurate, and complete in all material respects; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date; and

(c) Bank determines to its satisfaction in its good faith business judgment that there has not been a Material Adverse Change.

3.3 Post-Closing Conditions.

(a) As soon as possible, but no later than fifteen (15) days after the Effective Date, Borrower shall deliver to Bank evidence, satisfactory to Bank in its sole discretion, that the insurance policies and endorsements required by Section 6.7 hereof are in full force and effect, together with appropriate evidence showing lender loss payable and/or additional insured clauses or endorsements in favor of Bank;

(b) as soon as possible, but in any event not later than the date that is thirty (30) days after the Effective Date, Borrower shall deliver to Bank evidence, satisfactory to Bank in its sole discretion, that Genome Compiler has cured any and all delinquent reports with the state of Delaware;

(c) as soon as possible, but in any event not later than the date that is thirty (30) days after the Effective Date, Borrower shall deliver to Bank evidence, satisfactory to Bank in its sole discretion, that Computing and Pharmaceutical have registered and are in good standing in the state of California; and

(d) as soon as possible, but in any event not later than the date that is sixty (60) days after the Effective Date, Bank shall complete the Initial Audit.

3.4 Covenants to Deliver. Except as otherwise provided in Section 3.3, Co-Borrowers agree to deliver to Bank each item required to be delivered to Bank under this Agreement as a condition precedent to any Credit Extension. Co-Borrowers expressly agree that a Credit Extension made prior to the receipt by Bank of any such item shall not constitute a waiver by Bank of Co-Borrowers' obligation to deliver such item, and the making of any Credit Extension in the absence of a required item shall be in Bank's sole discretion.

3.5 Procedures for Borrowing.

(a) Advances. Subject to the prior satisfaction of all other applicable conditions to the making of an Advance (other than Advances under Sections 2.3) set forth in this Agreement, to obtain an Advance, Co-Borrowers shall notify Bank (which notice shall be irrevocable) by electronic mail by 12:00 p.m. Pacific time on the Funding Date of the Advance. Such notice shall be made by Co-Borrowers through Bank's online banking program, provided, however, if Co-Borrowers are not utilizing Bank's online banking program, then such notice shall be in a written format acceptable to Bank that is executed by an Authorized Signer. Bank shall have received satisfactory evidence that the provision of such notices and the requests for Advances have been approved by the Board. In connection with any such notification, Co-Borrowers must promptly deliver to Bank by electronic mail or through Bank's online banking program such reports and information, including without limitation, sales journals, cash receipts journals, accounts receivable aging reports, as Bank may request in its sole discretion. Bank shall credit proceeds of an Advance to the Designated Deposit Account. Bank may make Advances under this Agreement based on instructions from an Authorized Signer or without instructions if the Advances are necessary to meet Obligations which have become due.

(b) Growth Capital Advances. Subject to the prior satisfaction of all other applicable conditions to the making of a Growth Capital Advance set forth in this Agreement, to obtain a Growth Capital Advance, Co-Borrowers shall notify Bank (which notice shall be irrevocable) by electronic mail by 12:00 noon Pacific time on the Funding Date of the Growth Capital Advance. Such notice shall be made by Co-Borrowers through Bank's online banking program, provided, however, if Co-Borrowers are not utilizing Bank's online banking program, then such notice shall be in a written format acceptable to Bank that is executed by an Authorized Signer. Bank shall have received satisfactory evidence that the provision of such notices and the requests for Growth Capital Advances have been approved by the Board. In connection with such notification, Co-Borrowers must promptly deliver to Bank by electronic mail or through Bank's online banking program a completed Payment/Advance Form executed by an Authorized Signer together with such other reports and information, as Bank may request in its sole

discretion. Bank shall credit proceeds of any Growth Capital Advance to the Designated Deposit Account. Bank may make Growth Capital Advances under this Agreement based on instructions from an Authorized Signer or without instructions if the Growth Capital Advances are necessary to meet Obligations which have become due.

4. CREATION OF SECURITY INTEREST

4.1 Grant of Security Interest. Each Co-Borrower hereby grants Bank, to secure the payment and performance in full of all of the Obligations, a continuing security interest in, and pledges to Bank, the Collateral, wherever located, whether now owned or hereafter acquired or arising, and all proceeds and products thereof.

Each Co-Borrower acknowledges that it may previously have entered, and/or may in the future enter, into Bank Services Agreements with Bank. Regardless of the terms of any Bank Services Agreement, each Co-Borrower agrees that any amounts such Co-Borrower owes Bank thereunder shall be deemed to be Obligations hereunder and that it is the intent of such Co-Borrower and Bank to have all such Obligations secured by the first priority perfected security interest in the Collateral granted herein (subject only to Permitted Liens that are permitted pursuant to the terms of this Agreement to have superior priority to Bank's Lien in this Agreement).

If this Agreement is terminated, Bank's Lien in the Collateral shall continue until the Obligations (other than inchoate indemnity obligations) are repaid in full in cash. Upon payment in full in cash of the Obligations (other than inchoate indemnity obligations) and at such time as Bank's obligation to make Credit Extensions has terminated, Bank shall, at the sole cost and expense of Co-Borrowers, release its Liens in the Collateral and all rights therein shall revert to Co-Borrowers. In the event (x) all Obligations (other than inchoate indemnity obligations), except for Bank Services, are satisfied in full, and (y) this Agreement is terminated, Bank shall terminate the security interest granted herein upon Co-Borrowers providing cash collateral acceptable to Bank in its good faith business judgment for Bank Services, if any. In the event such Bank Services consist of outstanding Letters of Credit, Co-Borrowers shall provide to Bank cash collateral in an amount equal to (x) if such Letters of Credit are denominated in Dollars, then at least one hundred five percent (105.0%); and (y) if such Letters of Credit are denominated in a Foreign Currency, then at least one hundred ten percent (110.0%), of the Dollar Equivalent of the face amount of all such Letters of Credit plus all interest, fees, and costs due or to become due in connection therewith (as estimated by Bank in its good-faith business judgment), to secure all of the Obligations relating to such Letters of Credit.

4.2 Priority of Security Interest. Each Co-Borrower represents, warrants, and covenants that the security interest granted herein is and shall at all times continue to be a first priority perfected security interest in the Collateral (subject only to Permitted Liens that are permitted pursuant to the terms of this Agreement to have superior priority to Bank's Lien under this Agreement). If a Co-Borrower shall acquire a commercial tort claim, such Co-Borrower shall promptly notify Bank in a writing signed by such Co-Borrower of the general details thereof and grant to Bank in such writing a security interest therein and in the proceeds thereof, all upon the terms of this Agreement, with such writing to be in form and substance reasonably satisfactory to Bank.

4.3 Authorization to File Financing Statements. Each Co-Borrower hereby authorizes Bank to file financing statements, without notice to Co-Borrowers, with all appropriate jurisdictions to perfect or protect Bank's interest or rights hereunder, including a notice that any disposition of the Collateral, by either a Co-Borrower or any other Person, shall be deemed to violate the rights of Bank under the Code.

5. REPRESENTATIONS AND WARRANTIES

Each Co-Borrower represents and warrants as follows:

5.1 Due Organization, Authorization; Power and Authority. Co-Borrower is duly existing and in good standing as a Registered Organization in its jurisdiction of formation and is qualified and licensed to do business and is in good standing in any jurisdiction in which the conduct of its business or its ownership of property requires that it be qualified except where the failure to do so could not reasonably be expected to have a material adverse effect on Co-Borrower's business. In connection with this Agreement, Co-Borrower has delivered to Bank a completed certificate signed by Co-Borrower, entitled "Perfection Certificate" (the "**Perfection Certificate**"). Co-Borrower represents and warrants to Bank that (a) Co-Borrower's exact legal name is that indicated on the Perfection Certificate and on the signature page hereof; (b) Co-Borrower is an organization of the type and is organized in the jurisdiction set forth in the Perfection Certificate; (c) the Perfection Certificate accurately sets forth Co-Borrower's organizational identification number or accurately states that Co-Borrower has none; (d) the Perfection Certificate accurately sets forth Co-Borrower's place of business, or, if more than one, its chief executive office as well as Co-Borrower's mailing address (if different than its chief executive office); (e) Co-Borrower (and each of its predecessors) has not, in the past five (5) years, changed its jurisdiction of formation, organizational structure or type, or any organizational number assigned by its jurisdiction; and (f) all other information set forth on the Perfection Certificate pertaining to Co-Borrower and each of its Subsidiaries is accurate and complete (it being understood and agreed that Co-Borrower may from time to time update certain information in the Perfection Certificate after the Effective Date to the extent permitted by one or more specific provisions in this Agreement). If Co-Borrower is not now a Registered Organization but later becomes one, Co-Borrower shall promptly notify Bank of such occurrence and provide Bank with Co-Borrower's organizational identification number.

The execution, delivery and performance by Co-Borrower of the Loan Documents to which it is a party have been duly authorized, and do not (i) conflict with any of Co-Borrower's organizational documents, (ii) contravene, conflict with, constitute a default under or violate any material Requirement of Law, (iii) contravene, conflict or violate any applicable order, writ, judgment, injunction, decree, determination or award of any Governmental Authority by which Co-Borrower or any of its Subsidiaries or any of their property or assets may be bound or affected, (iv) require any action by, filing, registration, or qualification with, or Governmental Approval from, any Governmental Authority (except such Governmental Approvals which have already been obtained and are in full force and effect, or are being obtained pursuant to Section 6.1(b)) or (v) conflict with, contravene, constitute a default or breach under, or result in or permit the termination or acceleration of, any material agreement by which Co-Borrower is bound. Co-Borrower is not in default under any agreement to which it is a party or by which it is bound in which the default could reasonably be expected to have a material adverse effect on Co-Borrower's business.

5.2 Collateral. Co-Borrower has good title to, rights in, and the power to transfer each item of the Collateral upon which it purports to grant a Lien hereunder, free and clear of any and all Liens except Permitted Liens. Co-Borrower has no Collateral Accounts at or with any bank or financial

institution other than Bank or Bank's Affiliates except for the Collateral Accounts described in the Perfection Certificate delivered to Bank in connection herewith and which Co-Borrower has taken such actions as are necessary to give Bank a perfected security interest therein, pursuant to the terms of Section 6.8(b). The Accounts are bona fide, existing obligations of the Account Debtors.

The Collateral (other than Offsite Collateral (as defined below)) is not in the possession of any third party bailee (such as a warehouse) except as otherwise provided in the Perfection Certificate. None of the components of the Collateral (other than Offsite Collateral) shall be maintained at locations other than as provided in the Perfection Certificate or as permitted pursuant to Section 7.2. "**Offsite Collateral**" means computer equipment and cell phones and related equipment in the possession of employees in the ordinary course of business with an aggregate value not to exceed Two Hundred Thousand Dollars ($200,000).

All Inventory is in all material respects of good and marketable quality, free from material defects.

Co-Borrower is the sole owner of the Intellectual Property material to its business which it owns or purports to own except for (a) non-exclusive licenses granted to its customers in the ordinary course of business, (b) over-the-counter software that is commercially available to the public, and (c) material Intellectual Property licensed to Co-Borrower and noted on the Perfection Certificate. Each Patent which it owns or purports to own and which is material to Co-Borrower's business is valid and enforceable, and no part of the Intellectual Property which Co-Borrower owns or purports to own and which is material to Co-Borrower's business has been judged invalid or unenforceable, in whole or in part. To the best of Co-Borrower's knowledge, no claim has been made that any part of the Intellectual Property violates the rights of any third party except to the extent such claim would not reasonably be expected to have a material adverse effect on Co-Borrower's business.

Except as noted on the Perfection Certificate, Co-Borrower is not a party to, nor is it bound by, any Restricted License.

5.3 Accounts Receivable; Inventory.

(a) For each Account with respect to which Advances are requested, on the date each Advance is requested and made, such Account shall be an Eligible Account.

(b) All statements made and all unpaid balances appearing in all invoices, instruments and other documents evidencing the Eligible Accounts are and shall be true and correct and all such invoices, instruments and other documents, and all of Co-Borrower's Books are genuine and in all respects what they purport to be. All sales and other transactions underlying or giving rise to each Eligible Account shall comply in all material respects with all applicable laws and governmental rules and regulations. Co-Borrower has no knowledge of any actual or imminent Insolvency Proceeding of any Account Debtor whose accounts are Eligible Accounts in any Borrowing Base Report. To the best of Co-Borrower's knowledge, all signatures and endorsements on all documents, instruments, and agreements relating to all Eligible Accounts are genuine, and all such documents, instruments and agreements are legally enforceable in accordance with their terms.

5.4 Litigation. There are no actions or proceedings pending or, to the knowledge of any Responsible Officer, threatened in writing by or against Co-Borrower or any of its Subsidiaries involving more than, individually or in the aggregate, Five Hundred Thousand Dollars ($500,000).

5.5 Financial Statements; Financial Condition. All consolidated financial statements for Co-Borrower and any of its Subsidiaries delivered to Bank fairly present in all material respects Co-Borrower's consolidated financial condition and Co-Borrower's consolidated results of operations. There has not been any material deterioration in Co-Borrower's consolidated financial condition since the date of the most recent financial statements submitted to Bank.

5.6 Solvency. The fair salable value of Co-Borrower's consolidated assets (including goodwill minus disposition costs) exceeds the fair value of Co-Borrower's liabilities; Co-Borrower is not left with unreasonably small capital after the transactions in this Agreement; and Co-Borrower is able to pay its debts (including trade debts) as they mature.

5.7 Regulatory Compliance. Co-Borrower is not an "investment company" or a company "controlled" by an "investment company" under the Investment Company Act of 1940, as amended. Co-Borrower is not engaged as one of its important activities in extending credit for margin stock (under Regulations X, T and U of the Federal Reserve Board of Governors). Co-Borrower (a) has complied in all material respects with all Requirements of Law, and (b) has not violated any Requirements of Law the violation of which could reasonably be expected to have a material adverse effect on its business. None of Co-Borrower's or any of its Subsidiaries' properties or assets has been used by Co-Borrower or any Subsidiary or, to the best of Co-Borrower's knowledge, by previous Persons, in disposing, producing, storing, treating, or transporting any hazardous substance other than legally. Co-Borrower and each of its Subsidiaries have obtained all consents, approvals and authorizations of, made all declarations or filings with, and given all notices to, all Governmental Authorities that are necessary to continue their respective businesses as currently conducted.

5.8 Subsidiaries; Investments. Co-Borrower does not own any stock, partnership, or other ownership interest or other equity securities except for Permitted Investments.

5.9 Tax Returns and Payments; Pension Contributions. Co-Borrower has timely filed (taking into account all applicable extension periods) all required tax returns and reports, and Co-Borrower has timely paid all foreign, federal, state and local taxes, assessments, deposits and contributions owed by Co-Borrower except (a) to the extent such taxes are being contested in good faith by appropriate proceedings promptly instituted and diligently conducted, so long as such reserve or other appropriate provision, if any, as shall be required in conformity with GAAP shall have been made therefor, or (b) if such taxes, assessments, deposits and contributions do not, individually or in the aggregate, exceed Twenty Five Thousand Dollars ($25,000).

To the extent Co-Borrower defers payment of any contested taxes, Co-Borrower shall (i) notify Bank in writing of the commencement of, and any material development in, the proceedings, and (ii) post bonds or take any other steps required to prevent the governmental authority levying such contested taxes from obtaining a Lien upon any of the Collateral that is other than a "Permitted Lien." Co-Borrower is unaware of any claims or adjustments proposed for any of Co-Borrower's prior tax years which could result in additional taxes becoming due and payable by Co-Borrower in excess of Twenty-Five Thousand Dollars ($25,000). Co-Borrower has paid all amounts necessary to fund all present pension, profit sharing and deferred compensation plans in accordance with their terms, and Co-Borrower has not withdrawn from participation in, and has not permitted partial or complete termination of, or permitted the occurrence of any other event with respect to, any such plan which could reasonably be expected to result in any liability of Co-Borrower, including any liability to the Pension Benefit Guaranty Corporation or its successors or any other governmental agency.

5.10 Use of Proceeds. Co-Borrower shall use the proceeds of the Credit Extensions solely as working capital and to fund its general business requirements and not for personal, family, household or agricultural purposes.

5.11 Full Disclosure. No written representation, warranty or other statement of Co-Borrower in any certificate or written statement given to Bank, as of the date such representation, warranty, or other statement was made, taken together with all such written certificates and written statements given to Bank, contains any untrue statement of a material fact or omits to state a material fact necessary to make the statements contained in the certificates or statements not misleading (it being recognized by Bank that the projections and forecasts provided by Co-Borrower in good faith and based upon reasonable assumptions are not viewed as facts and that actual results during the period or periods covered by such projections and forecasts may differ from the projected or forecasted results).

5.12 Definition of "Knowledge." For purposes of the Loan Documents, whenever a representation or warranty is made to Co-Borrower's knowledge or awareness, to the "best of" Co-Borrower's knowledge, or with a similar qualification, knowledge or awareness means the actual knowledge, after reasonable investigation, of any Responsible Officer.

6. AFFIRMATIVE COVENANTS

Each Co-Borrower shall do all of the following:

6.1 Government Compliance.

(a) Maintain its and all its Subsidiaries' legal existence and good standing in their respective jurisdictions of formation and maintain qualification in each jurisdiction in which the failure to so qualify would reasonably be expected to have a material adverse effect on Co-Borrower's business or operations; provided, however, that Genome Compiler may be merged out of existence at any time after the date of this Agreement so long as its assets are thereafter held by one or more of the other Co-Borrowers. Co-Borrower shall comply, and have each Subsidiary comply, in all material respects, with all laws, ordinances and regulations to which it is subject, noncompliance with which could reasonably be expected to have a material adverse effect on Co-Borrower's business or operations or have an adverse effect on Co-Borrower's payment or performance of the Obligations.

(b) Obtain all of the Governmental Approvals necessary for the performance by Co-Borrower of its obligations under the Loan Documents to which it is a party and the grant of a security interest to Bank in all of the Collateral. Co-Borrower shall promptly provide copies of any such obtained Governmental Approvals to Bank.

6.2 Financial Statements, Reports, Certificates. Provide Bank with the following:

(a) (i) no later than Friday of each week when a Streamline Period is not in effect and (ii) within thirty (30) days after the end of each month when a Streamline Period is in effect, a Borrowing Base Report (and any schedules related thereto and including any other information requested by Bank with respect to Co-Borrowers' Accounts);

(b) (i) no later than Friday of each week when a Streamline Period is not in effect and (ii) within thirty (30) days after the end of each month when a Streamline Period is in effect, (A) monthly accounts receivable agings, aged by invoice date, (B) monthly accounts payable agings, aged by invoice date, and outstanding or held check registers, if any, and (C) monthly reconciliations of accounts receivable agings (aged by invoice date), transaction reports, Deferred Revenue report and general ledger;

(c) (i) no later than Friday of each week when a Streamline Period is not in effect and (ii) within thirty (30) days after the end of each month when a Streamline Period is in effect, a company prepared consolidated balance sheet and income statement covering Co-Borrowers' consolidated operations for such month certified by a Responsible Officer and in a form acceptable to Bank (the "**Monthly Financial Statements**");

(d) (i) no later than Friday of each week when a Streamline Period is not in effect and (ii) within thirty (30) days after the end of each month when a Streamline Period is in effect, a duly completed Compliance Certificate signed by a Responsible Officer, certifying that as of the end of such month, Co-Borrowers were in full compliance with all of the terms and conditions of this Agreement, and setting forth calculations showing compliance with the financial covenants set forth in this Agreement and such other information as Bank may reasonably request, including, without limitation, a statement that at the end of such month there were no held checks;

(e) no later than thirty (30) days after the end of each fiscal year of Co-Borrowers, and contemporaneously with any updates or amendments thereto, (i) annual operating budgets (including income statements, balance sheets and cash flow statements, by month) for the upcoming fiscal year of Co-Borrowers, and (ii) annual financial projections for the following fiscal year (on a quarterly basis), in each case as approved by the Board, together with any related business forecasts used in the preparation of such annual financial projections;

(f) as soon as available, but no later than one hundred eighty (180) days after the last day of Co-Borrower's fiscal year, audited consolidated financial statements prepared under GAAP, consistently applied, together with an unqualified opinion (except for a "going concern" qualification based solely on Co-Borrower's liquidity) on the financial statements from an independent certified public accounting firm reasonably acceptable to Bank (Bank acknowledges that Co-Borrower's current independent accounting firm as of the Effective Date, PWC, is acceptable to Bank as of the Effective Date);

(g) in the event that any Co-Borrower becomes subject to the reporting requirements under the Exchange Act within five (5) Business Days of filing, copies of all periodic and other reports, proxy statements and other materials filed by Co-Borrowers and/or any Guarantor with the SEC, any Governmental Authority succeeding to any or all of the functions of the SEC or with any national securities exchange, or distributed to its shareholders, as the case may be. Documents required to be delivered pursuant to the terms hereof (to the extent any such documents are included in materials otherwise filed with the SEC) may be delivered electronically and if so delivered, shall be deemed to have been delivered on the date on which Co-Borrowers post such documents, or provide a link thereto, on Co-Borrowers' website on the internet at Co-Borrowers' website address; provided, however, Co-Borrowers shall promptly notify Bank in writing (which may be by electronic mail) of the posting of any such documents;

(h) within five (5) Business Days of delivery, copies of all statements, reports and notices made available to such Co-Borrower's security holders or to any holders of Subordinated Debt;

(i) prompt report of any legal actions pending or threatened in writing against Co-Borrower or any of its Subsidiaries that could reasonably be expected to result in damages or costs to Co-Borrower or any of its Subsidiaries of, individually or in the aggregate, Five Hundred Thousand Dollars ($500,000) or more; and

(j) promptly, from time to time, such other financial information regarding Co-Borrowers or compliance with the terms of any Loan Documents as reasonably requested by Bank.

6.3 Accounts Receivable.

(a) Schedules and Documents Relating to Accounts. Co-Borrowers shall deliver to Bank transaction reports and schedules of collections, as provided in Section 6.2, on Bank's standard forms; provided, however, that Co-Borrowers' failure to execute and deliver the same shall not affect or limit Bank's Lien and other rights in all of Co-Borrowers' Accounts, nor shall Bank's failure to advance or lend against a specific Account affect or limit Bank's Lien and other rights therein. If requested by Bank, Co-Borrowers shall furnish Bank with copies (or, at Bank's request, originals) of all contracts, orders, invoices, and other similar documents, and all shipping instructions, delivery receipts, bills of lading, and other evidence of delivery, for any goods the sale or disposition of which gave rise to such Accounts. In addition, Co-Borrowers shall deliver to Bank, on its request, the originals of all instruments, chattel paper, security agreements, guarantees and other documents and property evidencing or securing any Accounts included in the Borrowing Base or any other Accounts having a value in excess of Fifty Thousand Dollars ($50,000), in the same form as received, with all necessary indorsements, and copies of all credit memos.

(b) Disputes. Co-Borrowers shall promptly notify Bank of all disputes or claims relating to Accounts. Co-Borrowers may forgive (completely or partially), compromise, or settle any Account for less than payment in full, or agree to do any of the foregoing so long as (i) Co-Borrowers do so in good faith, in a commercially reasonable manner, in the ordinary course of business, in arm's-length transactions, and reports the same to Bank in the regular reports provided to Bank; (ii) no Event of Default has occurred and is continuing; and (iii) after taking into account all such discounts, settlements and forgiveness, the total outstanding Advances will not exceed the lesser of the Revolving Line or the Borrowing Base.

(c) Collection of Accounts. Co-Borrowers shall direct Account Debtors to deliver or transmit all proceeds of Accounts into a lockbox account, or such other "blocked account" as specified by Bank (either such account, the "**Cash Collateral Account**"). Whether or not an Event of Default has occurred and is continuing, Co-Borrowers shall immediately deliver all payments on and proceeds of Accounts to the Cash Collateral Account. Subject to Bank's right to maintain a reserve pursuant to Section 6.3(d), all amounts received in the Cash Collateral Account shall be (i) applied to immediately reduce the Obligations when a Streamline Period is not in effect (unless Bank, in its sole discretion, at times when an Event of Default exists, elects not to so apply such amounts), or (ii) transferred on a daily basis to Co-Borrowers' operating account with Bank when a Streamline Period is in effect. Co-Borrowers hereby authorize Bank to transfer to the Cash Collateral Account any amounts that Bank reasonably determines are proceeds of the Accounts (provided that Bank is under no obligation to do so and this allowance shall in no event relieve Co-Borrowers of their obligations hereunder).

(d) Reserves. Notwithstanding any terms in this Agreement to the contrary, at times when an Event of Default exists, Bank may hold any proceeds of the Accounts and any amounts in the Cash Collateral Account that are not applied to the Obligations pursuant to Section 6.3(c) above (including amounts otherwise required to be transferred to Co-Borrowers' operating account with Bank when a Streamline Period is in effect) as a reserve to be applied to any Obligations regardless of whether such Obligations are then due and payable.

(e) Returns. Provided no Event of Default has occurred and is continuing, if any Account Debtor returns any Inventory to a Co-Borrower, such Co-Borrower shall promptly (i) determine the reason for such return, (ii) issue a credit memorandum to the Account Debtor in the appropriate amount, and (iii) provide a copy of such credit memorandum to Bank, upon request from Bank. In the event any attempted return occurs after the occurrence and during the continuance of any Event of Default, Co-Borrowers shall hold the returned Inventory in trust for Bank, and immediately notify Bank of the return of the Inventory.

(f) Verifications; Confirmations; Credit Quality; Notifications. Bank may, from time to time, (i) verify and confirm directly with the respective Account Debtors the validity, amount and other matters relating to the Accounts, either in the name of the relevant Co-Borrower or Bank or such other name as Bank may choose, and notify any Account Debtor of Bank's security interest in such Account and/or (ii) conduct a credit check of any Account Debtor to approve any such Account Debtor's credit. In addition, Bank may notify Account Debtors to make payments in respect of Accounts directly to Bank.

(g) No Liability. Bank shall not be responsible or liable for any shortage or discrepancy in, damage to, or loss or destruction of, any goods, the sale or other disposition of which gives rise to an Account, or for any error, act, omission, or delay of any kind occurring in the settlement, failure to settle, collection or failure to collect any Account, or for settling any Account in good faith for less than the full amount thereof, nor shall Bank be deemed to be responsible for any of Co-Borrowers' obligations under any contract or agreement giving rise to an Account. Nothing herein shall, however, relieve Bank from liability for its own gross negligence or willful misconduct.

6.4 Remittance of Proceeds. Except as otherwise provided in Section 6.3(c), deliver, in kind, all proceeds arising from the disposition of any Collateral to Bank in the original form in which received by Co-Borrowers not later than the following Business Day after receipt by Co-Borrowers, to be applied to the Obligations (a) prior to an Event of Default, pursuant to the terms of Section 6.3(c) hereof, and (b) after the occurrence and during the continuance of an Event of Default, pursuant to the terms of Section 9.4 hereof; provided that, if no Event of Default has occurred and is continuing, Co-Borrowers shall not be obligated to remit to Bank the proceeds of the sale of worn out or obsolete Equipment disposed of by Co-Borrowers in good faith in an arm's length transaction for an aggregate purchase price of One Hundred Thousand Dollars ($100,000) or less (for all such transactions in any fiscal year). Each Co-Borrower agrees that it will not commingle proceeds of Collateral with any of Co-Borrower's other funds or property, but will hold such proceeds separate and apart from such other funds and property and in an express trust for Bank. Nothing in this Section 6.4 limits the restrictions on disposition of Collateral set forth elsewhere in this Agreement.

6.5 Taxes; Pensions. Timely file (taking into account all applicable extension periods), and require each of its Subsidiaries to timely file (taking into account all applicable extension periods), all required tax returns and reports and timely pay (taking into account all applicable extension periods), and

require each of its Subsidiaries to timely pay (taking into account all applicable extension periods), all foreign, federal, state and local taxes, assessments, deposits and contributions owed by Co-Borrower and each of its Subsidiaries, except for deferred payment of any taxes contested pursuant to the terms of Section 5.9 hereof, and shall deliver to Bank, on demand, appropriate certificates attesting to such payments, and pay all amounts necessary to fund all present pension, profit sharing and deferred compensation plans in accordance with their terms.

6.6 Access to Collateral; Books and Records. At reasonable times, on five (5) Business Days' notice (provided no notice is required if an Event of Default has occurred and is continuing), Bank, or its agents, shall have the right to inspect the Collateral and the right to audit and copy Co-Borrowers' Books. The foregoing inspections and audits shall be conducted at Co-Borrower's expense and no more often than once every twelve (12) months unless an Event of Default has occurred and is continuing in which case such inspections and audits shall occur as often as Bank shall determine is necessary. The charge therefor shall be One Thousand Dollars ($1,000) per person per day (or such higher amount as shall represent Bank's then-current standard charge for the same), plus reasonable out-of-pocket expenses. In the event Co-Borrowers and Bank schedule an audit more than ten (10) days in advance, and Co-Borrowers cancel or seek to or reschedule the audit with less than ten (10) days written notice to Bank, then (without limiting any of Bank's rights or remedies) Co-Borrowers shall pay Bank a fee of One Thousand Dollars ($1,000) plus any out-of-pocket expenses incurred by Bank to compensate Bank for the anticipated costs and expenses of the cancellation or rescheduling.

6.7 Insurance.

(a) Keep its business and the Collateral insured for risks and in amounts standard for companies in Co-Borrowers' industry and location and as Bank may reasonably request. Insurance policies shall be in a form, with financially sound and reputable insurance companies that are not Affiliates of Co-Borrowers, and in amounts that are reasonably satisfactory to Bank. All property policies shall have a lender's loss payable endorsement showing Bank as lender loss payee. All liability policies shall show, or have endorsements showing, Bank as an additional insured. Bank shall be named as lender loss payee and/or additional insured with respect to any such insurance providing coverage in respect of any Collateral. Bank acknowledges that insurance maintained by Co-Borrowers as of the Effective Date is acceptable to Bank as of the Effective Date.

(b) Ensure that proceeds payable under any property policy are, at Bank's option, payable to Bank on account of the Obligations.

(c) At Bank's request, Co-Borrowers shall deliver certified copies of insurance policies and evidence of all premium payments. Each provider of any such insurance required under this Section 6.7 shall agree, by endorsement upon the policy or policies issued by it or by independent instruments furnished to Bank, that it will give Bank thirty (30) days prior written notice before any such policy or policies shall be materially altered or canceled. If Co-Borrowers fail to obtain insurance as required under this Section 6.7 or to pay any amount or furnish any required proof of payment to third persons and Bank, Bank may make all or part of such payment or obtain such insurance policies required in this Section 6.7, and take any action under the policies Bank deems prudent.

6.8 Accounts.

(a) Maintain its operating and other deposit accounts, securities accounts, letters of credit, and business credit cards with Bank and Bank's Affiliates.

(b) In addition to and without limiting the restrictions in (a), Co-Borrowers shall provide Bank five (5) Business Days prior written notice before establishing any Collateral Account at or with any bank or financial institution other than Bank or Bank's Affiliates. For each Collateral Account that Co-Borrowers at any time maintain, Co-Borrowers shall cause the applicable bank or financial institution (other than Bank) at or with which any Collateral Account is maintained to execute and deliver a Control Agreement or other appropriate instrument with respect to such Collateral Account to perfect Bank's Lien in such Collateral Account in accordance with the terms hereunder which Control Agreement may not be terminated without the prior written consent of Bank. The provisions of the previous sentence shall not apply to deposit accounts exclusively used for payroll, payroll taxes, and other employee wage and benefit payments to or for the benefit of Co-Borrowers' employees and identified to Bank by Co-Borrowers as such.

6.9 Intentionally Omitted.

6.10 Protection of Intellectual Property Rights.

(a) (i) Protect, defend and maintain the validity and enforceability of its Intellectual Property material to Co-Borrower's business; (ii) promptly advise Bank in writing of material infringements or any other event that could reasonably be expected to materially and adversely affect the value of its Intellectual Property material to Co-Borrower's business; and (iii) not allow any Intellectual Property material to a Co-Borrower's business to be abandoned, forfeited or dedicated to the public without Bank's written consent.

(b) Provide written notice to Bank within thirty (30) days of entering or becoming bound by any Restricted License (other than over-the-counter software that is commercially available to the public). Each Co-Borrower shall take such steps as Bank reasonably requests to obtain the consent of, or waiver by, any person whose consent or waiver is necessary for (i) any Restricted License to be deemed "Collateral" and for Bank to have a security interest in it that might otherwise be restricted or prohibited by law or by the terms of any such Restricted License, whether now existing or entered into in the future, and (ii) Bank to have the ability in the event of a liquidation of any Collateral to dispose of such Collateral in accordance with Bank's rights and remedies under this Agreement and the other Loan Documents.

6.11 Litigation Cooperation. From the date hereof and continuing through the termination of this Agreement, make reasonably available to Bank during Co-Borrower's regular business hours, without expense to Bank, Co-Borrower and its officers, employees and agents and Co-Borrower's books and records, to the extent that Bank may deem them reasonably necessary to prosecute or defend any third-party suit or proceeding instituted by or against Bank with respect to any Collateral or relating to Co-Borrower.

6.12 Online Banking. Utilize Bank's online banking platform for all matters reasonably requested by Bank which shall include, without limitation (and without request by Bank for the following matters), uploading information pertaining to Accounts and Account Debtors, requesting approval for exceptions, requesting Credit Extensions, and uploading financial statements and other reports required to be delivered by this Agreement (including, without limitation, those described in Section 6.2 of this Agreement).

6.13 Formation or Acquisition of Subsidiaries. Notwithstanding and without limiting the negative covenants contained in Sections 7.3 and 7.7 hereof, at the time that Co-Borrower forms any direct or indirect Subsidiary or acquires any direct or indirect Subsidiary after the Effective Date, Co-Borrower shall (a) cause any such new Subsidiary that is a domestic Subsidiary to provide to Bank a joinder to the Loan Agreement to cause such Subsidiary to become a co-borrower hereunder, together with such appropriate financing statements and/or Control Agreements, all in form and substance reasonably satisfactory to Bank (including being sufficient to grant Bank a first priority Lien (subject to Permitted Liens) in and to the assets of such newly formed or acquired Subsidiary of the same collateral description as the Collateral hereunder), (b) provide to Bank appropriate certificates and powers and financing statements, pledging the direct or beneficial ownership interest in such new Subsidiary, in form and substance reasonably satisfactory to Bank (but limited to sixty-five percent (65%) of the voting stock of any Subsidiary incorporated outside the United States), and (c) provide to Bank all other documentation in form and substance reasonably satisfactory to Bank which in its opinion is appropriate with respect to the execution and delivery of the applicable documentation referred to above. Any document, agreement, or instrument executed or issued pursuant to this Section 6.13 shall be a Loan Document.

6.14 Further Assurances. Execute any further instruments and take further action as Bank reasonably requests to perfect or continue Bank's Lien in the Collateral or to effect the purposes of this Agreement. Deliver to Bank, within ten (10) days after the same are sent or received, copies of all correspondence, reports, documents and other filings with any Governmental Authority regarding compliance with or maintenance of Governmental Approvals or Requirements of Law or that could reasonably be expected to have a material adverse effect on any of the Governmental Approvals or otherwise on the operations of Co-Borrower or any of its Subsidiaries.

7. NEGATIVE COVENANTS

Each Co-Borrower shall not do any of the following without Bank's prior written consent:

7.1 Dispositions. Convey, sell, lease, transfer, assign, or otherwise dispose of (collectively, "Transfer"), or permit any of its Subsidiaries to Transfer, all or any part of its business or property, except for Transfers (a) of Inventory in the ordinary course of business; (b) of worn-out, surplus or obsolete Equipment that is, in the reasonable judgment of Co-Borrower, no longer economically practicable to maintain or useful in the ordinary course of business of Co-Borrower; (c) consisting of Permitted Liens and Permitted Investments; (d) consisting of the sale or issuance of any stock of Co-Borrower permitted under Section 7.2 of this Agreement; (e) consisting of Co-Borrower's use or transfer of money or Cash Equivalents in a manner that is not prohibited by the terms of this Agreement or the other Loan Documents; (f) of non-exclusive licenses for the use of the property of Co-Borrower or its Subsidiaries in the ordinary course of business and licenses that could not result in a legal transfer of title of the licensed property but that may be exclusive in respects other than territory and that may be exclusive as to territory only as to discreet geographical areas outside of the United States; (g) transfers of assets among Co-Borrower (including without limitation in connection with the dissolution of such Co-Borrower so long as such Co-Borrower is not Twist Bioscience; and (h) other Transfers not otherwise permitted pursuant to this provision so long as the fair market value of the assets subject to any such Transfer does not in the aggregate exceed One Hundred Thousand Dollars ($100,000) in any fiscal year.

7.2 Changes in Business, Management, Control, or Business Locations. (a) Engage in or permit any of its Subsidiaries to engage in any business other than the businesses currently engaged in by Co-Borrower and such Subsidiary, as applicable, or reasonably related thereto; (b) liquidate or dissolve; (c) fail to provide notice to Bank of any Key Persons departing from or ceasing to be employed by Co-Borrower within ten (10) Business Days after their departure from Co-Borrower; or (d) permit or suffer any Change in Control (provided, however, that the dissolution of any Co-Borrower otherwise in compliance with the terms of this Agreement shall not constitute a Change in Control).

Co-Borrower shall not, without at least ten (10) days prior written notice to Bank: (1) add any new offices or business locations, including warehouses (unless such new offices or business locations contain less than One Hundred Thousand Dollars ($100,000) in Co-Borrower's assets or property) or deliver any portion of the Collateral valued, individually or in the aggregate, in excess of One Hundred Thousand Dollars ($100,000) to a bailee at a location other than to a bailee and at a location already disclosed in the Perfection Certificate, (2) change its jurisdiction of organization, (3) change its organizational structure or type, (4) change its legal name, or (5) change any organizational number (if any) assigned by its jurisdiction of organization. If Co-Borrower intends to deliver any portion of the Collateral valued, individually or in the aggregate, in excess of One Hundred Thousand Dollars ($100,000) to a bailee, and Bank and such bailee are not already parties to a bailee agreement governing both the Collateral and the location to which Co-Borrower intends to deliver the Collateral, then Co-Borrower will first receive the written consent of Bank, and such bailee shall execute and deliver a bailee agreement in form and substance reasonably satisfactory to Bank.

7.3 Mergers or Acquisitions. Merge or consolidate, or permit any of its Subsidiaries to merge or consolidate, with any other Person, or acquire, or permit any of its Subsidiaries to acquire, all or substantially all of the capital stock or property of another Person (including, without limitation, by the formation of any Subsidiary), other than a Permitted Acquisition. A Subsidiary may merge or consolidate into another Subsidiary or into a Co-Borrower.

7.4 Indebtedness. Create, incur, assume, or be liable for any Indebtedness, or permit any Subsidiary to do so, other than Permitted Indebtedness.

7.5 Encumbrance. Create, incur, allow, or suffer any Lien on any of its property, or assign or convey any right to receive income, including the sale of any Accounts, (other than delinquent Accounts immaterial to Co-Borrower's business sold for collection in the ordinary course of business that are not included in the Borrowing Base or any Borrowing Base Report), or permit any of its Subsidiaries to do so, except for Permitted Liens, permit any Collateral not to be subject to the first priority security interest granted herein, or enter into any agreement, document, instrument or other arrangement (except with or in favor of Bank) with any Person which directly or indirectly prohibits or has the effect of prohibiting Co-Borrower or any Subsidiary from assigning, mortgaging, pledging, granting a security interest in or upon, or encumbering any of Co-Borrower's or any Subsidiary's Intellectual Property, except as is otherwise permitted in Section 7.1 hereof and the definition of "Permitted Liens" herein.

7.6 Maintenance of Collateral Accounts. Maintain any Collateral Account except pursuant to the terms of Section 6.8(b) hereof.

7.7 Distributions; Investments. (a) Pay any dividends or make any distribution or payment or redeem, retire or purchase any capital stock, provided that (i) Co-Borrower may convert any of its convertible securities into other securities pursuant to the terms of such convertible securities or otherwise in exchange thereof, (ii) Co-Borrower may pay dividends solely in common stock; and (iii) Co-Borrower may repurchase the stock of employees, directors or consultants pursuant to stock repurchase agreements so long as an Event of Default does not exist at the time of such repurchase and would not exist after giving effect to such repurchase, provided that the aggregate amount of all such repurchases does not exceed Two Hundred Fifty Thousand Dollars ($250,000) per fiscal year; or (b) directly or indirectly make any Investment (including, without limitation, by the formation of any Subsidiary) other than Permitted Investments, or permit any of its Subsidiaries to do so.

7.8 Transactions with Affiliates. Directly or indirectly enter into or permit to exist any material transaction with any Affiliate of Co-Borrower, except for transactions that are in the ordinary course of Co-Borrower's business, upon fair and reasonable terms that are no less favorable to Co-Borrower than would be obtained in an arm's length transaction with a non-affiliated Person.

7.9 Subordinated Debt. (a) Make or permit any payment on any Subordinated Debt (other than conversions into equity), except under the terms of the subordination, intercreditor, or other similar agreement to which such Subordinated Debt is subject, or (b) amend any provision in any document relating to the Subordinated Debt which would increase the amount thereof, provide for earlier or greater principal, interest, or other payments thereon, or adversely affect the subordination thereof to Obligations owed to Bank.

7.10 Compliance. Become an "investment company" or a company controlled by an "investment company", under the Investment Company Act of 1940, as amended, or undertake as one of its important activities extending credit to purchase or carry margin stock (as defined in Regulation U of the Board of Governors of the Federal Reserve System), or use the proceeds of any Credit Extension for that purpose; fail to meet the minimum funding requirements of ERISA; permit a Reportable Event or Prohibited Transaction, as defined in ERISA to occur; fail to comply with the Federal Labor Standards Act, or violate any other law or regulation, if the violation could reasonably be expected to have a material adverse effect on Co-Borrower's business, or permit any of its Subsidiaries to do so; withdraw or permit any Subsidiary to withdraw from participation in, permit partial or complete termination of, or permit the occurrence of any other event with respect to, any present pension, profit sharing and deferred compensation plan which could reasonably be expected to result in any liability of Co-Borrower, including any liability to the Pension Benefit Guaranty Corporation or its successors or any other governmental agency.

8. EVENTS OF DEFAULT

Any one of the following shall constitute an event of default (an "**Event of Default**") under this Agreement:

8.1 Payment Default. Co-Borrowers fail to (a) make any payment of principal or interest on any Credit Extension when due, or (b) pay any other Obligations within three (3) Business Days after such Obligations are due and payable (which three (3) Business Day cure period shall not apply to payments due on the Revolving Line Maturity Date or the Growth Capital Maturity Date). During the cure period, the failure to make or pay any payment specified under clause (b) hereunder is not an Event of

Default (but no Credit Extension will be made during the cure period); Notwithstanding the foregoing, an Event of Default shall not occur on account of a failure to pay due solely to an administrative or operational error by Bank if Co-Borrowers' had the funds to make the payment when due and makes the payment the Business Day following Co-Borrowers' knowledge of such failure to pay);

8.2 Covenant Default. Co-Borrowers (a) fail or neglect to perform any obligation in Section 6 of this Agreement or violates any covenant in Section 7 of this Agreement or (b) fail or neglect to perform, keep, or observe any other term, provision, condition, covenant or agreement contained in this Agreement or any Loan Documents and as to any default (other than those specified in clause (a)) under such other term, provision, condition, covenant or agreement that can be cured, has failed to cure the default within ten (10) days after the occurrence thereof; provided, however, grace and cure periods provided under this Section 8.2 shall not apply, among other things, to financial covenants or any other covenants that are required to be satisfied, completed or tested by a date certain or any covenants set forth in clause (a);

8.3 Material Adverse Change. A Material Adverse Change occurs;

8.4 Attachment; Levy; Restraint on Business.

(a) (i) The service of process seeking to attach, by trustee or similar process, any funds of a Co-Borrower or of any entity under the control of a Co-Borrower (including a Subsidiary), or (ii) a notice of lien or levy is filed against any of a Co-Borrower's assets by any Governmental Authority, and the same under subclauses (i) and (ii) hereof are not, within ten (10) days after the occurrence thereof, discharged or stayed (whether through the posting of a bond or otherwise); provided, however, no Credit Extensions shall be made during any ten (10) day cure period; or

(b) (i) any material portion of a Co-Borrower's assets is attached, seized, levied on, or comes into possession of a trustee or receiver, or (ii) any court order enjoins, restrains, or prevents a Co-Borrower from conducting all or any material part of its business;

8.5 Insolvency. (a) A Co-Borrower or any of its Subsidiaries is unable to pay its debts (including trade debts) as they become due or otherwise becomes insolvent; (b) a Co-Borrower or any of its Subsidiaries begins an Insolvency Proceeding; or (c) an Insolvency Proceeding is begun against a Co-Borrower or any of its Subsidiaries and is not dismissed or stayed within forty-five (45) days (but no Credit Extensions shall be made while any of the conditions described in clause (a) exist and/or until any Insolvency Proceeding is dismissed);

8.6 Other Agreements. There is, under any agreement to which a Co-Borrower or any Guarantor is a party with a third party or parties, (a) any default resulting in a right by such third party or parties, whether or not exercised, to accelerate the maturity of any Indebtedness in an amount individually or in the aggregate in excess of Five Hundred Thousand Dollars ($500,000); or (b) any breach or default by a Co-Borrower or Guarantor, the result of which could reasonably be expected to have a material adverse effect on such Co-Borrower's or any Guarantor's business;

8.7 Judgments; Penalties. One or more fines, penalties or final judgments, orders or decrees for the payment of money in an amount, individually or in the aggregate, of at least Five Hundred Thousand Dollars ($500,000) (not covered by independent third-party insurance as to which liability has been accepted by such insurance carrier) shall be rendered against a Co-Borrower by any Governmental

Authority, and the same are not, within ten (10) Business Days after the entry, assessment or issuance thereof, discharged, satisfied, or paid, or after execution thereof, stayed or bonded pending appeal, or such judgments are not discharged prior to the expiration of any such stay (provided that no Credit Extensions will be made prior to the satisfaction, payment, discharge, stay, or bonding of such fine, penalty, judgment, order or decree);

8.8 Misrepresentations. A Co-Borrower or any Person acting for a Co-Borrower makes any representation, warranty, or other statement now or later in this Agreement, any Loan Document or in any writing delivered to Bank or to induce Bank to enter this Agreement or any Loan Document, and such representation, warranty, or other statement is incorrect in any material respect when made;

8.9 Subordinated Debt. Any document, instrument, or agreement evidencing any Subordinated Debt shall for any reason be revoked or invalidated or otherwise cease to be in full force and effect, any Person shall be in breach thereof or contest in any manner the validity or enforceability thereof or deny that it has any further liability or obligation thereunder, or the Obligations shall for any reason be subordinated or shall not have the priority contemplated by this Agreement or any applicable subordination or intercreditor agreement;

8.10 Governmental Approvals. Any material Governmental Approval shall have been (a) revoked, rescinded, suspended, modified in an adverse manner or not renewed in the ordinary course for a full term or (b) subject to any decision by a Governmental Authority that designates a hearing with respect to any applications for renewal of any of such material Governmental Approval or that could result in the Governmental Authority taking any of the actions described in clause (a) above, and such decision or such revocation, rescission, suspension, modification or non-renewal (i) cause, or could reasonably be expected to cause, a Material Adverse Change, or (ii) adversely affects the legal qualifications of a Co-Borrower or any of its Subsidiaries to hold such material Governmental Approval in any applicable jurisdiction and such revocation, rescission, suspension, modification or non-renewal could reasonably be expected to affect the status of or legal qualifications of a Co-Borrower or any of its Subsidiaries to hold any material Governmental Approval in any other jurisdiction.

9. BANK'S RIGHTS AND REMEDIES

9.1 Rights and Remedies. Upon the occurrence and during the continuance of an Event of Default, Bank may, without notice or demand, do any or all of the following:

(a) declare all Obligations immediately due and payable (but if an Event of Default described in Section 8.5 occurs all Obligations are immediately due and payable without any action by Bank);

(b) stop advancing money or extending credit for Co-Borrowers' benefit under this Agreement or under any other agreement between Co-Borrowers and Bank;

(c) demand that Co-Borrowers (i) deposit cash with Bank in an amount equal to at least (A) one hundred five percent (105.0%) of the Dollar Equivalent of the aggregate face amount of all Letters of Credit denominated in Dollars remaining undrawn, and (B) one hundred ten percent (110.0%) of the Dollar Equivalent of the aggregate face amount of all Letters of Credit denominated in a Foreign Currency remaining undrawn (plus, in each case, all interest, fees, and costs due or to become due in connection therewith (as estimated by Bank in its good faith business judgment)), to secure all of the

Obligations relating to such Letters of Credit, as collateral security for the repayment of any future drawings under such Letters of Credit, and Co-Borrowers shall forthwith deposit and pay such amounts, and (ii) pay in advance all letter of credit fees scheduled to be paid or payable over the remaining term of any Letters of Credit;

(d) terminate any FX Contracts;

(e) verify the amount of, demand payment of and performance under, and collect any Accounts and General Intangibles, settle or adjust disputes and claims directly with Account Debtors for amounts on terms and in any order that Bank considers advisable, and notify any Person owing a Co-Borrower money of Bank's security interest in such funds. Such Co-Borrower shall collect all payments in trust for Bank and, if requested by Bank, immediately deliver the payments to Bank in the form received from the Account Debtor, with proper endorsements for deposit;

(f) make any payments and do any acts it considers necessary or reasonable to protect the Collateral and/or its security interest in the Collateral. Co-Borrowers shall assemble the Collateral if Bank requests and make it available as Bank designates. Bank may enter premises where the Collateral is located, take and maintain possession of any part of the Collateral, and pay, purchase, contest, or compromise any Lien which appears to be prior or superior to its security interest and pay all expenses incurred. Each Co-Borrower grants Bank a license to enter and occupy any of its premises, without charge, to exercise any of Bank's rights or remedies;

(g) apply to the Obligations any (i) balances and deposits of a Co-Borrower it holds, or (ii) amount held by Bank owing to or for the credit or the account of a Co-Borrower;

(h) ship, reclaim, recover, store, finish, maintain, repair, prepare for sale, advertise for sale, and sell the Collateral. Bank is hereby granted a non-exclusive, royalty-free license or other right to use, without charge, a Co-Borrower's labels, Patents, Copyrights, mask works, rights of use of any name, trade secrets, trade names, Trademarks, and advertising matter, or any similar property as it pertains to the Collateral, in completing production of, advertising for sale, and selling any Collateral and, in connection with Bank's exercise of its rights under this Section 9.1, Co-Borrower's rights under all licenses and all franchise agreements inure to Bank's benefit;

(i) place a "hold" on any account maintained with Bank and/or deliver a notice of exclusive control, any entitlement order, or other directions or instructions pursuant to any Control Agreement or similar agreements providing control of any Collateral;

(j) demand and receive possession of a Co-Borrower's Books; and

(k) exercise all rights and remedies available to Bank under the Loan Documents or at law or equity, including all remedies provided under the Code (including disposal of the Collateral pursuant to the terms thereof).

9.2 Power of Attorney. Each Co-Borrower hereby irrevocably appoint Bank as its lawful attorney-in-fact to: (a) exercisable following the occurrence and during the continuance of an Event of Default, (i) sign such Co-Borrower's name on any invoice or bill of lading for any Account or drafts against Account Debtors; (ii) demand, collect, sue, and give releases to any Account Debtor for monies due, settle and adjust disputes and claims about the Accounts directly with Account Debtors, and compromise,

prosecute, or defend any action, claim, case, or proceeding about any Collateral (including filing a claim or voting a claim in any bankruptcy case in Bank's or such Co-Borrower's name, as Bank chooses); (iii) make, settle, and adjust all claims under such Co-Borrower's insurance policies; (iv) pay, contest or settle any Lien, charge, encumbrance, security interest, or other claim in or to the Collateral, or any judgment based thereon, or otherwise take any action to terminate or discharge the same; (v) transfer the Collateral into the name of Bank or a third party as the Code permits; and (vi) receive, open and dispose of mail addressed to such Co-Borrower; and (b) regardless of whether an Event of Default has occurred, (i) endorse such Co-Borrower's name on any checks, payment instruments, or other forms of payment or security; and (ii) notify all Account Debtors to pay Bank directly. Each Co-Borrower hereby appoints Bank as its lawful attorney-in-fact to sign such Co-Borrower's names on any documents necessary to perfect or continue the perfection of Bank's security interest in the Collateral regardless of whether an Event of Default has occurred until all Obligations have been satisfied in full and the Loan Documents have been terminated. Bank's foregoing appointment as such Co-Borrower's attorney in fact, and all of Bank's rights and powers, coupled with an interest, are irrevocable until all Obligations have been fully repaid and performed and the Loan Documents have been terminated.

9.3 Protective Payments. If a Co-Borrower fails to obtain the insurance called for by Section 6.7 or fails to pay any premium thereon or fails to pay any other amount which such Co-Borrower is obligated to pay under this Agreement or any other Loan Document or which may be required to preserve the Collateral, Bank may obtain such insurance or make such payment, and all amounts so paid by Bank are Bank Expenses and immediately due and payable, bearing interest at the then highest rate applicable to the Obligations, and secured by the Collateral. Bank will make reasonable efforts to provide Co-Borrowers with notice of Bank obtaining such insurance at the time it is obtained or within a reasonable time thereafter. No payments by Bank are deemed an agreement to make similar payments in the future or Bank's waiver of any Event of Default.

9.4 Application of Payments and Proceeds. If an Event of Default has occurred and is continuing, Bank shall have the right to apply in any order any funds in its possession, whether from Co-Borrowers account balances, payments, proceeds realized as the result of any collection of Accounts or other disposition of the Collateral, or otherwise, to the Obligations. Bank shall pay any surplus to Co-Borrowers by credit to the Designated Deposit Account or to other Persons legally entitled thereto; Co-Borrowers shall remain liable to Bank for any deficiency. If Bank, directly or indirectly, enters into a deferred payment or other credit transaction with any purchaser at any sale of Collateral, Bank shall have the option, exercisable at any time, of either reducing the Obligations by the principal amount of the purchase price or deferring the reduction of the Obligations until the actual receipt by Bank of cash therefor.

9.5 Bank's Liability for Collateral. So long as Bank complies with reasonable banking practices regarding the safekeeping of the Collateral in the possession or under the control of Bank, Bank shall not be liable or responsible for: (a) the safekeeping of the Collateral; (b) any loss or damage to the Collateral; (c) any diminution in the value of the Collateral; or (d) any act or default of any carrier, warehouseman, bailee, or other Person. Co-Borrowers bear all risk of loss, damage or destruction of the Collateral.

9.6 No Waiver; Remedies Cumulative. Bank's failure, at any time or times, to require strict performance by Co-Borrowers of any provision of this Agreement or any other Loan Document shall not waive, affect, or diminish any right of Bank thereafter to demand strict performance and compliance

herewith or therewith. No waiver hereunder shall be effective unless signed by the party granting the waiver and then is only effective for the specific instance and purpose for which it is given. Bank's rights and remedies under this Agreement and the other Loan Documents are cumulative. Bank has all rights and remedies provided under the Code, by law, or in equity. Bank's exercise of one right or remedy is not an election and shall not preclude Bank from exercising any other remedy under this Agreement or other remedy available at law or in equity, and Bank's waiver of any Event of Default is not a continuing waiver. Bank's delay in exercising any remedy is not a waiver, election, or acquiescence.

9.7 Demand Waiver. Each Co-Borrower waives demand, notice of default or dishonor, notice of payment and nonpayment, notice of any default, nonpayment at maturity, release, compromise, settlement, extension, or renewal of accounts, documents, instruments, chattel paper, and guarantees held by Bank on which such Co-Borrower is liable.

9.8 Co-Borrowers Liability. Any Co-Borrower may, acting singly, request Credit Extensions hereunder. Each Co-Borrower hereby appoints each other as agent for the other for all purposes hereunder, including with respect to requesting Credit Extensions hereunder. Each Co-Borrower hereunder shall be jointly and severally obligated to repay all Credit Extensions made hereunder, regardless of which Co-Borrower actually receives said Credit Extension, as if each Co-Borrower hereunder directly received all Credit Extensions. Each Co-Borrower waives (a) any suretyship defenses available to it under the Code or any other applicable law, including, without limitation, the benefit of California Civil Code Section 2815 permitting revocation as to future transactions and the benefit of California Civil Code Sections 1432, 2809, 2810, 2819, 2839, 2845, 2847, 2848, 2849, 2850, and 2899 and 3433, and (b) any right to require Bank to: (i) proceed against any Co-Borrower or any other person; (ii) proceed against or exhaust any security; or (iii) pursue any other remedy. Bank may exercise or not exercise any right or remedy it has against any Co-Borrower or any security it holds (including the right to foreclose by judicial or non-judicial sale) without affecting any Co-Borrower's liability. Notwithstanding any other provision of this Agreement or other related document, each Co-Borrower irrevocably waives all rights that it may have at law or in equity (including, without limitation, any law subrogating Co-Borrower to the rights of Bank under this Agreement) to seek contribution, indemnification or any other form of reimbursement from any other Co-Borrower, or any other Person now or hereafter primarily or secondarily liable for any of the Obligations, for any payment made by Co-Borrower with respect to the Obligations in connection with this Agreement or otherwise and all rights that it might have to benefit from, or to participate in, any security for the Obligations as a result of any payment made by Co-Borrower with respect to the Obligations in connection with this Agreement or otherwise. Any agreement providing for indemnification, reimbursement or any other arrangement prohibited under this Section 9.8 shall be null and void. If any payment is made to a Co-Borrower in contravention of this Section 9.8, such Co-Borrower shall hold such payment in trust for Bank and such payment shall be promptly delivered to Bank for application to the Obligations, whether matured or unmatured.

10. NOTICES

All notices, consents, requests, approvals, demands, or other communication by any party to this Agreement or any other Loan Document must be in writing and shall be deemed to have been validly served, given, or delivered: (a) upon the earlier of actual receipt and three (3) Business Days after deposit in the U.S. mail, first class, registered or certified mail return receipt requested, with proper postage prepaid; (b) upon transmission, when sent by electronic mail or facsimile transmission; (c) one (1) Business Day after deposit with a reputable overnight courier with all charges prepaid; or (d) when

delivered, if hand-delivered by messenger, all of which shall be addressed to the party to be notified and sent to the address, facsimile number, or email address indicated below. Bank or any Co-Borrower may change its mailing or electronic mail address or facsimile number by giving the other party written notice thereof in accordance with the terms of this Section 10.

If to Co-Borrowers:	TWIST BIOSCIENCE CORPORATION, on behalf of all Co-Borrowers 455 Mission Bay Boulevard, Suite 545 San Francisco, CA 94158 Attn: Emily LeProust, CEO Email: Website URL: www.twistbioscience.com
If to Bank:	SILICON VALLEY BANK 2400 Hanover Street Palo Alto, CA 94304 Attn: Brandon Clark, Vice President Email:

11. CHOICE OF LAW, VENUE, JURY TRIAL WAIVER AND JUDICIAL REFERENCE

Except as otherwise expressly provided in any of the Loan Documents, California law governs the Loan Documents without regard to principles of conflicts of law. Co-Borrowers and Bank each submit to the exclusive jurisdiction of the State and Federal courts in Santa Clara County, California; provided, however, that nothing in this Agreement shall be deemed to operate to preclude Bank from bringing suit or taking other legal action in any other jurisdiction to realize on the Collateral or any other security for the Obligations, or to enforce a judgment or other court order in favor of Bank. Each Co-Borrower expressly submits and consents in advance to such jurisdiction in any action or suit commenced in any such court, and such Co-Borrower hereby waives any objection that it may have based upon lack of personal jurisdiction, improper venue, or forum non conveniens and hereby consents to the granting of such legal or equitable relief as is deemed appropriate by such court. Each Co-Borrower hereby waives personal service of the summons, complaints, and other process issued in such action or suit and agrees that service of such summons, complaints, and other process may be made by registered or certified mail addressed to such Co-Borrower at the address set forth in, or subsequently provided by such Co-Borrower in accordance with, Section 10 of this Agreement and that service so made shall be deemed completed upon the earlier to occur of such Co-Borrower's actual receipt thereof or three (3) days after deposit in the U.S. mails, proper postage prepaid.

TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, EACH CO-BORROWER AND BANK EACH WAIVE THEIR RIGHT TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION ARISING OUT OF OR BASED UPON THIS AGREEMENT, THE LOAN DOCUMENTS OR ANY CONTEMPLATED TRANSACTION, INCLUDING CONTRACT, TORT, BREACH OF DUTY AND ALL OTHER CLAIMS. THIS WAIVER IS A MATERIAL INDUCEMENT FOR BOTH PARTIES TO ENTER INTO THIS AGREEMENT. EACH PARTY HAS REVIEWED THIS WAIVER WITH ITS COUNSEL.

WITHOUT INTENDING IN ANY WAY TO LIMIT THE PARTIES' AGREEMENT TO WAIVE THEIR RESPECTIVE RIGHT TO A TRIAL BY JURY, if the above waiver of the right to a trial by jury is not enforceable, the parties hereto agree that any and all disputes or controversies of any nature between them arising at any time shall be decided by a reference to a private judge, mutually selected by the

parties (or, if they cannot agree, by the Presiding Judge of the Santa Clara County, California Superior Court) appointed in accordance with California Code of Civil Procedure Section 638 (or pursuant to comparable provisions of federal law if the dispute falls within the exclusive jurisdiction of the federal courts), sitting without a jury, in Santa Clara County, California; and the parties hereby submit to the jurisdiction of such court. The reference proceedings shall be conducted pursuant to and in accordance with the provisions of California Code of Civil Procedure Sections 638 through 645.1, inclusive. The private judge shall have the power, among others, to grant provisional relief, including without limitation, entering temporary restraining orders, issuing preliminary and permanent injunctions and appointing receivers. All such proceedings shall be closed to the public and confidential and all records relating thereto shall be permanently sealed. If during the course of any dispute, a party desires to seek provisional relief, but a judge has not been appointed at that point pursuant to the judicial reference procedures, then such party may apply to the Santa Clara County, California Superior Court for such relief. The proceeding before the private judge shall be conducted in the same manner as it would be before a court under the rules of evidence applicable to judicial proceedings. The parties shall be entitled to discovery which shall be conducted in the same manner as it would be before a court under the rules of discovery applicable to judicial proceedings. The private judge shall oversee discovery and may enforce all discovery rules and orders applicable to judicial proceedings in the same manner as a trial court judge. The parties agree that the selected or appointed private judge shall have the power to decide all issues in the action or proceeding, whether of fact or of law, and shall report a statement of decision thereon pursuant to California Code of Civil Procedure Section 644(a). Nothing in this paragraph shall limit the right of any party at any time to exercise self-help remedies, foreclose against collateral, or obtain provisional remedies. The private judge shall also determine all issues relating to the applicability, interpretation, and enforceability of this paragraph.

This Section 11 shall survive the termination of this Agreement.

12. GENERAL PROVISIONS

12.1 Termination Prior to Maturity Date; Survival. All covenants, representations and warranties made in this Agreement shall continue in full force until this Agreement has terminated pursuant to its terms and all Obligations have been satisfied. So long as Co-Borrowers have satisfied the Obligations (other than inchoate indemnity obligations, and any other obligations which, by their terms, are to survive the termination of this Agreement, and any Obligations under Bank Services Agreements that are cash collateralized in accordance with Section 4.1 of this Agreement), this Agreement may be terminated prior to the Revolving Line Maturity Date and the Growth Capital Maturity Date by Co-Borrowers, effective three (3) Business Days after written notice of termination is given to Bank. Those obligations that are expressly specified in this Agreement as surviving this Agreement's termination shall continue to survive notwithstanding this Agreement's termination.

12.2 Successors and Assigns. This Agreement binds and is for the benefit of the successors and permitted assigns of each party. No Co-Borrower may assign this Agreement or any rights or obligations under it without Bank's prior written consent (which may be granted or withheld in Bank's discretion). Bank has the right, without the consent of or notice to Co-Borrowers, to sell, transfer, assign, negotiate, or grant participation in all or any part of, or any interest in, Bank's obligations, rights, and benefits under this Agreement and the other Loan Documents (other than the Warrant, as to which assignment, transfer and other such actions are governed by the terms thereof). Notwithstanding the foregoing, so long as no Event of Default shall have occurred and is continuing, Bank shall not assign its interest in the Credit Extensions and Loan Documents to any Person who in the reasonable estimation of Bank is a direct competitor of a Co-Borrower.

12.3 Indemnification. Co-Borrowers agree to indemnify, defend and hold Bank and its directors, officers, employees, agents, attorneys, or any other Person affiliated with or representing Bank (each, an "**Indemnified Person**") harmless against: (i) all obligations, demands, claims, and liabilities (collectively, "**Claims**") claimed or asserted by any other party in connection with the transactions contemplated by the Loan Documents; and (ii) all losses or expenses (including Bank Expenses) in any way suffered, incurred, or paid by such Indemnified Person as a result of, following from, consequential to, or arising from transactions between Bank and Co-Borrowers contemplated by the Loan Documents (including reasonable attorneys' fees and expenses), except for Claims and/or losses directly caused by such Indemnified Person's gross negligence or willful misconduct.

This Section 12.3 shall survive until all statutes of limitation with respect to the Claims, losses, and expenses for which indemnity is given shall have run.

12.4 Time of Essence. Time is of the essence for the performance of all Obligations in this Agreement.

12.5 Severability of Provisions. Each provision of this Agreement is severable from every other provision in determining the enforceability of any provision.

12.6 Correction of Loan Documents. Bank may correct patent errors and fill in any blanks in the Loan Documents consistent with the agreement of the parties so long as Bank provides Co-Borrowers with written notice of such correction and allows Co-Borrowers at least ten (10) days to object to such correction. In the event of such objection, such correction shall not be made except by an amendment signed by Bank and Co-Borrowers.

12.7 Amendments in Writing; Waiver; Integration. No purported amendment or modification of any Loan Document, or waiver, discharge or termination of any obligation under any Loan Document, shall be enforceable or admissible unless, and only to the extent, expressly set forth in a writing signed by the party against which enforcement or admission is sought. Without limiting the generality of the foregoing, no oral promise or statement, nor any action, inaction, delay, failure to require performance or course of conduct shall operate as, or evidence, an amendment, supplement or waiver or have any other effect on any Loan Document. Any waiver granted shall be limited to the specific circumstance expressly described in it, and shall not apply to any subsequent or other circumstance, whether similar or dissimilar, or give rise to, or evidence, any obligation or commitment to grant any further waiver. The Loan Documents represent the entire agreement about this subject matter and supersede prior negotiations or agreements. All prior agreements, understandings, representations, warranties, and negotiations between the parties about the subject matter of the Loan Documents merge into the Loan Documents.

12.8 Counterparts. This Agreement may be executed in any number of counterparts and by different parties on separate counterparts, each of which, when executed and delivered, is an original, and all taken together, constitute one Agreement.

12.9 Confidentiality. In handling any confidential information, Bank shall exercise the same degree of care that it exercises for its own proprietary information (but not less than a reasonable degree

of care), but disclosure of information may be made: (a) to Bank's Subsidiaries or Affiliates who are bound by the confidentiality obligations of this provision or substantially similar obligations (such Subsidiaries and Affiliates, together with Bank, collectively, "**Bank Entities**"); (b) to prospective transferees or purchasers of any interest in the Credit Extensions (provided, however, Bank shall use its best efforts to obtain any prospective transferee's or purchaser's agreement to the terms of this provision); (c) as required by law, regulation, subpoena, or other order; (d) to Bank's regulators or as otherwise required in connection with Bank's examination or audit; (e) as Bank considers appropriate in exercising remedies under the Loan Documents; and (f) to third-party service providers of Bank so long as such service providers have executed a confidentiality agreement with Bank with terms no less restrictive than those contained herein. Confidential information does not include information that is either: (i) in the public domain or in Bank's possession when disclosed to Bank, or becomes part of the public domain (other than as a result of its disclosure by Bank in violation of this Agreement) after disclosure to Bank; or (ii) disclosed to Bank by a third party, if Bank does not know that the third party is prohibited from disclosing the information.

Bank Entities may use confidential information for the development of databases, reporting purposes, and market analysis so long as such confidential information is aggregated and anonymized prior to distribution unless otherwise expressly permitted by Co-Borrowers. The provisions of the immediately preceding sentence shall survive the termination of this Agreement.

12.10 Attorneys' Fees, Costs and Expenses. In any action or proceeding between Co-Borrowers and Bank arising out of or relating to the Loan Documents, the prevailing party shall be entitled to recover its reasonable attorneys' fees and other costs and expenses incurred, in addition to any other relief to which it may be entitled.

12.11 Electronic Execution of Documents. The words "execution," "signed," "signature" and words of like import in any Loan Document shall be deemed to include electronic signatures or the keeping of records in electronic form, each of which shall be of the same legal effect, validity and enforceability as a manually executed signature or the use of a paper-based recordkeeping systems, as the case may be, to the extent and as provided for in any applicable law, including, without limitation, any state law based on the Uniform Electronic Transactions Act.

12.12 Right of Setoff. Each Co-Borrower hereby grants to Bank a Lien and a right of setoff as security for all Obligations to Bank, whether now existing or hereafter arising upon and against all deposits, credits, collateral and property, now or hereafter in the possession, custody, safekeeping or control of Bank or any entity under the control of Bank (including a subsidiary of Bank) or in transit to any of them. At any time after the occurrence and during the continuance of an Event of Default, without demand or notice, Bank may setoff the same or any part thereof and apply the same to any liability or Obligation of any Co-Borrower even though unmatured and regardless of the adequacy of any other collateral securing the Obligations. ANY AND ALL RIGHTS TO REQUIRE BANK TO EXERCISE ITS RIGHTS OR REMEDIES WITH RESPECT TO ANY OTHER COLLATERAL WHICH SECURES THE OBLIGATIONS, PRIOR TO EXERCISING ITS RIGHT OF SETOFF WITH RESPECT TO SUCH DEPOSITS, CREDITS OR OTHER PROPERTY OF ANY CO-BORROWER, ARE HEREBY KNOWINGLY, VOLUNTARILY AND IRREVOCABLY WAIVED.

12.13 Captions. The headings used in this Agreement are for convenience only and shall not affect the interpretation of this Agreement.

12.14 Construction of Agreement. The parties mutually acknowledge that they and their attorneys have participated in the preparation and negotiation of this Agreement. In cases of uncertainty this Agreement shall be construed without regard to which of the parties caused the uncertainty to exist.

12.15 Relationship. The relationship of the parties to this Agreement is determined solely by the provisions of this Agreement. The parties do not intend to create any agency, partnership, joint venture, trust, fiduciary or other relationship with duties or incidents different from those of parties to an arm's-length contract.

12.16 Third Parties. Nothing in this Agreement, whether express or implied, is intended to: (a) confer any benefits, rights or remedies under or by reason of this Agreement on any persons other than the express parties to it and their respective permitted successors and assigns; (b) relieve or discharge the obligation or liability of any person not an express party to this Agreement; or (c) give any person not an express party to this Agreement any right of subrogation or action against any party to this Agreement.

12.17 Effect of Amendment and Restatement. This Agreement is intended to and does completely amend and restate, without novation, the Original Agreement. All security interests granted by Twist Bioscience and Genome Compiler under the Original Agreement are hereby confirmed and ratified and shall continue to secure all Obligations under this Agreement.

13. DEFINITIONS

13.1 Definitions. As used in the Loan Documents, the word "shall" is mandatory, the word "may" is permissive, the word "or" is not exclusive, the words "includes" and "including" are not limiting, the singular includes the plural, and numbers denoting amounts that are set off in brackets are negative. As used in this Agreement, the following capitalized terms have the following meanings:

"**Account**" is any "**account**" as defined in the Code with such additions to such term as may hereafter be made, and includes, without limitation, all accounts receivable and other sums owing to Co-Borrowers.

"**Account Debtor**" is any "**account debtor**" as defined in the Code with such additions to such term as may hereafter be made.

"**Advance**" or "**Advances**" means a revolving credit loan (or revolving credit loans) under the Revolving Line.

"**Affiliate**" is, with respect to any Person, each other Person that owns or controls directly or indirectly the Person, any Person that controls or is controlled by or is under common control with the Person, and each of that Person's senior executive officers, directors, partners and, for any Person that is a limited liability company, that Person's managers and members.

"**Agreement**" is defined in the preamble hereof.

"**Amortization Start Date**" means the first day of the next month that follows the end of the Interest-Only Period.

"**Anniversary Fee**" is defined in Section 2.7(d).

"**Authorized Signer**" is any individual listed in a Co-Borrower's Borrowing Resolution who is authorized to execute the Loan Documents, including making (and executing if applicable) any Credit Extension request, on behalf of such Co-Borrower.

"**Availability Amount**" is (a) the lesser of (i) the Revolving Line or (ii) the amount available under the Borrowing Base minus (b) any amounts used for Cash Management Services, and minus (c) the outstanding principal balance of any Advances.

"**Bank**" is defined in the preamble hereof.

"**Bank Entities**" is defined in Section 12.9.

"**Bank Expenses**" are all reasonable, documented audit fees and expenses, costs, and expenses (including reasonable attorneys' fees and expenses) for preparing, amending, negotiating, administering, defending and enforcing the Loan Documents (including, without limitation, those incurred in connection with appeals or Insolvency Proceedings) or otherwise incurred with respect to Co-Borrowers or any Guarantor.

"**Bank Services**" are any products, credit services, and/or financial accommodations previously, now, or hereafter provided to Co-Borrowers or any of their Subsidiaries by Bank or any Bank Affiliate, including, without limitation, any letters of credit, cash management services (including, without limitation, merchant services, direct deposit of payroll, business credit cards, and check cashing services), interest rate swap arrangements, and foreign exchange services as any such products or services may be identified in Bank's various agreements related thereto (each, a "Bank Services Agreement") and shall include, without limitation, Cash Management Services pursuant to Section 2.3.

"**Bank Services Agreement**" is defined in the definition of Bank Services.

"**Borrowing Base**" is eighty percent (80%) of Eligible Accounts, as determined by Bank from Co-Borrowers' most recent Borrowing Base Report; provided, however, that Bank has the right to decrease the foregoing percentages in its good faith business judgment to mitigate the impact of events, conditions, contingencies, or risks which could reasonably be expected to materially and adversely affect the Collateral or its value.

"**Borrowing Base Report**" is that certain report of the value of certain Collateral in the form attached hereto as Exhibit C.

"**Borrowing Resolutions**" are, with respect to any Person, those resolutions adopted by such Person's board of directors (and, if required under the terms of such Person's Operating Documents, stockholders) and delivered by such Person to Bank approving the Loan Documents to which such Person is a party and the transactions contemplated thereby, together with a certificate executed by its secretary on behalf of such Person certifying (a) such Person has the authority to execute, deliver, and perform its obligations under each of the Loan Documents to which it is a party, (b) that set forth as a part of or attached as an exhibit to such certificate is a true, correct, and complete copy of the resolutions then in full force and effect authorizing and ratifying the execution, delivery, and performance by such Person of the Loan Documents to which it is a party, (c) the name(s) of the Person(s) authorized to execute the Loan Documents, including making (and executing if applicable) any Credit Extension request, on behalf of such Person, together with a sample of the true signature(s) of such Person(s), and (d) that Bank may conclusively rely on such certificate unless and until such Person shall have delivered to Bank a further certificate canceling or amending such prior certificate.

"**Business Day**" is any day that is not a Saturday, Sunday or a day on which Bank is closed.

"**Cash Collateral Account**" is defined in Section 6.3(c).

"**Cash Equivalents**" means (a) marketable direct obligations issued or unconditionally guaranteed by the United States or any agency or any State thereof having maturities of not more than one (1) year from the date of acquisition; (b) commercial paper maturing no more than one (1) year after its creation and having the highest rating from either Standard & Poor's Ratings Group or Moody's Investors Service, Inc.; (c) Bank's certificates of deposit issued maturing no more than one (1) year after issue; and (d) money market funds at least ninety-five percent (95%) of the assets of which constitute Cash Equivalents of the kinds described in clauses (a) through (c) of this definition.

"**Change in Control**" means (a) at any time, any "person" or "group" (as such terms are used in Sections 13(d) and 14(d) of the Exchange Act), shall become, or obtain rights (whether by means of warrants, options or otherwise) to become, the "beneficial owner" (as defined in Rules 13(d)-3 and 13(d)-5 under the Exchange Act), directly or indirectly, of forty-nine percent (49%) or more of the ordinary voting power for the election of directors of each Co-Borrower (determined on a fully diluted basis) other than by the sale of such Co-Borrowers' equity securities in a public offering or to venture capital or private equity investors so long as such Co-Borrower identifies to Bank the venture capital or private equity investors at least seven (7) Business Days prior to the closing of the transaction and provides to Bank a description of the material terms of the transaction; (b) during any period of twelve (12) consecutive months, a majority of the members of the board of directors or other equivalent governing body of any Co-Borrower ceases to be composed of individuals (i) who were members of that board or equivalent governing body on the first day of such period, (ii) whose election or nomination to that board or equivalent governing body was approved by individuals referred to in clause (i) above constituting at the time of such election or nomination at least a majority of that board or equivalent governing body or (iii) whose election or nomination to that board or other equivalent governing body was approved by individuals referred to in clauses (i) and (ii) above constituting at the time of such election or nomination at least a majority of that board or equivalent governing body; or (c) at any time, a Co-Borrower shall cease to own and control, of record and beneficially, directly or indirectly, one hundred percent (100%) of each class of outstanding capital stock of each subsidiary of such Co-Borrower free and clear of all Liens (except Liens created by this Agreement).

"**Claims**" is defined in Section 12.3.

"**Co-Borrower(s)**" is defined in the preamble hereof.

"**Co-Borrower's Books**" are all of a Co-Borrower's books and records including ledgers, federal and state tax returns, records regarding such Co-Borrower's assets or liabilities, the Collateral, business operations or financial condition, and all computer programs or storage or any equipment containing such information.

"**Code**" is the Uniform Commercial Code, as the same may, from time to time, be enacted and in effect in the State of California; provided, that, to the extent that the Code is used to define any term herein or in any Loan Document and such term is defined differently in different Articles or Divisions of the

Code, the definition of such term contained in Article or Division 9 shall govern; provided further, that in the event that, by reason of mandatory provisions of law, any or all of the attachment, perfection, or priority of, or remedies with respect to, Bank's Lien on any Collateral is governed by the Uniform Commercial Code in effect in a jurisdiction other than the State of California, the term "Code" shall mean the Uniform Commercial Code as enacted and in effect in such other jurisdiction solely for purposes of the provisions thereof relating to such attachment, perfection, priority, or remedies and for purposes of definitions relating to such provisions.

"**Collateral**" is any and all properties, rights and assets of Co-Borrowers described on Exhibit A.

"**Collateral Account**" is any Deposit Account, Securities Account, or Commodity Account.

"**Commodity Account**" is any "commodity account" as defined in the Code with such additions to such term as may hereafter be made.

"**Compliance Certificate**" is that certain certificate in the form attached hereto as Exhibit B.

"**Contingent Obligation**" is, for any Person, any direct or indirect liability, contingent or not, of that Person for (a) any indebtedness, lease, dividend, letter of credit or other obligation of another such as an obligation, in each case, directly or indirectly guaranteed, endorsed, co-made, discounted or sold with recourse by that Person, or for which that Person is directly or indirectly liable; (b) any obligations for undrawn letters of credit for the account of that Person; and (c) all obligations from any interest rate, currency or commodity swap agreement, interest rate cap or collar agreement, or other agreement or arrangement designated to protect a Person against fluctuation in interest rates, currency exchange rates or commodity prices; but "Contingent Obligation" does not include endorsements in the ordinary course of business. The amount of a Contingent Obligation is the stated or determined amount of the primary obligation for which the Contingent Obligation is made or, if not determinable, the maximum reasonably anticipated liability for it determined by the Person in good faith; but the amount may not exceed the maximum of the obligations under any guarantee or other support arrangement.

"**Control Agreement**" is any control agreement entered into among the depository institution at which a Co-Borrower maintains a Deposit Account or the securities intermediary or commodity intermediary at which a Co-Borrower maintains a Securities Account or a Commodity Account, such Co-Borrower, and Bank pursuant to which Bank obtains control (within the meaning of the Code) over such Deposit Account, Securities Account, or Commodity Account.

"**Copyrights**" are any and all copyright rights, copyright applications, copyright registrations and like protections in each work of authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret.

"**Credit Extension**" is any Advance, any Overadvance, Letter of Credit, FX Contract, amount utilized for Cash Management Services, Growth Capital Advance, or any other extension of credit by Bank for Co-Borrowers' benefit.

"**Default Rate**" is defined in Section 2.6(b).

"**Deferred Revenue**" is all amounts received or invoiced in advance of performance under contracts and not yet recognized as revenue.

"**Deposit Account**" is any "deposit account" as defined in the Code with such additions to such term as may hereafter be made.

"**Designated Deposit Account**" is the multicurrency account denominated in Dollars, account number XXX-XXX-XXXX, maintained by Twist Bioscience with Bank.

"**Dollars**," "**dollars**" or use of the sign "$" means only lawful money of the United States and not any other currency, regardless of whether that currency uses the "$" sign to denote its currency or may be readily converted into lawful money of the United States.

"**Dollar Equivalent**" is, at any time, (a) with respect to any amount denominated in Dollars, such amount, and (b) with respect to any amount denominated in a Foreign Currency, the equivalent amount therefor in Dollars as determined by Bank at such time on the basis of the then-prevailing rate of exchange in San Francisco, California, for sales of the Foreign Currency for transfer to the country issuing such Foreign Currency.

"**Effective Date**" is defined in the preamble hereof.

"**Eligible Accounts**" means Accounts which arise in the ordinary course of a Co-Borrower's business that meet all Co-Borrowers' representations and warranties in Section 5.3, that have been, at the option of Bank, confirmed in accordance with Section 6.3(f) of this Agreement, and are due and owing from Account Debtors deemed creditworthy by Bank in its sole but reasonable discretion. Bank reserves the right, at any time after the Effective Date, in its sole but reasonable discretion, in each instance, to either (i) adjust any of the criteria set forth below and to establish new criteria or (ii) deem any Accounts owing from a particular Account Debtor or Account Debtors to not meet the criteria to be Eligible Accounts. Unless Bank otherwise agrees in writing, Eligible Accounts shall not include:

(a) Accounts for which the Account Debtor is a Co-Borrower's Affiliate, officer, employee, or agent;

(b) Accounts that the Account Debtor has not paid within ninety (90) days of invoice date regardless of invoice payment period terms;

(c) Accounts with credit balances over ninety (90) days from invoice date;

(d) Accounts owing from an Account Debtor if fifty percent (50%) or more of the Accounts owing from such Account Debtor have not been paid within ninety (90) days of invoice date;

(e) Accounts owing from an Account Debtor which does not have its principal place of business in the United States;

(f) Accounts billed from and/or payable to a Co-Borrower outside of the United States unless Bank has a first priority, perfected security interest or other enforceable Lien in such Accounts under all applicable laws, including foreign laws (sometimes called foreign invoiced accounts);

(g) Accounts owing from an Account Debtor to the extent that a Co-Borrower is indebted or obligated in any manner to the Account Debtor (as creditor, lessor, supplier or otherwise—sometimes called "contra" accounts, accounts payable, customer deposits or credit accounts);

(h) Accounts owing from an Account Debtor which is a United States government entity or any department, agency, or instrumentality thereof unless a Co-Borrower has assigned its payment rights to Bank and the assignment has been acknowledged under the Federal Assignment of Claims Act of 1940, as amended;

(i) Accounts for demonstration or promotional equipment, or in which goods are consigned, or sold on a "sale guaranteed", "sale or return", "sale on approval", or other terms if Account Debtor's payment may be conditional;

(j) Accounts owing from an Account Debtor where goods or services have not yet been rendered to the Account Debtor (sometimes called memo billings or pre-billings);

(k) Accounts subject to contractual arrangements between a Co-Borrower and an Account Debtor where payments shall be scheduled or due according to completion or fulfillment requirements where the Account Debtor has a right of offset for damages suffered as a result of such Co-Borrower's failure to perform in accordance with the contract (sometimes called contracts accounts receivable, progress billings, milestone billings, or fulfillment contracts);

(l) Accounts owing from an Account Debtor the amount of which may be subject to withholding based on the Account Debtor's satisfaction of a Co-Borrower's complete performance (but only to the extent of the amount withheld; sometimes called retainage billings);

(m) Accounts subject to trust provisions, subrogation rights of a bonding company, or a statutory trust;

(n) Accounts owing from an Account Debtor that has been invoiced for goods that have not been shipped to the Account Debtor unless Bank, Co-Borrower, and the Account Debtor have entered into an agreement reasonably acceptable to Bank wherein the Account Debtor acknowledges that (i) it has title to and has ownership of the goods wherever located, (ii) a bona fide sale of the goods has occurred, and (iii) it owes payment for such goods in accordance with invoices from a Co-Borrower (sometimes called "bill and hold" accounts);

(o) Accounts for which the Account Debtor has not been invoiced;

(p) Accounts that represent non-trade receivables or that are derived by means other than in the ordinary course of a Co-Borrower's business;

(q) Accounts for which a Co-Borrower has permitted Account Debtor's payment to extend beyond 90 days;

(r) Accounts arising from chargebacks, debit memos or other payment deductions taken by an Account Debtor;

(s) Accounts arising from product returns and/or exchanges (sometimes called "warranty" or "RMA" accounts);

(t) Accounts in which the Account Debtor disputes liability or makes any claim (but only up to the disputed or claimed amount), or if the Account Debtor is subject to an Insolvency Proceeding, or becomes insolvent, or goes out of business;

(u) Accounts owing from an Account Debtor with respect to which a Co-Borrower has received Deferred Revenue (but only to the extent of such Deferred Revenue);

(v) Accounts owing from an Account Debtor, whose total obligations to a Co-Borrower exceed twenty-five percent (25%) of all Accounts, for the amounts that exceed that percentage, unless Bank approves in writing; and

(w) Accounts for which Bank in its good faith business judgment determines collection to be doubtful, including, without limitation, accounts represented by "refreshed" or "recycled" invoices.

"**Equipment**" is all "**equipment**" as defined in the Code with such additions to such term as may hereafter be made, and includes without limitation all machinery, fixtures, goods, vehicles (including motor vehicles and trailers), and any interest in any of the foregoing.

"**ERISA**" is the Employee Retirement Income Security Act of 1974, and its regulations.

"**Event of Default**" is defined in Article 8.

"**Exchange Act**" is the Securities Exchange Act of 1934, as amended.

"**Final Payment**" is a payment (in addition to and not a substitution for the regular monthly payments of principal plus accrued interest) due, with respect to each Growth Capital Advance, equal to the original principal amount of such Growth Capital Advance multiplied by the Final Payment Percentage.

"**Final Payment Percentage**" is, for each Growth Capital Advance, seven and one quarter percentage points (7.25%).

"**Foreign Currency**" means lawful money of a country other than the United States.

"**Funding Date**" is any date on which a Credit Extension is made to or for the account of Co-Borrowers which shall be a Business Day.

"**FX Contract**" is any foreign exchange contract by and between a Co-Borrower and Bank under which such Co-Borrower commits to purchase from or sell to Bank a specific amount of Foreign Currency on a specified date.

"**GAAP**" is generally accepted accounting principles set forth in the opinions and pronouncements of the Accounting Principles Board of the American Institute of Certified Public Accountants and statements and pronouncements of the Financial Accounting Standards Board or in such other statements by such other Person as may be approved by a significant segment of the accounting profession, which are applicable to the circumstances as of the date of determination.

"**General Intangibles**" is all "general intangibles" as defined in the Code in effect on the date hereof with such additions to such term as may hereafter be made, and includes without limitation, all Intellectual Property, claims, income and other tax refunds, security and other deposits, payment intangibles, contract rights, options to purchase or sell real or personal property, rights in all litigation presently or hereafter pending (whether in contract, tort or otherwise), insurance policies (including without limitation key man, property damage, and business interruption insurance), payments of insurance and rights to payment of any kind.

"**Governmental Approval**" is any consent, authorization, approval, order, license, franchise, permit, certificate, accreditation, registration, filing or notice, of, issued by, from or to, or other act by or in respect of, any Governmental Authority.

"**Governmental Authority**" is any nation or government, any state or other political subdivision thereof, any agency, authority, instrumentality, regulatory body, court, central bank or other entity exercising executive, legislative, judicial, taxing, regulatory or administrative functions of or pertaining to government, any securities exchange and any self-regulatory organization.

"**Gross Profit**" means gross profit determined in accordance with GAAP.

"**Gross Profit Milestone**" means the date on which Co-Borrowers deliver to Bank evidence, satisfactory to Bank in its sole but reasonable discretion, that Co-Borrowers have generated at least Three Million Five Hundred Thousand Dollars ($3,500,000) in Gross Profit for any trailing three (3) month period on or prior to March 31, 2018.

"**Growth Capital Advance**" or "Growth Capital Advances" is defined in Section 2.4(a)

"**Growth Capital Advance Payment**" is defined in Section 2.4(c).

"**Growth Capital Line**" is a Growth Capital Advance or Growth Capital Advances in an aggregate principal amount of up to Twenty Million Dollars ($20,000,000).

"**Growth Capital Maturity Date**" means December 1, 2021.

"**Guarantor**" is any Person providing a Guaranty in favor of Bank.

"**Guaranty**" is any guarantee of all or any part of the Obligations, as the same may from time to time be amended, restated, modified or otherwise supplemented.

"**Indebtedness**" is (a) indebtedness for borrowed money or the deferred price of property or services, such as reimbursement and other obligations for surety bonds and letters of credit, (b) obligations evidenced by notes, bonds, debentures or similar instruments, (c) capital lease obligations, and (d) Contingent Obligations.

"**Indemnified Person**" is defined in Section 12.3.

"**Initial Audit**" is Bank's inspection of Co-Borrowers' Accounts, the Collateral, and Co-Borrowers' Books, with results satisfactory to Bank in its sole but reasonable discretion.

"**Insolvency Proceeding**" is any proceeding by or against any Person under the United States Bankruptcy Code, or any other bankruptcy or insolvency law, including assignments for the benefit of creditors, compositions, extensions generally with its creditors, or proceedings seeking reorganization, arrangement, or other relief.

"**Intellectual Property**" means, with respect to any Person, all of such Person's right, title, and interest in and to the following:

(a) its URLs, domain names, Copyrights, Trademarks and Patents;

(b) any and all trade secrets and trade secret rights, including, without limitation, any rights to unpatented inventions, know-how, operating manuals;

(c) any and all source code;

(d) any and all design rights which may be available to such Person;

(e) any and all claims for damages by way of past, present and future infringement of any of the foregoing, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the Intellectual Property rights identified above; and

(f) all amendments, renewals and extensions of any of the Copyrights, Trademarks or Patents.

"**Interest-Only End Date**" means December 31, 2018; provided, however, that if (i) Co-Borrowers fully draw Tranche B and Tranche C, the Interest-Only End Date shall automatically, and with no further action required by the parties hereto, be extended to June 30, 2019.

"**Interest-Only Period**" means the period of time through from the Effective Date through the Interest-Only End Date.

"**Inventory**" is all "**inventory**" as defined in the Code in effect on the date hereof with such additions to such term as may hereafter be made, and includes without limitation all merchandise, raw materials, parts, supplies, packing and shipping materials, work in process and finished products, including without limitation such inventory as is temporarily out of a Co-Borrower's custody or possession or in transit and including any returned goods and any documents of title representing any of the above.

"**Investment**" is any beneficial ownership interest in any Person (including stock, partnership interest or other securities), and any loan, advance or capital contribution to any Person.

"**Key Person**" is each of Twist Bioscience's (a) Chief Executive Officer, President and Secretary, who is Emily LeProust as of the Effective Date, and (b) Chief Operating Officer, who is William Banyai as of the Effective Date.

"**Letter of Credit**" is a standby or commercial letter of credit issued by Bank upon request of Co-Borrowers based upon an application, guarantee, indemnity, or similar agreement.

"**Lien**" is a claim, mortgage, deed of trust, levy, charge, pledge, security interest or other encumbrance of any kind, whether voluntarily incurred or arising by operation of law or otherwise against any property.

"**Loan Documents**" are, collectively, this Agreement and any schedules, exhibits, certificates, notices, and any other documents related to this Agreement, the Warrants, any Bank Services Agreement, any subordination agreement, any note, or notes or guaranties executed by Co-Borrowers or any Guarantor, and any other present or future agreement by Co-Borrowers and/or any Guarantor with or for the benefit of Bank in connection with this Agreement or Bank Services, all as amended, restated, or otherwise modified, provided, however, that no agreement entered into (other than this Agreement or the Warrant) regarding the securities of Co-Borrowers or any rights or obligations of Bank regarding such securities (including but not limited to any investors' rights agreement, subscription agreement, or "lock up" agreement) shall constitute Loan Documents.

"**Material Adverse Change**" is (a) a material impairment in the perfection or priority of Bank's Lien in the Collateral or in the value of such Collateral; (b) a material adverse change in the business, operations, or financial condition of a Co-Borrower; or (c) a material impairment of the prospect of repayment of any portion of the Obligations.

"**Monthly Financial Statements**" is defined in Section 6.2(c).

"**Net Cash**" means (i) unrestricted cash and Cash Equivalents held at Bank or Bank's Affiliate minus (ii) the aggregate amount outstanding under the Revolving Line including any use of Cash Management Services.

"**Obligations**" are Co-Borrowers' obligations to pay when due any debts, principal, interest, fees, Bank Expenses, the Prepayment Fee, the Anniversary Fee, the Revolving Termination Fee, the Final Payment, and other amounts Co-Borrowers owe Bank now or later, whether under this Agreement, the other Loan Documents (other than the Warrant or any shares or other securities issued upon exercise and/or conversion or reclassification therefor otherwise, including, without limitation, all obligations relating to Bank Services and interest accruing after Insolvency Proceedings begin and debts, liabilities, or obligations of Co-Borrowers assigned to Bank, and to perform Co-Borrowers' duties under the Loan Documents (other than the Warrant or any shares or other securities issued upon exercise and/or conversion or reclassification thereof).

"**Operating Documents**" are, for any Person, such Person's formation documents, as certified by the Secretary of State (or equivalent agency) of such Person's jurisdiction of organization on a date that is no earlier than thirty (30) days prior to the Effective Date, and, (a) if such Person is a corporation, its bylaws in current form,

(a) if such Person is a limited liability company, its limited liability company agreement (or similar agreement), and

(b) if such Person is a partnership, its partnership agreement (or similar agreement), each of the foregoing with all current amendments or modifications thereto.

"**Overadvance**" is defined in Section 2.5.

"**Patents**" means all patents, patent applications and like protections including without limitation improvements, divisions, continuations, renewals, reissues, extensions and continuations-in-part of the same.

"**Payment/Advance Form**" is that certain form in the form attached hereto as Exhibit D.

"**Payment Date**" is (a) with respect to Growth Capital Advances, the first (1st) calendar day of each month and (b) with respect to Advances, the last calendar day of each month.

"**Perfection Certificate**" is defined in Section 5.1.

"**Permitted Acquisition**" means any merger or consolidation with any other Person, or the acquisition of all or substantially all of the capital stock or property of another Person that meets the following requirements: (a) the total consideration including cash and the value of any non-cash consideration, for all such transactions does not in the aggregate exceed Five Million Dollars ($5,000,000) in any twelve (12) month period; (b) no Event of Default has occurred and is continuing or would exist after giving effect to such Permitted Acquisition; (c) a Co-Borrower is the surviving legal entity, (d) the credit risk to Bank, in its sole discretion, shall not be increased as a result of the Permitted Acquisition and Bank has confirmed that in writing, (e) Bank shall receive at least thirty (30) days' prior written notice of the closing of such Permitted Acquisition, which notice shall include a reasonably detailed description of such Permitted Acquisition, and such other financial information, financial analysis, documentation or other information relating to such Permitted Acquisition as Bank shall reasonably request, (f) such Permitted Acquisition shall only involve assets located in the United States and comprising a business, or those assets of a business, of the type engaged in by a Co-Borrower and its Subsidiaries as of the date hereof (or any business reasonably related or ancillary thereto or a reasonable extension thereof, as determined in good faith by such Co-Borrower's board of directors), (g) such Permitted Acquisition shall be consensual and shall have been approved by the target's board of directors, (h) if the target is not merged with and into a Co-Borrower at closing then (unless Bank agrees otherwise), simultaneously with the closing of the Permitted Acquisition the target must become a "Co-Borrower" under this Agreement and the other Loan Documents and become subject to all rights and obligations of this Agreement and the other Loan Documents, and must execute and deliver to Bank an assumption agreement acceptable to Bank as well as such other documents and agreements as required by Bank in connection with the target becoming a Co-Borrower and granting a Lien in favor of Bank on the Collateral.

"**Permitted Indebtedness**" is:

(a) Co-Borrowers' Indebtedness to Bank under this Agreement and the other Loan Documents;

(b) Indebtedness existing on the Effective Date and shown on the Perfection Certificate;

(c) Subordinated Debt;

(d) unsecured Indebtedness to trade creditors incurred in the ordinary course of business;

(e) Indebtedness incurred as a result of endorsing negotiable instruments received in the ordinary course of business;

(f) Indebtedness secured by Liens permitted under clauses (a) and (c) of the definition of "Permitted Liens" hereunder;

(g) other unsecured Indebtedness not otherwise permitted by Section 7.4 not exceeding One Hundred Thousand Dollars ($100,000) in the aggregate outstanding at any time; and

(h) extensions, refinancings, modifications, amendments and restatements of any items of Permitted Indebtedness (a) through (g) above, provided that the principal amount thereof is not increased or the terms thereof are not modified to impose more burdensome terms upon a Co-Borrower or its Subsidiary, as the case may be.

"**Permitted Investments**" are:

(a) Investments (including, without limitation, Subsidiaries) existing on the Effective Date and shown on the Perfection Certificate;

(b) (i) Investments consisting of Cash Equivalents;

(c) Investments consisting of the endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of a Co-Borrower;

(d) Investments consisting of deposit accounts in which Bank has a perfected security interest;

(e) Investments accepted in connection with Transfers permitted by Section 7.1;

(f) Investments consisting of the creation of a Subsidiary for the purpose of consummating a merger transaction permitted by Section 7.3 of this Agreement, which is otherwise a Permitted Investment;

(g) Investments (i) by Co-Borrowers in Subsidiaries not to exceed Three Million Five Hundred Thousand Dollars ($3,500,000) in the aggregate in any fiscal year (with unused amounts from any fiscal year being carried forward for use in subsequent fiscal years) and (ii) by Subsidiaries in other Subsidiaries not to exceed Three Million Five Hundred Thousand Dollars ($3,500,000) in the aggregate in any fiscal year (with unused amounts from any fiscal year being carried forward for use in subsequent fiscal years) or in Co-Borrowers; Notwithstanding the foregoing, Bank hereby agrees to work with Co-Borrowers in its good faith business judgement to, if requested by Co-Borrowers after the Effective Date, amend this Agreement so as to permit additional cash or non-cash Investments in Subsidiaries to support Co-Borrowers' future expansion plans on terms and conditions reasonably acceptable to Bank in its good faith business judgement and subject to obtaining credit approval therefor;

(h) Investments consisting of (i) travel advances and employee relocation loans and other employee loans and advances in the ordinary course of business, and (ii) loans to employees, officers or directors relating to the purchase of equity securities of a Co-Borrower or its Subsidiaries pursuant to employee stock purchase plans or agreements approved by such Co-Borrower's Board of Directors;

(i) Investments (including debt obligations) received in connection with the bankruptcy or reorganization of customers or suppliers and in settlement of delinquent obligations of, and other disputes with, customers or suppliers arising in the ordinary course of business;

(j) Investments consisting of notes receivable of, or prepaid royalties and other credit extensions, to customers and suppliers who are not Affiliates, in the ordinary course of business; provided that this paragraph (j) shall not apply to Investments of Co-Borrowers in any Subsidiary; and

(k) other Investments not otherwise permitted by Section 7.7 not to exceed One Hundred Thousand Dollars ($100,000) in the aggregate outstanding at any time.

"**Permitted Liens**" are:

(a) Liens existing on the Effective Date and shown on the Perfection Certificate or arising under this Agreement and the other Loan Documents;

(b) Liens for taxes, fees, assessments or other government charges or levies, either (i) not due and payable or (ii) being contested in good faith and for which a Co-Borrower maintains adequate reserves on its Books, provided that no notice of any such Lien has been filed or recorded under the Internal Revenue Code of 1986, as amended, and the Treasury Regulations adopted thereunder;

(c) purchase money Liens (i) on Equipment acquired or held by Co-Borrowers incurred for financing the acquisition of the Equipment securing no more than Two Hundred Fifty Thousand Dollars ($250,000) in the aggregate amount outstanding, or (ii) existing on Equipment when acquired, if the Lien is confined to the property and improvements and the proceeds of the Equipment;

(d) Liens of carriers, warehousemen, suppliers, or other Persons that are possessory in nature arising in the ordinary course of business so long as such Liens attach only to Inventory, securing liabilities in the aggregate amount not to exceed One Hundred Thousand Dollars ($100,000) and which are not delinquent or remain payable without penalty or which are being contested in good faith and by appropriate proceedings which proceedings have the effect of preventing the forfeiture or sale of the property subject thereto;

(e) Liens to secure payment of workers' compensation, employment insurance, old-age pensions, social security and other like obligations incurred in the ordinary course of business (other than Liens imposed by ERISA);

(f) Liens incurred in the extension, renewal or refinancing of the indebtedness secured by Liens described in (a) through (c), but any extension, renewal or replacement Lien must be limited to the property encumbered by the existing Lien and the principal amount of the indebtedness may not increase;

(g) leases or subleases of real property granted in the ordinary course of a Co-Borrower's business (or, if referring to another Person, in the ordinary course of such Person's business), and leases, subleases, non-exclusive licenses or sublicenses of personal property (other than Intellectual Property) granted in the ordinary course of such Co-Borrower's business (or, if referring to another Person, in the ordinary course of such Person's business), if the leases, subleases, licenses and sublicenses do not prohibit granting Bank a security interest therein;

(h) RESERVED;

(i) non-exclusive license of Intellectual Property granted to third parties in the ordinary course of business, and licenses of Intellectual Property that could not result in a legal transfer of title of the licensed property that may be exclusive in respects other than territory and that may be exclusive as to territory only as to discreet geographical areas outside of the United States;

(j) Liens in favor of other financial institutions arising in connection with a Co-Borrower's deposit and/or securities accounts held at such institutions, provided that Bank has a perfected security interest in the amounts held in such deposit and/or securities accounts; and

(k) Liens arising from attachments or judgments, orders, or decrees in circumstances not constituting an Event of Default under Sections 8.4 and 8.7.

"**Person**" is any individual, sole proprietorship, partnership, limited liability company, joint venture, company, trust, unincorporated organization, association, corporation, institution, public benefit corporation, firm, joint stock company, estate, entity or government agency.

"**Prepayment Fee**" shall be an additional fee payable to Bank if the Growth Capital Advances are prepaid in an amount equal to (i) three percent (3.00%) of the Growth Capital Line if such prepayment occurs prior to the first anniversary of the Effective Date; (ii) two percent (2.00%) of the Growth Capital Line if such prepayment occurs after the first anniversary of the Effective Date but prior to the second anniversary of the Effective Date; or (iii) one percent (1.00%) of the Growth Capital Line if such prepayment occurs after the second anniversary of the Effective Date and prior to the Growth Capital Maturity Date.

"**Prime Rate**" is the rate of interest per annum from time to time published in the money rates section of The Wall Street Journal or any successor publication thereto as the "prime rate" then in effect; provided that, in the event such rate of interest is less than zero, such rate shall be deemed to be zero for purposes of this Agreement; and provided further that if such rate of interest, as set forth from time to time in the money rates section of The Wall Street Journal, becomes unavailable for any reason as determined by Bank, the "Prime Rate" shall mean the rate of interest per annum announced by Bank as its prime rate in effect at its principal office in the State of California (such Bank announced Prime Rate not being intended to be the lowest rate of interest charged by Bank in connection with extensions of credit to debtors); provided that, in the event such rate of interest is less than zero, such rate shall be deemed to be zero for purposes of this Agreement.

"**Registered Organization**" is any "registered organization" as defined in the Code with such additions to such term as may hereafter be made.

"**Requirement of Law**" is as to any Person, the organizational or governing documents of such Person, and any law (statutory or common), treaty, rule or regulation or determination of an arbitrator or a court or other Governmental Authority, in each case applicable to or binding upon such Person or any of its property or to which such Person or any of its property is subject.

"**Reserves**" means, as of any date of determination, such amounts as Bank may from time to time establish and revise in its good faith business judgment with prior notice to Co-Borrowers, reducing the amount of Advances and other financial accommodations which would otherwise be available to Co-Borrowers (a) to reflect events, conditions, contingencies or risks which, as determined by Bank in its good faith business judgment, do or may adversely affect (i) the Collateral or any other property which is security for the Obligations or its value (including without limitation any increase in delinquencies of Accounts), (ii) the assets, business or prospects of Co-Borrowers or any Guarantor, or (iii) the security interests and other rights of Bank in the Collateral (including the enforceability, perfection and priority thereof); or (b) to reflect Bank's reasonable belief that any collateral report or financial information furnished by or on behalf of Co-Borrowers or any Guarantor to Bank is or may have been incomplete, inaccurate or misleading in any material respect when made or furnished; or (c) in respect of any state of facts which Bank determines constitutes an Event of Default or may, with notice or passage of time or both, constitute an Event of Default.

"**Responsible Officer**" is any of the Chief Executive Officer, President, Chief Financial Officer and Controller of each Co-Borrower.

"**Restricted License**" is any material license or other similar agreement relating to the use of intellectual property with respect to which a Co-Borrower is the licensee (a) that prohibits or otherwise restricts such Co-Borrower from granting a security interest in such Co-Borrower's interest in such license or agreement, or (b) for which a default under or termination of could interfere with the Bank's right to sell any Collateral.

"**Revenue Milestone**" means Borrower's delivery to Bank of evidence, in form and substance satisfactory to Bank in its sole but reasonable discretion, that Borrower has generated revenue (determined in accordance with GAAP) with positive gross margins for any trailing three (3) month period after the Effective Date, in an aggregate amount of at least Six Million Dollars ($6,000,000).

"**Revolving Line**" is an aggregate principal amount equal to Ten Million Dollars ($10,000,000).

"**Revolving Line Maturity Date**" is December 31, 2021.

"**Revolving Line Termination Fee**" means upon the termination of the Revolving Line for any reason prior to the Revolving Line Maturity Date, in addition to the payment of any other amounts then-owing, a fee in an amount equal to (i) Two Hundred Thousand Dollars ($200,000) if such termination occurs prior to the first anniversary of the Effective Date, or (ii) One Hundred Thousand Dollars ($100,000) if such termination occurs on or at any time after the first anniversary of the Effective Date but prior to the Revolving Line Maturity Date.

"**SEC**" shall mean the Securities and Exchange Commission, any successor thereto, and any analogous Governmental Authority.

"**Securities Account**" is any "**securities account**" as defined in the Code with such additions to such term as may hereafter be made.

"**Streamline Balance**" is defined in the definition of Streamline Period.

"**Streamline Period**" is, on and after the Effective Date, provided no Event of Default has occurred and is continuing, the period (a) commencing on the first day of the month following the day that Co-Borrowers provide to Bank a written report that Co-Borrowers have, for each consecutive day in the immediately preceding month maintained Net Cash, as determined by Bank in its discretion, in an amount at all times greater than Twelve Million Dollars ($12,000,000) (the "**Streamline Balance**"); and (b) terminating on the earlier to occur of (i) the occurrence of an Event of Default, and (ii) the first day thereafter in which Co-Borrowers fail to maintain the Streamline Balance, as determined by Bank in its discretion. Upon the termination of a Streamline Period, Co-Borrowers must maintain the Streamline Balance each consecutive day for one (1) fiscal quarter as determined by Bank in its discretion, prior to entering into a subsequent Streamline Period. Co-Borrowers shall give Bank prior written notice of Co-Borrowers' election to enter into any such Streamline Period, and each such Streamline Period shall commence on the first day of the monthly period following the date Bank determines, in its reasonable discretion, that the Streamline Balance has been achieved.

"**Subordinated Debt**" is indebtedness incurred by a Co-Borrower subordinated to all of Co-Borrowers' now or hereafter indebtedness to Bank (pursuant to a subordination, intercreditor, or other similar agreement in form and substance satisfactory to Bank entered into between Bank and the other creditor), on terms acceptable to Bank.

"**Subsidiary**" is, as to any Person, a corporation, partnership, limited liability company or other entity of which shares of stock or other ownership interests having ordinary voting power (other than stock or such other ownership interests having such power only by reason of the happening of a contingency) to elect a majority of the board of directors or other managers of such corporation, partnership or other entity are at the time owned, or the management of which is otherwise controlled, directly or indirectly through one or more intermediaries, or both, by such Person. Unless the context otherwise requires, each reference to a Subsidiary herein shall be a reference to a Subsidiary of a Co-Borrower or Guarantor, if applicable.

"**Trademarks**" means any trademark and servicemark rights, whether registered or not, applications to register and registrations of the same and like protections, and the entire goodwill of the business of a Co-Borrower connected with and symbolized by such trademarks.

"**Tranche A**" is defined in Section 2.4(a).

"**Tranche A Growth Capital Advance**" is defined in Section 2.4(a).

"**Tranche B**" is defined in Section 2.4(a).

"**Tranche B Draw Period**" is the period of time from the date Co-Borrowers achieve the Revenue Milestone through January 31, 2018; provided that the Tranche B Draw Period shall only begin so long as no Event of Default has occurred and is continuing hereunder.

"**Tranche B Growth Capital Advance**" is defined in Section 2.4(a)

"**Tranche C**" is defined in Section 2.4(a).

"**Tranche C Draw Period**" is the period of time from the date Co-Borrowers achieve the Gross Profit Milestone through June 30, 2018; provided that the Tranche C Draw Period shall only begin so long as no Event of Default has occurred and is continuing hereunder.

"**Tranche C Growth Capital Advance**" is defined in Section 2.4(a).

"**Transfer**" is defined in Section 7.1.

"**Warrants**" are (i) that certain Warrant to Purchase Stock dated as of September 2, 2014, executed by Twist Bioscience in favor of Bank, (ii) that certain Warrant to Purchase Stock dated as of December 22, 2015, executed by Twist Bioscience in favor of Bank and (iii) and those certain Warrants to Purchase Stock dated as of the Effective Date executed by Twist Bioscience in favor of Bank and LIFE SCIENCE LOANS II, LLC.

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IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the Effective Date.

CO-BORROWERS:

TWIST BIOSCIENCE CORPORATION

By /s/ Solange Glaize

Name: Solange Glaize

Title: Chief Financial Officer

GENOME COMPILER CORPORATION

By /s/ Solange Glaize

Name: Solange Glaize

Title: Chief Financial Officer

TWIST BIO COMPUTING, LLC

By /s/ Solange Glaize

Name: Solange Glaize

Title: Chief Financial Officer

TWIST PHARMACEUTICAL SOLUTIONS, LLC

By /s/ Solange Glaize

Name: Solange Glaize

Title: Chief Financial Officer

BANK:

SILICON VALLEY BANK

By /s/ Brandon Clark

Name: Brandon Clark

Title: Vice President

Exhibit 21.1

Twist Bioscience Corporation Subsidiaries

Twist Bioscience Corporation has the following subsidiaries:

1. Twist Bioscience Worldwide, a Cayman Islands exempted company.
2. Genome Compiler Corporation, a Delaware corporation, which itself owns Twist Bioscience Israel Ltd. (formerly “Genome Compiler Israel Ltd.”), an Israeli company.
3. Twist Bio Computing, LLC, a Delaware limited liability company.
4. Twist Pharmaceutical Solutions, LLC, a Delaware limited liability company.