

The information in this preliminary prospectus supplement is not complete and may be changed. This preliminary prospectus supplement and the accompanying prospectus are not an offer to sell these securities and we are not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Subject to completion, dated December 1, 2020

Prospectus supplement
(To the Prospectus dated June 3, 2020)

\$250,000,000

75,000 shares offered by the selling stockholders



Common stock

Twist Bioscience Corporation is offering \$250,000,000 of shares of our common stock and the selling stockholders named in this prospectus are selling 75,000 shares of our common stock. We will not receive any proceeds from the sale of shares of our common stock to be offered by the selling stockholders.

Our common stock is listed on the Nasdaq Global Select Market under the symbol "TWST." The last reported sale price of our common stock on the Nasdaq Global Select Market on November 30, 2020 was \$111.74 per share.

	Per share	Total
Public offering price	\$	\$
Underwriting discounts and commissions ⁽¹⁾	\$	\$
Proceeds, before expenses, to us	\$	\$
Proceeds, before expenses, to selling stockholders	\$	\$

(1) See "Underwriting" for additional information regarding underwriting compensation.

We intend to grant the underwriters the right to purchase up to an additional _____ shares of common stock that we are offering at the public offering price, less the underwriting discounts and commissions within 30 days from the date of this prospectus supplement.

Investing in our common stock involves significant risks. See the section titled "[Risk factors](#)" on page S-8 of this prospectus supplement and in the documents incorporated by reference in this prospectus supplement concerning factors you should consider before investing in 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 adequacy or accuracy of this prospectus supplement or the accompanying 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 _____, 2020.

Joint book running managers

J.P. Morgan

Goldman Sachs & Co. LLC

Cowen

Evercore ISI

Lead manager

Baird

, 2020

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We and the selling stockholders have not, and the underwriters have not, authorized anyone to provide you with any information other than the information contained in this prospectus supplement and the accompanying prospectus, including the documents incorporated by reference herein and therein, and any free writing prospectus we and the selling stockholders have authorized for use in connection with this offering. We and the selling stockholders take no responsibility for, and can provide no assurances as to the reliability of, any other information that others may give you. You should not assume that the information contained in this prospectus supplement, the accompanying prospectus, the documents incorporated by reference herein or therein, and in any free writing prospectus that we and the selling stockholders have authorized for use in connection with this offering is accurate as of any date other than the date of those respective documents. Our business, financial condition, liquidity, results of operations and prospects may have changed since those dates. You should read this prospectus supplement, the accompanying prospectus, the documents incorporated by reference herein and therein, and any free writing prospectus that we and the selling stockholders have authorized for use in connection with this offering in their entirety before making an investment decision. You should also read and consider the information in the documents to which we have referred you in the section of this prospectus supplement titled “Where you can find additional information; incorporation by reference.”

For investors outside of the United States: We and the selling stockholders are not, and the underwriters are not, making offers to sell these securities in any jurisdiction in which an offer or solicitation is not authorized or permitted or in which the person making such offer or solicitation is not qualified to do so or to any person to whom it is unlawful to make such an offer or solicitation.

About this prospectus supplement

This document is part of the registration statement that we filed with the Securities and Exchange Commission, or the SEC, using a “shelf” registration process pursuant to which we and any selling stockholder named in this prospectus supplement may, from time to time, sell common stock or other securities, of which this offering is a part. This document consists of two parts. The first part is this prospectus supplement, including the documents incorporated by reference, which describes the specific terms of this offering and also adds to and updates the information contained in the accompanying prospectus and the documents incorporated by reference therein. The second part, the accompanying prospectus, including the documents incorporated by reference, gives more general information, some of which may not apply to this offering. Generally, when we refer to the “prospectus,” we are referring to both parts combined. This prospectus supplement and any free writing prospectus we and the selling stockholders authorize for use in connection with this offering may add to, update or change information in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement or the accompanying prospectus.

If information in this prospectus supplement is inconsistent with information contained in the accompanying prospectus or in any document incorporated by reference herein or therein that was filed with the SEC before the date of this prospectus supplement, the information in this prospectus supplement will be deemed to modify or supersede the information contained in the accompanying prospectus and such documents incorporated by reference herein or therein. This prospectus supplement, the accompanying prospectus, the documents incorporated by reference into each and any free writing prospectus we and the selling stockholders authorize for use in connection with this offering include important information about us, the shares and other information you should consider before purchasing the shares. See “Where you can find additional information; incorporation by reference” in this prospectus supplement.

This prospectus supplement does not constitute an offer to sell or the solicitation of an offer to buy any securities other than the securities described in this prospectus supplement or an offer to sell or the solicitation of an offer to buy such securities in any circumstances in which such offer or solicitation is unlawful. Persons outside the United States who come into possession of this prospectus supplement must inform themselves about, and observe any restrictions relating to, the offering of the common stock and the distribution of this prospectus supplement outside the United States.

We and the selling stockholders further note that the representations, warranties and covenants made by us or any selling stockholder in any agreement that is filed as an exhibit to any document that is incorporated by reference herein were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties and covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

When we refer to “Twist,” “we,” “our” and “us” in this prospectus supplement, we mean Twist Bioscience Corporation and its consolidated subsidiaries, unless otherwise specified.

“Twist Bioscience,” and “Sequencespace” are registered trademarks in the United States 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, and the information incorporated by reference herein, are the property of their respective holders. Solely for convenience, the trademarks and trade names in this prospectus, and the information incorporated by reference herein, 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 supplement summary

This summary highlights certain information about us, the selling stockholders, this offering and selected information contained elsewhere in or incorporated by reference into this prospectus supplement or the accompanying prospectus. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our common stock. For a more complete understanding of our company and this offering, we encourage you to read and consider carefully the more detailed information in this prospectus supplement and the accompanying prospectus, including the information incorporated by reference in this prospectus supplement and the accompanying prospectus, and the information included in any free writing prospectus that we have authorized for use in connection with this offering, including the information under the heading "Risk factors" in this prospectus supplement on page S-8, the financial statements and related notes, and the other information that we incorporate by reference into this prospectus supplement, including the section "Risk factors" in our Annual Report on Form 10-K for the fiscal year ended September 30, 2020.

Overview

At Twist Bioscience Corporation, we work in service of customers who are changing the world for the better. In fields such as health care, food and agriculture, industrial chemicals, academic research and data storage, by using our synthetic DNA tools, our customers are developing ways to better lives and improve the sustainability of the planet. We believe that the faster our customers succeed, the better for all of us, and we believe Twist Bioscience is uniquely positioned to help accelerate their efforts.

We have developed a disruptive DNA synthesis platform to industrialize the engineering of biology that provides DNA for a wide range of uses and markets. 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 miniaturized traditional chemical DNA synthesis reactions to write over one million short pieces of DNA on each silicon chip, approximately the size of a large mobile phone. We have combined our silicon-based DNA writing technology with proprietary software, scalable commercial infrastructure and an e-commerce platform to create an integrated technology platform that enables us to achieve high levels of quality, precision, automation, and manufacturing throughput at a significantly lower cost than our competitors.

We have applied our unique technology to manufacture a broad range of synthetic DNA-based products, including synthetic genes, tools for next generation sample preparation, and antibody libraries for drug discovery and development, all designed to enable our customers to conduct research more efficiently and effectively. Additionally, we are expanding our footprint by harnessing our proprietary platform to disrupt and innovate within larger market opportunities, such as discovery partnerships for biologic drugs, and new applications for synthetic DNA, such as digital data storage, to expand the overall reach and impact of DNA-based products. We sell our synthetic DNA and synthetic DNA-based products to a global customer base of approximately 2,200 customers across a broad range of industries.

DNA is the fundamental building block of biology. The ability to design DNA and engineer biology, a field known as synthetic biology, is growing rapidly, and we believe this field represents one of the most exciting areas of growth and technological innovation in the 21st century. The ability to modify DNA to improve health and the sustainability of the planet is leading to a broad range of applications for synthetic DNA and synthetic DNA-based products across multiple industries, including:

- healthcare for the identification, prevention, diagnosis and treatment of disease (antibody discovery and optimization technology);

- chemicals and materials for cost-effective and sustainable production of new and existing specialty chemicals and materials, such as spider silk, nylon, rubber, fragrances, food flavors and food additives;
- food and agriculture for more effective and sustainable crop production;
- academic research for a broad range of applications; and
- technology for potential use as an alternative long-term data storage medium.

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 for synthetic DNA and synthetic DNA-based products. According to BCC Research, in calendar year 2019, the market for synthetic biology products was approximately \$5.3 billion and is expected to grow to \$18.9 billion by calendar year 2024. We believe this period of accelerated growth in the synthetic biology industry is in its early stages.

We currently generate revenue through two primary product lines: synthetic biology tools and NGS tools. In addition, we are leveraging our platform to expand our portfolio to include other synthetic DNA-based products and address additional market opportunities, including vertical market opportunities in biological drug discovery and development and digital data storage.

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 currently estimate that the combined market opportunity for our products is approximately \$2.5 billion globally. However, 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.

As part of our synthetic biology offering, we have commercialized a custom DNA library solution which we believe can be leveraged to facilitate other proprietary tools to provide an end-to-end solution in biologics drug discovery and early development, from target to investigational new drug, or IND, application, adding value as a partner to biotechnology and pharmaceutical companies.

In fiscal year 2020 we served approximately 2,200 customers and reported \$90.1 million in revenue, including \$29.1 million in revenue to the chemicals and materials sector, \$40.0 million in revenue to the healthcare sector, \$19.6 million in revenue to the academic research sector and \$1.4 million in revenue to the food and agriculture sector. The chemicals and materials sector includes sales of \$10.4 million to Ginkgo Bioworks, Inc., which we believe is the largest purchaser of synthetic DNA. In fiscal year 2020 we shipped NGS tools to over 1,000 customers and approximately 55 customers adopted Twist's NGS tools during such period.

Recent developments

We recently announced our plans to focus on our "Factory of the Future" during fiscal year 2021 as part of the next evolution of our platform, which we expect to launch in fiscal year 2022. We expect this new manufacturing facility will double our current capacity and will serve as a second manufacturing site outside of the San Francisco Bay Area. We expect our total base rent commitment to be less than \$29 million over the 12-year term.

COVID-19 considerations

During the year ended September 30, 2020, our revenues were not significantly affected by the COVID-19 pandemic. However, the extent to which the COVID-19 pandemic affects our future financial results and operations will depend on future developments which are highly uncertain and cannot be predicted, including the recurrence, severity and/or duration of the ongoing pandemic, and current or future domestic and international actions to contain and treat COVID-19.

We are following public and private sector policies and initiatives to reduce the transmission of COVID-19, such as the imposition of travel restrictions and the promotion of social distancing and work-from-home arrangements. We are taking a variety of measures to ensure the availability and functioning of our critical infrastructure, to promote the safety and security of our employees and to support the communities in which we operate. These measures include increasing our inventory, requiring remote working arrangements for employees not integral in physically making and shipping our products or who need specialized equipment to perform their work, investing in personal protective equipment, and providing paid sick leave to affected employees. For fiscal 2020, we provided shelter-in-place compensation during the quarter ended June 30, 2020 for employees working on site. On July 20, 2020 we commenced weekly testing of our employees working on site.

Due to the speed with which the situation may change, we are not able at this time to estimate the effect of COVID-19 on our financial results and operations, but the effect could be material for fiscal year 2021 and/or during any future period affected either directly or indirectly by this pandemic. For further discussion of the risks relating to COVID-19, see "We are subject to risks associated with COVID-19" under the section titled "Risk factors."

Corporate information

We were incorporated in Delaware on February 4, 2013. Our principal executive offices are located at 681 Gateway Blvd., South San Francisco, CA 94080. Our telephone number at that location is (800) 719-0671. 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.

The offering

Common stock offered by us	shares.
Common stock offered by the selling stockholders	75,000 shares.
Common stock to be outstanding after the offering	shares (shares if the underwriters exercise in full their option to purchase additional shares of common stock).
Option to purchase additional shares of common stock offered by us	The underwriters have an option to purchase a maximum of additional shares of common stock from us. The underwriters can exercise this option at any time within 30 days from the date of this prospectus supplement.
Use of proceeds	<p>We intend to use our existing cash, cash equivalents and short-term investments together with the net proceeds from this offering to increase our operational capacity, tooling, and scaling an additional manufacturing location to support our growth in NGS, Synbio, DNA prep, our pharmaceutical biologics antibody platform and IGG products; increase our investment in automation and research and development, which includes investing in NGS, Synbio, our pharmaceutical biologics antibody platform, and in DNA data storage; increase our investment in our commercial organization and our IT infrastructure; and for the remainder to fund working capital and general corporate purposes. We may also use a portion of the net proceeds to in-license, acquire or invest in complementary businesses or products. However, we currently have no agreements or commitments to complete any such transaction. See "Use of proceeds" on page S-14 for additional information.</p> <p>We will not receive any proceeds from the sale of shares by the selling stockholders.</p>
Risk factors	See "Risk factors" beginning on page S-8 of this prospectus supplement and the other information included in, or incorporated by reference into, this prospectus supplement for a discussion of certain factors you should carefully consider before deciding to invest in shares of our common stock.
Nasdaq Global Select Market symbol	"TWST".

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Except as otherwise indicated, all information in this prospectus supplement is based upon 45,082,599 shares of our common stock (including 16,815 unvested shares of restricted common stock subject to our repurchase right) outstanding as of September 30, 2020, and excludes:

- 3,913,346 shares of our common stock issuable upon exercise of stock options outstanding as of September 30, 2020 having a weighted-average exercise price of \$24.35 per share;
- 569,433 shares of our common stock issuable upon the settlement of outstanding restricted stock units as of September 30, 2020;
- 1,033,363 shares of common stock reserved for future grant or issuance under our 2018 Equity Incentive Plan, or the 2018 Plan;
- 179,372 shares of common stock reserved for future grant or issuance under our 2018 Employee Stock Purchase Plan, or the 2018 ESPP; and
- 22,092 shares of our common stock issued in October and November 2020 upon the net exercise of warrants to purchase common stock at \$14.85 per share and \$21.24 per share, respectively.

Except as otherwise indicated, all information in this prospectus supplement assumes no exercise or settlement of outstanding options, restricted stock units or warrants after September 30, 2020 and no exercise of the underwriters' option to purchase additional shares of common stock being offered by us.

Summary consolidated financial information

The following table sets forth our summary selected historical consolidated financial data for the periods ended and as of the dates indicated. The consolidated statements of operations and comprehensive loss data for the years ended September 30, 2018, 2019 and 2020 and the consolidated balance sheet data as of September 30, 2020 have been derived from, and should be read together with, our audited consolidated financial statements for such periods, which are incorporated by reference herein. Our historical results are not necessarily indicative of the results that may be expected in the future. The following summary consolidated financial data should be read in conjunction with “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our consolidated financial statements incorporated by reference in this prospectus supplement and the accompanying prospectus.

(in thousands, except share and per share data)	Year ended September 30,		
	2018	2019	2020
Consolidated statements of operations and comprehensive loss data:			
Revenues	\$ 25,427	\$ 54,385	\$ 90,100
Operating expenses:			
Cost of revenues	32,189	47,426	61,406
Research and development	20,347	35,683	43,006
Selling, general and administrative	43,450	80,126	103,267
Litigation settlement	—	—	22,500
Total operating expenses	\$ 95,986	\$ 163,235	\$ 230,179
Loss from operations	\$ (70,559)	\$ (108,850)	\$ (140,079)
Interest income	999	3,032	1,499
Interest expense	(1,313)	(1,294)	(787)
Other income (expense), net	(121)	(265)	(182)
Loss before income taxes	\$ (70,994)	\$ (107,377)	\$ (139,549)
Provision for income taxes	(242)	(292)	(382)
Net loss attributable to common stockholders	\$ (71,236)	\$ (107,669)	\$ (139,931)
Other comprehensive loss:			
Change in unrealized gain (loss) on investments	—	49	(34)
Foreign currency translation adjustment	54	45	(60)
Comprehensive loss	\$ (71,182)	\$ (107,575)	\$ (140,025)
Net loss per share attributable to common stockholders—basic and diluted(1)	\$ (25.51)	\$ (3.92)	\$ (3.57)
Weighted average shares used in computing net loss per share attributable to common stockholders—basic and diluted(1)	2,792,743	27,461,844	39,189,917

(1) See Notes 2 and 14 of the notes to our audited annual consolidated financial statements included in our annual report on Form 10-K for the year ended September 30, 2020 incorporated by reference herein in this prospectus supplement for a description of the method used to compute basic and diluted net loss per share attributable to common stockholders.

(In thousands) (unaudited)	As of September 30, 2020
Consolidated balance sheet data:	
Cash, cash equivalents, and short-term investments	\$ 290,002
Working capital	298,841
Total assets	398,882
Total liabilities	62,620
Additional paid-in capital	794,630
Accumulated deficit	(458,455)
Total stockholders' equity	336,262

Risk factors

Investing in our common stock involves risk. Before deciding whether to invest in our common stock, you should consider carefully the risks and uncertainties described below. You should also consider the risks, uncertainties and assumptions discussed under the heading “Risk factors” included in our annual report on Form 10-K for the fiscal year ended September 30, 2020, which is on file with the SEC and is incorporated herein by reference, and which may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future. There may be other unknown or unpredictable economic, business, competitive, regulatory or other factors that could have material adverse effects on our future results. If any of these risks actually occurs, our business, business prospects, financial condition or results of operations could be seriously harmed. This could cause the trading price of our common stock to decline, resulting in a loss of all or part of your investment. Please also read carefully the section below titled “Cautionary statement regarding forward-looking statements.”

Risks related to COVID-19 pandemic

We are subject to risks associated with COVID-19.

Our global operations expose us to risks associated with COVID-19 that has spread globally. In the recent months, the continued spread of COVID-19 has led to disruption to business and economic activity and related uncertainty and volatility in the global capital markets, which increases the cost of, and adversely impacts access to, capital and increases economic uncertainty. The COVID-19 pandemic has caused an economic slowdown and it is likely that such slowdown will be of an extended duration, and it is possible that it will cause a global recession. While our financial results for the second, third and fourth quarters of fiscal 2020 have not been significantly affected by the COVID-19 outbreak, impacts from COVID-19 may, in the future, adversely affect our operations, supply chains, distribution systems and customer demand, including as a result of impacts associated with preventive and precautionary measures that we, other businesses and governments are taking or may take in the future. The unanticipated loss or unavailability of key employees due to the COVID-19 outbreak could harm our ability to operate or execute our business strategy. We may not be successful in finding and integrating suitable successors in the event of key employee loss or unavailability. The effectiveness of our sales teams may be negatively impacted by the lack of travel and their reduced ability to engage with decision-makers. Our NGS business may be negatively impacted by the sequencing capacity dedicated to COVID-19 related orders. Our shipments may be subject to higher freight costs. Our customers may delay payments for shipments received. A significant portion (approximately 25%) of our business is in the academic markets and the demand for our products in this customer segment have been affected by a reduction in their research grants and may continue to be so affected in the future. Supply chain disruptions may result in the lack of raw materials, delay in the release of new products or compressed margins due to an increase in material costs. Due to these impacts and measures, we may experience significant and unpredictable reductions in demand for our products and our customers may postpone or cancel their existing orders. Due to the COVID-19 pandemic, we and many other employers in the United States and Europe are requiring all employees whose duties can be performed remotely, to work from home and not to go into our offices. This increase in employee telecommuting activity could increase the risk of a security breach of our information technology systems. If the COVID-19 pandemic continues and business and economic conditions persist or worsen, we may experience a decline in sales activities and customer orders or cancellations of existing orders, and it remains uncertain what impact these declines will have on future sales and customer orders once conditions begin to improve. In addition to existing travel restrictions, some countries have closed their borders to U.S. travelers and may continue to impose or further restrict travel and impose or resume prolonged quarantines, which would significantly impact our ability to support our business operations and customers in those locations and the ability of our employees to access their places of work to produce products, or significantly hamper our products from moving through the supply chain. As a result, given the

evolving nature of the business and economic conditions in response to the virus, the COVID-19 pandemic may negatively affect our revenue growth, and it is uncertain how materially COVID-19 will affect our global operations if these impacts persist or worsen over an extended period of time. Any of these impacts would have an adverse effect on our business, financial condition and results of operations, and at this point, the extent of the impact of COVID-19 remains uncertain. In addition, our ability to raise capital in the future may also be negatively affected.

Risks related to 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 such as the recently concluded 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;
- the severity and duration of the COVID-19 pandemic, as well as its impact on our operations and the economy as whole; and
- general economic and market conditions.

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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 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.

Purchasers of shares of our common stock in this offering will experience immediate and substantial dilution in the book value of their investment.

If you purchase shares of our common stock in this offering, you will incur immediate and substantial dilution in the as adjusted net tangible book value of your stock because the price that you pay will be substantially greater than the net tangible book value per share of the shares you acquire. To the extent we raise additional capital by issuing equity securities, our stockholders will experience substantial additional dilution. For a further description of the dilution that you will experience immediately after this offering, see the section of this prospectus supplement titled "Dilution."

We have broad discretion in the use of the net proceeds from this offering and our existing cash and may not use them effectively.

Our management will have broad discretion in the application of the net proceeds from this offering, including for any of the purposes described in the section titled "Use of proceeds," as well as our existing cash and cash equivalents, and you will be relying on the judgment of our management regarding such application. You will not have the opportunity, as part of your investment decision, to assess whether the net proceeds are being used appropriately. Because of the number and variability of factors that will determine our use of the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. Our management might not apply the net proceeds or our existing cash in ways that ultimately increase the value of your investment. If we do not invest or apply the net proceeds from this offering or our existing cash and cash equivalents in ways that enhance stockholder value, we may fail to achieve expected business and financial results, which could cause our stock price to decline. We may also use a portion of the net proceeds to in-license, acquire or invest in complementary businesses or products. However, we currently have no agreements or commitments to complete any such transaction. Pending their use, we may invest the net proceeds from this offering in short-term, investment-grade, interest-bearing securities. These investments may not yield a favorable return to our stockholders.

Future sales of our common stock in the public market, or the perception that such sales could occur, could cause our stock price to fall.

The sale of a substantial number of shares of our common stock or other equity-related securities in the public markets, or the perception that such sales could occur, could depress the market price of our common stock and impair our ability to raise capital through the sale of additional equity securities. We may sell large quantities of our common stock at any time pursuant to this prospectus supplement or in one or more separate offerings. We cannot predict the effect that future sales of common stock or other equity-related securities would have on the market price of our common stock.

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The estimates of market opportunity and forecasts of market growth included in this prospectus supplement 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 supplement 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 supplement, our business could fail to grow at the rate we anticipate, if at all.

Cautionary statement regarding forward-looking statements

This prospectus supplement and the accompanying prospectus, including the documents that we incorporate by reference, contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These statements relate to, among other matters, plans for product development and licensing to third parties, plans and timeframe for the commercial development of DNA data storage capabilities, expectations regarding market penetration and market size for our products, anticipated customer conversions to our products, plans to expand in the international markets, identification and development of potential antibody candidates for the treatment of COVID-19. Forward-looking statements are also identified by the words “believe,” “will,” “may,” “estimate,” “continue,” “anticipate,” “intend,” “should,” “plan,” “expect,” “predict,” “could,” “potentially” and variations of such words and similar expressions. You should not rely upon forward-looking statements as predictions of future events. Such statements are based on management’s expectations as of the date of this filing and involve many risks and uncertainties that could cause our actual results, events or circumstances to differ materially from those expressed or implied in our forward-looking statements. Such risks and uncertainties include:

- our ability to increase our revenue and our revenue growth rate;
- our ability to accurately estimate capital requirements and our needs for additional financing; our estimates of the size of our market opportunities;
- our ability to increase DNA 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;
- a significant disruption in, or breach in security of our information technology systems and resultant interruptions in service and any related impact on our reputation;
- our ability to attract and retain qualified employees and key personnel;
- the effects of natural or man-made catastrophic events, including those resulting from the COVID-19 pandemic;
- the effectiveness of our internal controls;
- changes in government regulation affecting our business;
- uncertainty as to economic and market conditions and the impact of adverse economic conditions; and

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- other risk factors included under the section titled “Risk factors” in this prospectus supplement and in our annual report on Form 10-K for the fiscal year ended September 30, 2020 and our subsequent filings with the SEC.

Such forward-looking statements are based on management’s expectations and involve many risks and uncertainties that could cause our actual results, events or circumstances to differ materially from those expressed or implied in our forward-looking statements. Given these risks and uncertainties, readers are cautioned not to place undue reliance on such forward-looking statements. Readers are urged to carefully review and consider all of the information in this prospectus supplement, including the documents incorporated by reference herein, the accompanying prospectus, including the documents incorporated by reference therein, and any free writing prospectus that we have authorized for use in connection with this offering. We undertake no obligation to update any forward-looking statements made in this prospectus supplement to reflect events or circumstances after the date of this prospectus supplement or to reflect new information or the occurrence of unanticipated events, except as required by law. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make.

Use of proceeds

We estimate that the net proceeds from the sale of the shares of common stock that we are selling in this offering, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us, will be approximately \$ million, or approximately \$ million if the underwriters exercise in full their option to purchase additional shares of common stock.

We intend to use our existing cash, cash equivalents and short-term investments together with the net proceeds from this offering to increase our operational capacity, tooling, and scaling an additional manufacturing location to support our growth in NGS, Synbio, DNA prep, our pharmaceutical biologics antibody platform and IGG products; increase our investment in automation and research and development, which includes investing in NGS, Synbio, our pharmaceutical biologics antibody platform, and in DNA data storage; increase our investment in our commercial organization and our IT infrastructure; and for the remainder to fund working capital and general corporate purposes. We may also use a portion of the net proceeds to in-license, acquire or invest in complementary businesses or products. However, we currently have no agreements or commitments to complete any such transaction.

This expected use of the net proceeds from this offering represents our intentions based upon our current plans and business conditions, which could change in the future as our plans and business conditions evolve, including as a result of the impact of the COVID-19 pandemic on our financial results and operations and its impact on our ability to access capital on favorable terms or at all. As of the date of this prospectus supplement, we cannot predict with certainty all of the particular uses for the proceeds to be received upon the completion of this offering or the actual amounts that we will spend on the uses set forth above. As a result, our management will retain broad discretion over the allocation of the net proceeds from this offering.

Pending the application of the net proceeds as set forth above, we intend to invest the net proceeds in cash, cash equivalents and U.S. government securities.

We will not receive any proceeds from the sale of our common stock by the selling stockholders in this offering. We will, however, bear the costs, other than underwriting discounts and commissions, associated with the sale of these shares. The selling stockholders include certain entities affiliated with or controlled by members of our board of directors.

Dividend policy

We have never declared or paid, and do not anticipate declaring or paying in the foreseeable future, any cash dividends on our capital stock. Any future determination to declare cash dividends will be made at the discretion of our board of directors, subject to applicable laws, and will depend on our financial condition, results of operations, capital requirements, general business conditions and other factors that our board of directors may deem relevant.

Capitalization

The following table sets forth our cash, cash equivalents and short-term investments and capitalization as of September 30, 2020 on:

- an actual basis; and
- an as adjusted basis, giving effect to the sale and issuance of shares of our common stock by us in this offering after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

You should read this table along with our consolidated financial statements and related notes and the other financial information incorporated by reference into this prospectus supplement or the accompanying prospectus.

	As of September 30, 2020	
	Actual	As adjusted
(In thousands, except share and per share data)		
Cash, cash equivalents and short-term investments	\$ 290,002	\$
Long-term debt, net of current portion	\$ 1,403	\$
Stockholders' equity:		
Preferred stock, \$0.00001 par value—10,000,000 shares authorized; no shares issued or outstanding	—	—
Common stock, \$0.00001 par value—100,000,000 shares authorized, 45,082,599 shares issued and outstanding, actual; 100,000,000 shares authorized, shares issued and outstanding, as adjusted	—	—
Additional paid-in capital	794,630	
Accumulated other comprehensive income	87	
Accumulated deficit	(458,455)	
Total stockholders' equity	336,262	
Total capitalization	\$ 337,665	\$

Except as otherwise indicated, the foregoing calculations exclude the following shares as of September 30, 2020:

- 3,913,346 shares of our common stock issuable upon exercise of stock options outstanding as of September 30, 2020 having a weighted-average exercise price of \$24.35 per share;
- 569,433 shares of our common stock issuable upon the settlement of outstanding restricted stock units as of September 30, 2020;
- 1,033,363 shares of common stock reserved for future grant or issuance under the 2018 Plan;
- 179,372 shares of common stock reserved for future grant or issuance under the 2018 ESPP; and
- 22,092 shares of our common stock issued in October and November 2020 upon the net exercise of warrants to purchase common stock at \$14.85 per share and \$21.24 per share, respectively.

Dilution

If you invest in our common stock in this offering, your ownership interest will be diluted to the extent of the difference between the public offering price per share of our common stock and the as-adjusted net tangible book value per share of our common stock immediately after this offering. We calculate net tangible book value per share by dividing the net tangible book value (our tangible assets less our total liabilities) by the number of outstanding shares of our common stock.

The historical net tangible book value of our common stock as of September 30, 2020 was \$334.8 million, or \$7.43 per share, based on 45,082,599 shares of common stock outstanding as of September 30, 2020.

After giving effect to the sale of shares of our common stock in this offering at the public offering price of \$ _____ per share, and after deducting underwriting discounts and commissions and estimated offering expenses, our as-adjusted net tangible book value as of September 30, 2020 would have been \$ _____ million, or \$ _____ per share. This represents an immediate increase in net tangible book value of \$ _____ per share to existing stockholders and an immediate dilution in net tangible book value of \$ _____ per share to new investors purchasing shares of our common stock in this offering.

The following table illustrates the dilution:

Public offering price per share	\$
Historical net tangible book value per share as of September 30, 2020	\$7.43
Increase in net tangible book value per share attributable to this offering	_____
As-adjusted net tangible book value per share after giving effect to this offering	_____
Dilution per share to new investors participating in this offering	\$

If the underwriters exercise their option to purchase additional shares of our common stock in full at the public offering price of \$ _____ per share, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us, the as-adjusted net tangible book value would be approximately \$ _____ per share, representing an immediate increase in net tangible book value of approximately \$ _____ per share to existing stockholders and an immediate dilution in net tangible book value of \$ _____ per share to new investors purchasing shares of our common stock in this offering.

The foregoing calculations exclude the following shares as of September 30, 2020:

- 3,913,346 shares of our common stock issuable upon exercise of stock options outstanding as of September 30, 2020 having a weighted-average exercise price of \$24.35 per share;
- 569,433 shares of our common stock issuable upon the settlement of outstanding restricted stock units as of September 30, 2020;
- 1,033,363 shares of common stock reserved for future grant or issuance under the 2018 Plan;
- 179,372 shares of common stock reserved for future grant or issuance under the 2018 ESPP; and
- 22,092 shares of our common stock issued in October and November 2020 upon the net exercise of warrants to purchase common stock at \$14.85 per share and \$21.24 per share, respectively.

To the extent that any options are exercised, new options are issued or we otherwise issue additional shares of common stock in the future at a price less than the public offering price, there may be further dilution to purchasers of our common stock in this offering.

Selling stockholders

The table below sets forth information regarding the beneficial ownership of our common stock for the selling stockholders. The number of shares of common stock outstanding before and after this offering and the corresponding percentage of beneficial ownership are based on 45,082,599 shares of common stock outstanding as of September 30, 2020, which for purposes of the table below includes all unvested restricted stock awards. The number of shares beneficially owned by each stockholder is determined under rules issued by the SEC and includes voting or investment power with respect to securities.

Name and address of beneficial owner(1)	Before the offering		Number of shares being offering	After the offering	
	Number of shares	% of shares		Number of shares	% of shares
ARCH Venture Fund VII, L.P.	780,546	1.7	53,712	726,834	1.6
ARCH Venture Fund VIII Overage, L.P.	309,392	0.7	21,288	288,104	0.6

(1) ARCH Venture Partners VII, L.P., or the GPLP, is the sole general partner of ARCH Venture Fund VII, L.P., or ARCH VII, and ARCH Venture Partners VII, LLC, or the GPLLC, is the sole general partner of the GPLP. ARCH Venture Partners VIII, LLC, or ARCH VIII Partners, is the sole general partner of ARCH Venture Fund VIII Overage, L.P. Keith Crandell, a member of our Board of Directors, Clinton Bybee and Robert Nelsen are the managing directors of the GPLLC and ARCH VIII Partners, and therefore, may be deemed to share voting and dispositive power over the shares held of record by ARCH VII and ARCH VIII Overage. The address for each of the entities identified in this footnote is 8755 West Higgins Road, Suite 1025, Chicago, IL 60631.

Material U.S. federal income tax considerations for non-U.S. holders

This section discusses the 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;
- brokers or 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 owner and the activities of the partnership or entity.

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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 beneficial owner 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 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

As described in the section entitled “Dividend Policy,” we do not anticipate declaring or paying in the foreseeable future any cash dividends on our capital stock. In the future, if we make any distributions on shares of our common stock, 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.”

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. Subject to the discussion below regarding the Foreign Account Tax Compliance Act, or FATCA, and backup withholding, the 30% withholding tax might not apply, 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,

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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 or 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 intermediary, the non-U.S. holder will be required to provide appropriate documentation to the applicable withholding agent. 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 the 30% 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 regular rates applicable to U.S. persons, net of certain deductions and credits. 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 or withholding 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 certain 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 fair market value of our U.S. real property interests constituted at least half of the fair market 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 at the time of the disposition, 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 or constructively owns more

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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 regular 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 distributions 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 in connection with the failure 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. While withholding under FATCA would have applied to gross proceeds from the sale, exchange or other taxable disposition of our common stock and to certain "pass-thru" payments received with respect to instruments held through foreign financial institutions after the date on which applicable final Treasury regulations are issued, proposed Treasury regulations eliminate FATCA withholding on payments of gross proceeds entirely and limit FATCA withholding on these "pass-thru"

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payments to those payments made two years after the date on which applicable final Treasury regulations are issued. Taxpayers generally may rely on these proposed Treasury regulations until 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 and the selling stockholders are offering the shares of common stock described in this prospectus supplement through a number of underwriters. J.P. Morgan Securities LLC, Goldman Sachs & Co. LLC, Cowen and Company, LLC and Evercore Group L.L.C. are acting as joint book-running managers of the offering and as representatives of the underwriters. We and the selling stockholders have entered into an underwriting agreement with the underwriters. Subject to the terms and conditions of the underwriting agreement, we and the selling stockholders 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 supplement, 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	
Goldman Sachs & Co. LLC	
Cowen and Company, LLC	
Evercore Group L.L.C.	
Robert W. Baird & Co. Incorporated	
Total	

The underwriters are committed to purchase all the shares of common stock offered by us and the selling stockholders 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 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. 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. 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.

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The underwriting fee is equal to the public offering price per share of common stock less the amount paid by the underwriters to us or the selling stockholders 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 sold by us	\$ _____	\$ _____
Total	\$ _____	\$ _____
Per share sold by the selling stockholders	\$ _____	—
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. The offering of the shares by the underwriters is subject to receipt and acceptance and subject to the underwriters' right to reject any order in whole or in part.

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, Goldman Sachs & Co. LLC and Cowen and Company, LLC for a period of 90 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 certain 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 90 days after the date of this prospectus for directors and officers and for a period of 75 days after the date of this prospectus for certain of our stockholders, may not, without the prior written consent of J.P. Morgan Securities LLC, Goldman Sachs & Co. 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,

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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 described in the six sub-bullets above, (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 under Section 16(a) of the Exchange Act of 1934, as amended, or the Exchange Act, or other public announcement shall be required or shall be voluntarily made during the restricted period (other than a filing on Form 5 after the expiration of the restricted period 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 common stock owned by the party subject to the lockup agreement 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, provided that no transfer occurs under such plan during the restricted period and no public announcement or filing shall be required or voluntarily made by any person in connection therewith other than general disclosure in our periodic reports to the effect that our directors and officers may enter into such trading plans from time to time;
- 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

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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, Goldman Sachs & Co. 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.

Notwithstanding the fourth bullet above, sales of shares of common stock may be effected pursuant to a trading plan adopted pursuant to Rule 10b5-1 under the Exchange Act, provided that, (x) such the plan was entered into prior to the date of the final prospectus supplement for this offering and (y) any filing under Section 16 of the Exchange Act that is made in connection with any such sales during the restricted period shall state that such sales have been executed under a trading plan pursuant to Rule 10b5-1 under the Exchange Act and shall also state the date such trading plan was adopted.

We and the selling stockholders have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act.

Our common stock is listed on the Nasdaq Global Select 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.

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The underwriters have advised us and the selling stockholders 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 Select Market, in the over-the-counter market or otherwise.

In addition, in connection with this offering certain of the underwriters (and selling group members) may engage in passive market making transactions in our common stock on the Nasdaq Global Select Market prior to the pricing and completion of this offering. Passive market making consists of displaying bids on the Nasdaq Global Select Market no higher than the bid prices of independent market makers and making purchases at prices no higher than these independent bids and effected in response to order flow. Net purchases by a passive market maker on each day are generally limited to a specified percentage of the passive market maker's average daily trading volume in the common stock during a specified period and must be discontinued when such limit is reached. Passive market making may cause the price of our common stock to be higher than the price that otherwise would exist in the open market in the absence of these transactions. If passive market making is commenced, it may be discontinued at any time.

Certain of the underwriters and their affiliates have engaged in and may provide to us and our affiliates from time to time in the future certain commercial banking, financial advisory, investment banking and other services for us and such affiliates in the ordinary course of their business, for which they may receive customary fees and commissions. In addition, from time to time, certain of the underwriters and their affiliates may effect transactions for their own account or the account of customers and hold on behalf of themselves or their customers, long or short positions in our debt or equity securities or loans, and may do so in the future.

Selling restrictions

Other than in the United States, no action has been taken by us, the selling stockholders 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 and the United Kingdom

In relation to each Member State of the European Economic Area and the United Kingdom (each a "Relevant State"), no shares have been offered or will be offered pursuant to the offering to the public in that Relevant State prior to the publication of a prospectus in relation to the shares which has been approved by the

competent authority in that Relevant State or, where appropriate, approved in another Relevant State and notified to the competent authority in that Relevant State, all in accordance with the Prospectus Regulation, except that offers of shares may be made to the public in that Relevant State at any time under the following exemptions under the Prospectus Regulation:

- (a) to any legal entity which is a qualified investor as defined under the Prospectus Regulation;
- (b) to fewer than 150 natural or legal persons (other than qualified investors as defined under the Prospectus Regulation), subject to obtaining the prior consent of the underwriters; or
- (c) in any other circumstances falling within Article 1(4) of the Prospectus Regulation,

provided that no such offer of shares shall require us or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation 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 Article 2(e) of the Prospectus Regulation. In the case of any shares being offered to a financial intermediary as that term is used in the Prospectus Regulation, 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 State to qualified investors as so defined or in circumstances in which the prior consent of the underwriters have been obtained to each such proposed offer or resale.

For the purposes of this provision, the expression an “offer to the public” in relation to shares in any Relevant State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any shares, and the expression “Prospectus Regulation” means Regulation (EU) 2017/1129.

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 Regulation) (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 (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

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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

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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.

Notice to prospective investors in Singapore

Each joint book running manager has acknowledged that this offering has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, each joint book running manager has represented and agreed that it has not offered or sold any shares or caused the shares to be made the subject of an invitation for subscription or purchase and will not offer or sell any shares or cause the shares to be made the subject of an invitation for subscription or purchase, and has not circulated or distributed, nor will it circulate or distribute, this offering or any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares, whether directly or indirectly, to any person in Singapore other than:

- (a) to an institutional investor (as defined in Section 4A of the Securities and Futures Act (Chapter 289) of Singapore, as modified or amended from time to time (the “SFA”)) pursuant to Section 274 of the SFA;
- (b) to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA; or
- (c) 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 or securities-based derivatives contracts (each term as defined in Section 2(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:

- (i) to an institutional investor or to a relevant person, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;

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- (ii) where no consideration is or will be given for the transfer;
- (iii) where the transfer is by operation of law;
- (iv) as specified in Section 276(7) of the SFA; or
- (v) as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018.

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 (“CMA”) pursuant to resolution number 2-11-2004 dated 4 October 2004 as amended by resolution number 1-28-2008, as amended (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 are not being, and may not be offered to the public or to any person in the British Virgin Islands for purchase or subscription by or on behalf of the Company. The shares may be offered to companies incorporated under the BVI Business Companies Act, 2004 (British Virgin Islands) (“BVI Companies”), but only where the offer will be made to, and received by, the relevant BVI Company entirely outside of the British Virgin Islands.

Notice to prospective investors in China

This prospectus supplement will not be circulated or distributed in the PRC and the shares will not be offered or sold, and will not be offered or sold to any person for re-offering or resale directly or indirectly to any residents of the PRC except pursuant to any applicable laws and regulations of the PRC. Neither this prospectus supplement nor any advertisement or other offering material may be distributed or published in the PRC, except under circumstances that will result in compliance with applicable laws and regulations.

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. The shares have not been listed on any of the securities exchanges in the world including, without limitation, the Korean Exchange in Korea. 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 Israel

In the State of Israel this prospectus supplement shall not be regarded as an offer to the public to purchase shares of common stock under the Israeli Securities Law, 5728 – 1968, which requires a prospectus to be published and authorized by the Israel Securities Authority, if it complies with certain provisions of Section 15 of the Israeli Securities Law, 5728 – 1968, including, inter alia, if: (i) the offer is made, distributed or directed to not more than 35 investors, subject to certain conditions, or the Addressed Investors; or (ii) the offer is made, distributed or directed to certain qualified investors defined in the First Addendum of the Israeli Securities Law, 5728 – 1968, subject to certain conditions, or the Qualified Investors. The Qualified Investors shall not be taken into account in the count of the Addressed Investors and may be offered to purchase securities in addition to the 35 Addressed Investors. The company has not and will not take any action that would require it to publish a prospectus in accordance with and subject to the Israeli Securities Law, 5728 – 1968. We have not and will not

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distribute this prospectus supplement or make, distribute or direct an offer to subscribe for our common stock to any person within the State of Israel, other than to Qualified Investors and up to 35 Addressed Investors.

Qualified Investors may have to submit written evidence that they meet the definitions set out in of the First Addendum to the Israeli Securities Law, 5728 – 1968. In particular, we may request, as a condition to be offered common stock, that Qualified Investors will each represent, warrant and certify to us and/or to anyone acting on our behalf: (i) that it is an investor falling within one of the categories listed in the First Addendum to the Israeli Securities Law, 5728 – 1968; (ii) which of the categories listed in the First Addendum to the Israeli Securities Law, 5728 – 1968 regarding Qualified Investors is applicable to it; (iii) that it will abide by all provisions set forth in the Israeli Securities Law, 5728 – 1968 and the regulations promulgated thereunder in connection with the offer to be issued common stock; (iv) that the shares of common stock that it will be issued are, subject to exemptions available under the Israeli Securities Law, 5728 – 1968: (a) for its own account; (b) for investment purposes only; and (c) not issued with a view to resale within the State of Israel, other than in accordance with the provisions of the Israeli Securities Law, 5728 – 1968; and (v) that it is willing to provide further evidence of its Qualified Investor status. Addressed Investors may have to submit written evidence in respect of their identity and may have to sign and submit a declaration containing, inter alia, the Addressed Investor's name, address and passport number or Israeli identification number.

Legal matters

The validity of the issuance of our common stock offered in this prospectus supplement and the accompanying prospectus will be passed upon for us by Orrick, Herrington & Sutcliffe LLP, San Francisco, California. Latham & Watkins LLP, Menlo Park, California, is acting as counsel for the underwriters in connection with this offering.

Experts

The financial statements incorporated in this Prospectus by reference to the Annual Report on Form 10-K for the year ended September 30, 2020 have been so incorporated in reliance on the report (which contains an adverse opinion on the effectiveness of internal control over financial reporting) 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; incorporation by reference

Available information

We filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the shares of common stock offered hereby. This prospectus supplement and the accompanying prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement or the exhibits filed with the registration statement. For further information about us and the common stock offered hereby, we refer you to the registration statement and the exhibits filed with the registration statement. Statements contained in this prospectus supplement and the accompanying prospectus regarding the contents of any contract or any other document that is filed as an exhibit to the registration statement are not necessarily complete, and each such statement is qualified in all respects by reference to the full text of such contract or other document filed as an exhibit to the registration statement.

We are subject to the information and reporting requirements of the Exchange Act and, in accordance with this law, are required to file periodic reports, proxy statements and other information with the SEC. We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public at the SEC's website at <http://www.sec.gov>.

Incorporation by reference

The SEC allows us to “incorporate by reference” information that we file with them. Incorporation by reference allows us to disclose important information to you by referring you to those other documents. The information incorporated by reference is an important part of this prospectus supplement and the accompanying prospectus, and information that we file later with the SEC will automatically update and supersede this information. We filed a registration statement on Form S-3 under the Securities Act with the SEC with respect to the securities being offered pursuant to this prospectus supplement and the accompanying prospectus. This prospectus supplement and the accompanying prospectus omit certain information contained in the registration statement, as permitted by the SEC. You should refer to the registration statement, including the exhibits, for further information about us and the securities being offered pursuant to this prospectus supplement and the accompanying prospectus. Statements in this prospectus supplement and the accompanying prospectus regarding the provisions of certain documents filed with, or incorporated by reference in, the registration statement are not necessarily complete and each statement is qualified in all respects by that reference. The documents we are incorporating by reference are (other than those documents or the portions of those documents not deemed to be filed):

- Our Annual Report on [Form 10-K](#) for the year ended September 30, 2020, as filed with the SEC on November 27, 2020;
- The information in Part III of our Annual Report on [Form 10-K](#) for the fiscal year ended September 30, 2019 (other than information furnished rather than filed), filed with the SEC on December 13, 2019;
- The description of our common stock contained in our registration statement on [Form 8-A](#), which was filed with the SEC on October 25, 2018, including any amendment or report filed for the purpose of updating such description; and
- All documents filed by Twist Bioscience Corporation under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, that are filed (excluding, however, information we furnish to the SEC) by us after the date of the prospectus and prior to the termination of this offering.

Any statement contained in this prospectus supplement and the accompanying prospectus, or in a document all or a portion of which is incorporated by reference, shall be modified or superseded for purposes of this prospectus supplement to the extent that a statement contained in this prospectus supplement and the accompanying prospectus, any applicable prospectus supplement and any related free writing prospectus or any document incorporated by reference modifies or supersedes such statement. Any such statement so modified or superseded shall not, except as so modified or superseded, constitute a part of this prospectus supplement and the accompanying prospectus.

Upon request, we will provide, without charge, to each person, including any beneficial owner, to whom a copy of this prospectus supplement and the accompanying prospectus is delivered a copy of the documents incorporated by reference into this prospectus supplement. You may request a copy of these filings, and any exhibits we have specifically incorporated by reference as an exhibit in this prospectus supplement and the accompanying prospectus, at no cost by writing or telephoning us at the following:

Twist Bioscience Corporation
681 Gateway Blvd.
South San Francisco, CA 94080
Telephone: (800) 719-0671

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You may also access these documents, free of charge on the SEC's website at www.sec.gov or on the "Investors" page of our website at www.twistbioscience.com. Information contained on our website is not incorporated by reference into this prospectus supplement and the accompanying prospectus, and you should not consider any information on, or that can be accessed from, our website as part of this prospectus supplement or the accompanying prospectus.

This prospectus supplement and the accompanying prospectus is part of a registration statement we filed with the SEC. We have incorporated exhibits into this registration statement. You should read the exhibits carefully for provisions that may be important to you.

We have not authorized anyone to provide you with information other than what is incorporated by reference or provided in this prospectus supplement and the accompanying prospectus. We are not making an offer of these securities in any state where such offer is not permitted. You should not assume that the information in this prospectus supplement and the accompanying prospectus or in the documents incorporated by reference is accurate as of any date other than the date on the front of this prospectus supplement and the accompanying prospectus or those documents.

PROSPECTUS



Twist Bioscience Corporation

Common Stock
Preferred Stock
Debt Securities
Warrants
Units

From time to time, we may offer and sell any combination of the securities described in this prospectus in one or more offerings. The securities we may offer may be convertible into or exercisable or exchangeable for other securities. We may offer the securities separately or together, in separate classes, series and in amounts, at prices and on terms that will be determined at the time the securities are offered.

In addition, from time to time, the selling securityholders to be named in a prospectus supplement may offer our securities. We will not receive any of the proceeds from the sale of securities by the selling securityholders.

This prospectus describes some of the general terms that may apply to these securities. Each time securities are sold, the specific terms and amounts of the securities being offered, and any other information relating to the specific offering and, if applicable, the selling securityholders, will be set forth in a supplement to this prospectus. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings. The prospectus supplement and any related free writing prospectus may also add, update or change information contained in this prospectus. You should carefully read this prospectus, the applicable prospectus supplement and any related free writing prospectus, as well as any documents incorporated by reference, before you invest in any of the securities being offered. This prospectus may not be used to sell our securities unless accompanied by a prospectus supplement.

Our common stock is traded on the Nasdaq Global Select Market under the symbol "TWST". The applicable prospectus supplement will contain information, where applicable, as to any other listing, if any, of the securities covered by the applicable prospectus supplement.

We or any selling securityholders may offer and sell our securities to or through one or more underwriters, dealers and agents, or directly to purchasers, on a continuous or delayed basis. The names of any underwriters, dealers or agents and the terms of the arrangements with such entities will be stated in the accompanying prospectus supplement. See the sections of this prospectus entitled "About this Prospectus" and "Plan of Distribution" for more information.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties referenced under the heading "[RISK FACTORS](#)" on page 4 of this prospectus as well as those contained in the applicable prospectus supplement and any related free writing prospectus, and in the other documents that are incorporated by reference into this prospectus or the applicable prospectus supplement.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is June 3, 2020.

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We are responsible for the information contained and incorporated by reference in this prospectus, in any accompanying prospectus supplement, and in any related free writing prospectus we prepare or authorize. We have not authorized anyone to give you any other information, and we take no responsibility for any other information that others may give you. If you are in a jurisdiction where offers to sell, or solicitations of offers to purchase, the securities offered by this documentation are unlawful, or if you are a person to whom it is unlawful to direct these types of activities, then the offer presented in this document does not extend to you. The information contained in this document speaks only as of the date of this document, unless the information specifically indicates that another date applies. Neither the delivery of this prospectus or any accompanying prospectus supplement, nor any sale of securities made under these documents, will, under any circumstances, create any implication that there has been no change in our affairs since the date of this prospectus, any accompanying prospectus supplement or any free writing prospectus we may provide you in connection with an offering or that the information contained or incorporated by reference is correct as of any time subsequent to the date of such information. You should assume that the information in this prospectus or any accompanying prospectus supplement, as well as the information incorporated by reference in this prospectus or any accompanying prospectus supplement, is accurate only as of the date of the documents containing the information, unless the information specifically indicates that another date applies. Our business, financial condition, results of operations and prospects may have changed since those dates.

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement we filed with the Securities and Exchange Commission (SEC), as a “well-known seasoned issuer” as defined in Rule 405 under the Securities Act of 1933, as amended (the Securities Act), using a “shelf” registration process. Under this process, we and/or the selling securityholders to be named in a prospectus supplement may sell any combination of the securities described in this prospectus from time to time in one or more offerings. Before purchasing any securities, you should read this prospectus and any applicable prospectus supplement together with the additional information described under the heading “Where You Can Find Additional Information” and “Incorporation of Certain Information by Reference.”

This prospectus only provides you with a general description of the securities we may offer. Each time we or the selling securityholders sell a type or series of securities under this prospectus, we or the selling securityholders, as the case may be, will provide a prospectus supplement that will contain more specific information about the terms of the offering, including the specific amounts, prices and terms of the securities offered, and, if applicable, the selling securityholders. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. This prospectus may not be used to sell our securities unless accompanied by a prospectus supplement. Each such prospectus supplement and any free writing prospectus that we may authorize to be provided to you may also add, update or change information contained in this prospectus or in documents incorporated by reference into this prospectus. If this prospectus is inconsistent with the prospectus supplement, you should rely upon the prospectus supplement.

This prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the heading “Where You Can Find Additional Information.”

This prospectus incorporates by reference, and any prospectus supplement or free writing prospectus may contain and incorporate by reference, market data and industry statistics and forecasts that are based on independent industry publications and other publicly available information. Although we believe these sources are reliable, we do not guarantee the accuracy or completeness of this information and we have not independently verified this information. In addition, the market and industry data and forecasts that may be included or incorporated by reference in this prospectus, any prospectus supplement or any applicable free writing prospectus may involve estimates, assumptions and other risks and uncertainties and are subject to change based on various factors, including those discussed under the heading “Risk Factors” contained in this prospectus, the applicable prospectus supplement and any applicable free writing prospectus, and under similar headings in other documents that are incorporated by reference into this prospectus. Accordingly, investors should not place undue reliance on this information.

Unless otherwise mentioned or unless the context requires otherwise, throughout this prospectus, any applicable prospectus supplement and any related free writing prospectus, the words “Twist”, “we”, “us”, “our”, the “company” or similar references refer to Twist Bioscience Corporation and its subsidiaries; and the term “securities” refers collectively to our common stock, preferred stock, warrants, debt securities, or any combination of the foregoing securities.

We own various U.S. federal trademark registrations and applications and unregistered trademarks, including our corporate logo. This prospectus and the information incorporated herein by reference contains references to trademarks, service marks and trade names owned by us or other companies. Solely for convenience, trademarks, service marks and trade names referred to in this prospectus and the information incorporated herein, including logos, artwork, and other visual displays, may appear without the ® or TM

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symbols, but such references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks, service marks and trade names. We do not intend our use or display of other companies' trade names, service marks or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other companies. All trademarks, service marks and trade names included or incorporated by reference into this prospectus, any applicable prospectus supplement or any related free writing prospectus are the property of their respective owners.

TWIST BIOSCIENCE CORPORATION

We are a leading and rapidly growing synthetic biology and genomics company that has developed a disruptive DNA synthesis platform to industrialize the engineering of biology. 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, scalable commercial infrastructure, and an e-commerce platform to create an integrated technology platform that enables us to achieve high levels of quality, precision, automation, and manufacturing throughput at a significantly lower cost than our competitors. We are leveraging our unique technology to manufacture a broad range of synthetic DNA-based products, including synthetic genes, tools for next-generation sample preparation, and antibody libraries for drug discovery and development.

We were incorporated in Delaware on February 4, 2013. Our principal executive offices are located at 681 Gateway Blvd., South San Francisco, CA 94080. Our telephone number at that location is (800) 719-0671. 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.

RISK FACTORS

Investing in our securities involves a high degree of risk. Before making a decision to invest in our securities, you should carefully consider the risks described under the heading “Risk Factors” in the applicable prospectus supplement and any related free writing prospectus, and discussed under “Part I, Item 1A. Risk Factors” contained in our most recent annual report on Form 10-K and in “Part II, Item 1A. Risk Factors” in our most recent quarterly report on Form 10-Q filed subsequent to such Form 10-K, as well as any amendments thereto, which are incorporated by reference into this prospectus and the applicable prospectus supplement in their entirety, together with other information in this prospectus and the applicable prospectus supplement, the documents incorporated by reference herein and therein, and any free writing prospectus that we may authorize for use in connection with a specific offering. See “Where You Can Find Additional Information.”

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, any prospectus supplement and any related free writing prospectus, including the information incorporated by reference herein and therein, contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. Any statements about our expectations, beliefs, plans, objectives, assumptions or future events or performance are not historical facts and may be forward-looking. These statements are often, but are not always, made through the use of words or phrases such as “anticipate,” “believe,” “contemplate,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “potential,” “predict,” “project,” “seek,” “should,” “target,” “will,” “would,” or the negative of these words or other comparable terminology. Accordingly, these statements involve estimates, assumptions and uncertainties which could cause actual results to differ materially from those expressed in them.

Given these uncertainties, you should not place undue reliance on these forward-looking statements as actual events or results may differ materially from those projected in the forward-looking statements due to various factors, including, but not limited to, those set forth under the heading “Risk Factors” in any applicable prospectus supplement, the documents incorporated by reference therein or any free writing prospectus that we authorized. Our actual future results may be materially different from what we expect. We qualify all of the forward-looking statements contained in this prospectus, in the documents incorporated by reference herein and in any prospectus supplement by these cautionary statements. These forward-looking statements speak only as of the date on which the statements were made and are not guarantees of future performance. Although we undertake no obligation to revise or update any forward-looking statements, whether as a result of new information, future events or otherwise, you are advised to review any additional disclosures we make in the documents we subsequently file with the SEC that are incorporated by reference in this prospectus and any prospectus supplement. See “Where You Can Find Additional Information.”

USE OF PROCEEDS

Unless otherwise indicated in a prospectus supplement, we intend to use the net proceeds from the sale of securities offered by this prospectus and any applicable prospectus supplement for general corporate purposes. Until we apply the proceeds from a sale of securities to their intended purposes, we may invest those proceeds in short-term, interest-bearing, investment-grade, securities or hold as cash. We will not receive any of the proceeds from the sale of securities by selling securityholders, where applicable.

SELLING SECURITYHOLDERS

Information about selling securityholders, where applicable, will be set forth in a prospectus supplement, in an amendment to the registration statement of which this prospectus is a part, or in filings we make with the SEC under the Exchange Act, which are incorporated by reference.

DESCRIPTION OF OUR CAPITAL STOCK

General

The following is a summary of the rights of our common stock and preferred stock and certain provisions of our amended and restated certificate of incorporation and amended and restated bylaws as they are currently in effect, which we refer to in this section as our certificate of incorporation and bylaws, respectively. This summary does not purport to be complete and is qualified in its entirety by the provisions of our certificate of incorporation and bylaws, copies of which have been filed with the SEC.

Our authorized capital stock consists of 110,000,000 shares, of which 100,000,000 shares, par value \$0.00001 per share, are designated as common stock, and 10,000,000 shares, par value \$0.00001 per share, are designated as preferred stock.

Common Stock

The holders of our common stock are entitled to one vote per share on all matters to be voted on by our stockholders. Holders of common stock are entitled to receive such dividends as may be declared by the board of directors out of funds legally available therefor. In the event of our liquidation, dissolution or winding up, holders of common stock are entitled to share ratably in all assets remaining after payment of liabilities and distribution of the liquidation preferences of any then outstanding shares of preferred stock. There are no redemption or sinking fund provisions applicable to the common stock.

Stock Exchange Listing

Our common stock is listed on the Nasdaq Global Select Market. The trading symbol for our common stock is "TWST."

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC. The transfer agent and registrar's address is 6201 15th Avenue, Brooklyn, NY 11219, and its telephone number is (718) 921-8124.

Preferred Stock

Our board of directors has the authority, without further action by our stockholders, to designate and issue up to the total number of authorized shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions granted to or imposed upon each such series of preferred stock, including dividend rights, dividend rate, conversion rights, voting rights, rights and terms of redemption, redemption prices, liquidation preference and sinking fund terms, any or all of which may be greater than or senior to the rights of the common stock. The issuance of preferred stock could adversely affect the voting power of holders of common stock and reduce the likelihood that such holders will receive dividend payments or payments upon liquidation. Such issuance could have the effect of decreasing the market price of the common stock. The issuance of preferred stock or even the ability to issue preferred stock could also have the effect of delaying, deterring or preventing a change of control or other corporate action.

Registration Rights

Certain holders of shares of our common stock, including all of our former preferred stockholders prior to our initial public offering and certain holders of more than five percent of our capital stock and entities affiliated with certain of our directors, are entitled to certain rights with respect to the registration of their respective shares of common stock under the Securities Act. These shares are referred to as registrable securities. The holders of these registrable securities possess registration rights pursuant to the terms of our amended and restated registration rights agreement and are described in additional detail below.

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The registration rights terminate with respect to the registration rights of an individual holder on the earliest to occur of (i) November 2, 2023, (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 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

The holders of the registrable securities are entitled to certain demand registration rights. At any time, the holders of at least a majority of the registrable securities then outstanding may make a written request that we register all or a portion of their shares, subject to certain specified exceptions. Such request for registration must cover securities that have an anticipated aggregate offering price, net of underwriting discounts and commissions, of at least \$10,000,000. 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 registration statement, the holders of registrable securities were entitled to, and the necessary percentage of holders waived, their rights to notice of this registration statement and to include their shares of registrable securities in this registration statement. If we propose to register for offer and sale any of our securities under the Securities Act on another registration statement, either for our own account or for the account of other securityholders, including pursuant to any stockholder-initiated demand registration, the 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

The holders of the registrable securities are entitled to certain Form S-3 registration rights. Holders of the registrable securities may request that we register for offer and sale their shares on Form S-3 if we are qualified to file a registration statement on Form S-3, subject to certain specified exceptions. Such request for registration on Form S-3 must cover securities anticipated to have an aggregate sale price, net of underwriting discounts and commission, in excess of \$5,000,000.

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 Certificate of Incorporation and Bylaws

Our certificate of incorporation and our bylaws 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.

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Undesignated preferred stock

As discussed above, our board of directors has 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 certificate of incorporation provides 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 bylaws provide that special meetings of the stockholders may be called only by the majority of 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 bylaws 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

Our board of directors is divided into three classes, one class of which is elected each year by our stockholders. The directors in each class serve three-year terms. A third party may be discouraged from making a tender offer or otherwise attempting to obtain control of us as it is more difficult and time-consuming for stockholders to replace a majority of the directors on a classified board.

No cumulative voting

Our certificate of incorporation and bylaws do not provide for 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 certificate of incorporation requires 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 certain provisions of our bylaws also requires approval by the holders of at least two-thirds of our outstanding capital stock entitled to vote generally in the election of directors.

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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.

These provisions of Delaware law and of our certificate of incorporation and bylaws 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.

Our certificate of incorporation 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 DGCL, our certificate of incorporation or our bylaws, any action or proceeding asserting a claim as to which the Delaware General Corporation Law confers jurisdiction upon the Court of Chancery of the State of Delaware or any action asserting a claim against us that is governed by the internal affairs doctrine, subject in each case to the Court of Chancery having personal jurisdiction over the parties named as defendants therein. The exclusive forum provision does not apply to suits brought to enforce any liability or duty created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction.

In addition, our certificate of incorporation provides that the U.S. federal district courts are the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. Our exclusive forum provision will not relieve us of our duties to comply with the federal securities laws and the rules and regulations thereunder, and our stockholders will not be deemed to have waived our compliance with these laws, rules and regulations. While the Delaware Supreme Court recently determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring such a claim arising under the Securities Act against us, our directors, officers, or other employees in a venue other than in the U.S. federal district courts. In such instance, we would expect to vigorously assert the validity and enforceability of the exclusive forum provisions of our certificate of incorporation, and this may require significant additional costs associated with resolving such action in other jurisdictions.

DESCRIPTION OF OUR DEBT SECURITIES

The debt securities will constitute either senior or subordinated debt of Twist Bioscience Corporation. The debt securities that are sold may be exchangeable for and/or convertible into shares of common stock or any of the other securities that may be sold under this prospectus. The debt securities will be issued under one or more separate indentures between us and a designated trustee. We will include in a prospectus supplement the specific terms of each series of senior or subordinated debt securities being offered, including the terms, if any, on which a series of senior or subordinated debt securities may be convertible into or exchangeable for other securities. In addition, the material terms of any indenture, which will govern the rights of the holders of our senior or subordinated debt securities will be set forth in the applicable prospectus supplement.

DESCRIPTION OF OUR WARRANTS

We may issue warrants to purchase our debt or equity securities or securities of third parties or other rights, including rights to receive payment in cash or securities based on the value, rate or price of one or more specified commodities, currencies, securities or indices, or any combination of the foregoing. Warrants may be issued independently or together with any other securities and may be attached to, or separate from, such securities. Each series of warrants will be issued under a separate warrant agreement to be entered into between us and a warrant agent. The terms of any warrants to be issued and a description of the material provisions of the applicable warrant agreement will be set forth in the applicable prospectus supplement.

DESCRIPTION OF OUR UNITS

As specified in the applicable prospectus supplement, we may issue units consisting of one or more shares of common stock, shares of preferred stock, debt securities or warrants or any combination of such securities.

PLAN OF DISTRIBUTION

We and any selling securityholder, as applicable, may offer and sell the securities being offered hereby in one or more of the following ways from time to time:

- to or through underwriters;
- on any national securities exchange or quotation service on which the securities may be listed or quoted at the time of sale;
- in the over-the-counter market;
- in transactions other than on these exchanges or systems or in the over-the-counter market;
- in “at the market offerings,” within the meaning of Rule 415(a)(4) of the Securities Act, to or through market makers or into an existing market for the securities;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- a combination of any of these methods of sale; and
- any other method permitted pursuant to applicable law.

We will identify the specific plan of distribution, including any underwriters, dealers, agents or other purchasers, persons or entities, and any applicable compensation, in a prospectus supplement, in an amendment to the registration statement of which this prospectus is a part, or in other filings we make with the SEC under the Exchange Act, which are incorporated by reference.

LEGAL MATTERS

Unless the applicable prospectus supplement indicates otherwise, the validity of the securities being offered by this prospectus will be passed upon by Orrick, Herrington & Sutcliffe LLP, San Francisco, California. Additional legal matters may be passed upon for us or any underwriters, dealers or agents by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The financial statements incorporated in this Prospectus by reference to the Annual Report on Form 10-K for the year ended September 30, 2019 have been so incorporated in reliance on the report 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 ADDITIONAL INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public at the SEC's website at www.sec.gov.

We have filed with the SEC a registration statement on Form S-3 relating to the securities covered by this prospectus. This prospectus is a part of the registration statement and does not contain all the information in the registration statement. Other documents establishing the terms of the offered securities are or may be filed as exhibits to the registration statement or documents incorporated by reference in the registration statement. Whenever a reference is made in this prospectus to a contract or other document of ours, the reference is only a summary and you should refer to the exhibits that are a part of the registration statement for a copy of the contract or other document. You may review a copy of the registration statement through the SEC's website, as provided above.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to “incorporate by reference” the information from other documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents instead of having to repeat the information in this prospectus. The information incorporated by reference is considered to be part of this prospectus, and later information that we file with the SEC will automatically update and supersede this information. We incorporate by reference the documents listed below and any future filings we make with the SEC under Sections 13(a), 13(c), 14, or 15(d) of the Exchange Act on or after the date of this prospectus (other than, in each case, documents or information deemed to have been furnished and not filed in accordance with SEC rules) until the termination of the registration statement of which this prospectus is a part:

- Our Annual Report on [Form 10-K](#) for the year ended September 30, 2019, as filed with the SEC on December 13, 2019;
- Our Quarterly Reports on Form 10-Q for the quarters ended December 31, 2019, and March 31, 2020, filed on [February 10, 2020](#), and [May 13, 2020](#), respectively;
- Our Current Reports on Form 8-K filed with the SEC on [October 25, 2019](#), [October 29, 2019](#), [December 18, 2019](#), [January 8, 2020](#), [January 13, 2020](#), [January 27, 2020](#), [February 6, 2020](#) (first report filed on such date under Items 1.01 and 9.01), [February 7, 2020](#), and [February 20, 2020](#) (in each case, except for information contained therein which is furnished rather than filed); and
- The description of our common stock contained in our registration statement on [Form 8-A](#), which was filed with the SEC on October 25, 2018, including any amendment or report filed for the purpose of updating such description.

Any statement contained in this prospectus, or in a document all or a portion of which is incorporated by reference, shall be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus, any applicable prospectus supplement and any related free writing prospectus or any document incorporated by reference modifies or supersedes such statement. Any such statement so modified or superseded shall not, except as so modified or superseded, constitute a part of this prospectus.

Upon request, we will provide, without charge, to each person, including any beneficial owner, to whom a copy of this prospectus is delivered a copy of the documents incorporated by reference into this prospectus. You may request a copy of these filings, and any exhibits we have specifically incorporated by reference as an exhibit in this prospectus, at no cost by writing or telephoning us at the following:

Twist Bioscience Corporation
681 Gateway Blvd.
South San Francisco, CA 94080
Telephone: (844) 362-8978

You may also access these documents, free of charge on the SEC’s website at www.sec.gov or on the “Investor Relations” page of our website at www.twistbioscience.com. Information contained on our website is not incorporated by reference into this prospectus, and you should not consider any information on, or that can be accessed from, our website as part of this prospectus or any accompanying prospectus supplement.

\$250,000,000



Common stock

Prospectus supplement

Joint book running managers

J.P. Morgan

Goldman Sachs & Co. LLC

Cowen

Evercore ISI

Lead manager

Baird

, 2020