

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

**FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

Twist Bioscience Corporation

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

46-2058888
(I.R.S. Employer
Identification Number)

681 Gateway Blvd.
South San Francisco, CA 94080
(800) 719-0671

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Emily M. Leproust, Ph.D.
President, Chief Executive Officer and Director
681 Gateway Blvd.
South San Francisco, CA 94080
(800) 719-0671

(Name, address, including zip code, and telephone number, including area code, of agent for service)

With copies to:

John V. Bautista, Esq.
William L. Hughes, Esq.
Orrick, Herrington & Sutcliffe LLP
405 Howard Street
San Francisco, CA 94105
(415) 773-5700

Mark Daniels, Esq.
Chief Legal Officer
Twist Bioscience Corporation
681 Gateway Blvd.
South San Francisco, CA 94080
(844) 362-8978

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this Registration Statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box:

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box:

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

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

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

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

Large accelerated filer <input type="checkbox"/>	Accelerated filer <input type="checkbox"/>
Non-accelerated filer <input checked="" type="checkbox"/>	Smaller reporting company <input checked="" type="checkbox"/>
	Emerging growth company <input checked="" type="checkbox"/>

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

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered(1)(2)	Amount to be Registered(3)(4)	Proposed Maximum Offering Price Per Security(3)(4)	Proposed Maximum Aggregate Offering Price(3)(4)	Amount of Registration Fee(5)
Common Stock, \$0.00001 par value per share				
Preferred Stock, \$0.00001 par value per share				
Debt Securities				
Warrants				
Units				

- (1) Any securities registered hereunder may be sold separately or as units with other securities registered hereunder.
- (2) Subject to note (1), an indeterminate principal amount of these securities may be senior or subordinated.
- (3) Omitted pursuant to Form S-3 General Instruction I.E.
- (4) An indeterminate aggregate initial offering price or number of securities of each identified class is being registered as may from time to time be issued at indeterminate prices, including securities that may be issued upon an exercise, conversion or exchange of other securities issued directly or on settlement of contracts or other agreements. Separate consideration may or may not be received for securities that are issuable on exercise, conversion or exchange of other securities or that are issued pursuant to contracts or other agreements or in units.
- (5) In accordance with Rule 456(b) and Rule 457(r), the Registrant is deferring payment of the entire registration fee.

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.

PART II INFORMATION NOT REQUIRED IN THE PROSPECTUS**Item 14. Other Expenses of Issuance and Distribution.**

The following table sets forth the estimated costs and expenses, other than underwriting discounts and commissions, in connection with the issuance and distribution of the securities registered hereby.

	Amount to be Paid
SEC registration fee	\$ *
FINRA filing fee	225,500
Accounting fees and expenses	**
Legal fees and expenses (including Blue Sky fees)	**
Transfer agent, trustee and warrant agent fees and expenses	**
Printing fees	**
Miscellaneous	**
Total	<u>\$ **</u>

* In accordance with Rules 456(b) and 457(r) of the Securities Act, we are deferring payment of the registration fee for the securities offered.

** These fees and expenses depend on the securities offered and the number of issuances and accordingly cannot be estimated at this time and will be provided as applicable by amendment or in a filing with the SEC pursuant to the Exchange Act and incorporated herein by reference.

Item 15. Indemnification of Directors and Officers.

Section 145 of the Delaware General Corporation Law authorizes a court to award, or a corporation's board of directors to grant, indemnity to directors and officers in terms sufficiently broad to permit such indemnification under certain circumstances for liabilities (including reimbursement for expenses incurred) arising under the Securities Act. Article VII of our amended and restated certificate of incorporation and Article VI of our amended and restated bylaws provide for indemnification of our directors, officers, employees and other agents to the maximum extent permitted by the Delaware General Corporation Law. In addition, we have entered into indemnification agreements with our officers and directors, whereby we have agreed to indemnify our directors and officers to the fullest extent permitted by law. These indemnification agreements also generally require us to advance any expenses incurred by the directors or officers as a result of any proceeding against them as to which they could be indemnified. In addition, we have purchased a policy of directors' and officers' liability insurance that insures our directors and officers against the cost of defense, settlement or payment of a judgment in some circumstances. The underwriters will be obligated, under certain circumstances, pursuant to any underwriting agreements we enter into in connection with the sale of any securities being registered hereby, to indemnify us and our officers and directors against certain liabilities under the Securities Act.

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Item 16. Exhibits.

<u>Exhibit Number</u>	<u>Exhibit Title</u>
1.1*	Form of Underwriting Agreement
4.1	<u>Amended and Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.1 of the Registrant's Current Report on Form 8-K filed with the Commission on November 7, 2018)</u>
4.2	<u>Amended and Restated Bylaws of the Registrant (incorporated by reference to Exhibit 3.2 of the Registrant's Current Report on Form 8-K filed with the Commission on November 7, 2018)</u>
4.3	<u>Form of Common Stock Certificate of the Registrant (incorporated by reference to Exhibit 4.1 of the Registrant's Amendment to the Registration Statement on Form S-1, filed with the Commission on October 17, 2018)</u>
4.4	<u>Amended and Restated Registration Rights Agreement by and among the Registrant and certain holders of its capital stock dated March 19, 2018 (incorporated by reference to Exhibit 4.3 of the Registrant's Amendment to the Registration Statement on Form S-1, filed with the Commission on October 17, 2018)</u>
4.5*	Form of any certificate of designation with respect to any preferred stock issued hereunder and the related form of preferred stock certificate
4.6*	Form of any warrant agreement with respect to each particular series of warrants issued hereunder
4.7*	Form of any unit agreement with respect to any unit issued hereunder
4.8	<u>Form of Senior Indenture (incorporated by reference to Exhibit 4.5 of the Registrant's Registration Statement on Form S-3 filed with the Commission on November 6, 2019)</u>
4.9	<u>Form of Subordinated Indenture (incorporated by reference to Exhibit 4.6 of the Registrant's Registration Statement on Form S-3 filed with the Commission on November 6, 2019)</u>
4.10*	Form of senior note
4.11*	Form of subordinated note
5.1	<u>Opinion of Orrick, Herrington & Sutcliffe LLP</u>
23.1	<u>Consent of PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firm</u>
23.2	<u>Consent of Orrick, Herrington & Sutcliffe LLP (included in Exhibit 5.1)</u>
24.1	<u>Power of Attorney (included on signature page)</u>
25.1**	Form T-1 Statement of Eligibility of Trustee for Senior Indenture under the Trust Indenture Act of 1939, as amended
25.2**	Form T-1 Statement of Eligibility of Trustee for Subordinated Indenture under the Trust Indenture Act of 1939, as amended

* To be filed, if necessary, subsequent to the effectiveness of this registration by an amendment to this registration statement or incorporation by reference pursuant to a Current Report on Form 8-K in connection with an offering of securities.

** To be filed as an exhibit to a Current Report on Form 8-K or pursuant to Section 305(b)(2) of the Trust Indenture Act of 1939 and incorporated herein by reference.

Item 17. Undertakings.

The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in the volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (1)(i), (1)(ii) and (1)(iii) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to Section 13 or Section 15(d) of the Exchange Act that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.
- (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act to any purchaser:
 - (A) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
 - (B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

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- (5) That, for the purpose of determining liability of the registrant under the Securities Act to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:
 - (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
 - (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
 - (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
 - (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.
- (6) That, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (7) To file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act in accordance with the rules and regulations prescribed by the SEC under Section 305(b)(2) of the Trust Indenture Act.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of South San Francisco, State of California, on June 3, 2020.

TWIST BIOSCIENCE CORPORATION

By: /s/ Emily M. Leproust, Ph.D.
Emily M. Leproust, Ph.D.
President, Chief Executive Officer and Director

Each person whose signature appears below hereby constitutes and appoints Emily M. Leproust, Ph.D., James M. Thorburn and Mark Daniels and each of them, his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) and supplements to this registration statement, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, and hereby grants to such attorneys-in-fact and agents, full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or either of them, or their or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

<u>Name</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Emily M. Leproust, Ph.D.</u> Emily M. Leproust, Ph.D.	President, Chief Executive Officer and Director (Principal Executive Officer)	June 3, 2020
<u>/s/ James M. Thorburn</u> James M. Thorburn	Chief Financial Officer (Principal Financial and Accounting Officer)	June 3, 2020
<u>/s/ William Banyai, Ph.D.</u> William Banyai, Ph.D.	Director	June 3, 2020
<u>/s/ Nicolas Barthelemy</u> Nicolas Barthelemy	Director	June 3, 2020
<u>/s/ Nelson C. Chan</u> Nelson C. Chan	Director	June 3, 2020
<u>/s/ Robert Chess</u> Robert Chess	Director	June 3, 2020
<u>/s/ Keith Crandell</u> Keith Crandell	Director	June 3, 2020

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<u>Name</u>	<u>Title</u>	<u>Date</u>
<hr/> <i>/s/ Jan Johannessen</i> Jan Johannessen	Director	June 3, 2020
<hr/> <i>/s/ Xiaoying Mai</i> Xiaoying Mai	Director	June 3, 2020
<hr/> <i>/s/ Robert Ragusa</i> Robert Ragusa	Director	June 3, 2020

**Orrick, Herrington & Sutcliffe LLP**

The Orrick Building
405 Howard Street
San Francisco, CA 94105-2669

+1-415-773-5700

orrick.com

June 3, 2020

Twist Bioscience Corporation
681 Gateway Blvd
South San Francisco, CA 94080

Re: Twist Bioscience Corporation
Registration Statement on Form S-3

Ladies and Gentlemen:

At your request, we have examined the Registration Statement on Form S-3 (the "Registration Statement"), filed with the Securities and Exchange Commission (the "Commission") relating to the offering from time to time, pursuant to Rule 415 of the General Rules and Regulations of the Commission promulgated under the Securities Act of 1933, as amended (the "Securities Act"), by Twist Bioscience Corporation, a Delaware corporation (the "Company"), of the following securities in an indeterminate amount: (i) common stock of the Company, \$0.00001 par value per share ("Common Stock"), including Common Stock that may be issued upon conversion of the Debt Securities (as defined below) or the exercise of Warrants (as defined below); (ii) preferred stock of the Company, \$0.00001 par value per share ("Preferred Stock"), including Preferred Stock that may be issued upon conversion of the Debt Securities or the exercise of Warrants; (iii) senior debt securities of the Company ("Senior Debt Securities"); (iv) subordinated debt securities of the Company ("Subordinated Debt Securities" and, together with the Senior Debt Securities, "Debt Securities"); (v) warrants to purchase Common Stock, Preferred Stock or Debt Securities or other securities, currencies or commodities ("Warrants"); and (vi) units consisting of Common Stock, Preferred Stock, Debt Securities or Warrants, in any combination ("Units").

The offering of Common Stock, Preferred Stock, Debt Securities, Warrants and Units (collectively, the "Securities") will be as set forth in the prospectus contained in the Registration Statement (the "Prospectus"), as supplemented by one or more supplements to the Prospectus (each, a "Prospectus Supplement"). The Senior Debt Securities will be issued pursuant to an indenture between the Company and a trustee to be appointed in the future (a "Trustee") in the form filed as Exhibit 4.8 to the Registration Statement, as such indenture may be supplemented from time to time (the "Senior Indenture"). The Subordinated Debt Securities will be issued pursuant to an indenture between the Company and a Trustee in the form filed as Exhibit 4.9 to the Registration Statement, as such indenture may be supplemented from time to time (the "Subordinated Indenture").

We have examined the originals, or copies identified to our satisfaction, of such corporate records of the Company, certificates of public officials, officers of the Company and other persons, and such other documents, agreements and instruments as we have deemed relevant and necessary for the basis of our

opinions hereinafter expressed. In such examination, we have assumed the following: (a) the authenticity of original documents and the genuineness of all signatures; (b) the conformity to the originals of all documents submitted to us as copies; (c) the legal competence of all signatories to such documents; and (d) the truth, accuracy and completeness of the information, representations and warranties contained in the records, documents, instruments and certificates we have reviewed.

Based on and subject to the foregoing, and assuming that: (i) the Registration Statement and any amendments thereto (including post-effective amendments) will have become effective and comply with all applicable laws; (ii) the Registration Statement will be effective and will comply with all applicable laws at the time the Securities are offered or issued as contemplated by the Registration Statement; (iii) one or more Prospectus Supplements will have been prepared and filed with the Commission describing the Securities offered thereby and will comply with all applicable laws; (iv) the Board of Directors of the Company, or a duly authorized committee thereof, shall have taken such action as may be necessary to authorize the issuance and sale of such Securities, and if applicable, establish the relative rights and preferences of such Securities, or other terms of such Securities, in each case as set forth in or contemplated by the Registration Statement and any Prospectus Supplements relating to such Securities; (v) all Securities will be issued and sold in compliance with applicable federal and state securities laws and in the manner stated in the Registration Statement and the appropriate Prospectus Supplement; (vi) a definitive purchase, underwriting, or similar agreement with respect to any Securities offered or issued will have been duly authorized and validly executed and delivered by the Company and the other parties thereto; (vii) any Securities issuable upon conversion, exchange, or exercise of any Security being offered or issued will be duly authorized, created, and, if appropriate, reserved for issuance upon such conversion, exchange, or exercise; (viii) there shall not have occurred any change in law affecting the legality or enforceability of such Security; and (ix) none of the terms of any Security to be established subsequent to the date hereof, nor the issuance and delivery of such Security, nor the compliance by the Company with the terms thereof, will violate any applicable law or will result in a violation of any provision of any instrument or agreement then binding upon the Company, or any restriction imposed by any court or governmental body having jurisdiction over the Company, we are of opinion that:

1. The Common Stock will be validly issued, fully paid and nonassessable at such time as: (a) the terms of the issuance and sale of the Common Stock have been duly authorized by appropriate action of the Company; and (b) the Common Stock has been duly issued and sold as contemplated by the Registration Statement, the Prospectus and any Prospectus Supplement relating thereto.

2. The Preferred Stock will be validly issued, fully paid and nonassessable at such time as: (a) the terms of the issuance and sale of the Preferred Stock have been duly authorized by appropriate action of the Company; (b) a statement with respect to the shares establishing the Preferred Stock shall have been filed with the Secretary of State of the State of Delaware in the form and manner required by law; and (c) the Preferred Stock has been duly issued and sold as contemplated by the Registration Statement, the Prospectus and any Prospectus Supplement relating thereto.

3. The Senior Debt Securities (including any Senior Debt Securities duly issued upon the exchange or conversion of any Senior Debt Securities that are exchangeable or convertible into another series of Senior Debt Securities) will constitute valid and binding obligations of the Company at such time as: (a) the Senior Indenture, in substantially the form filed as an exhibit to the Registration Statement, has been duly authorized, executed and delivered by the Company and the Trustee; (b) the Trustee is qualified to act as trustee under the Senior Indenture; (c) the forms and the terms of the Senior Debt Securities and their issuance and sale have been approved by appropriate action of the Company, and the Senior Debt Securities have been duly executed and delivered by the Company and authenticated by the Trustee in accordance with the Senior Indenture or a supplemental indenture thereto; (d) the Senior Indenture has been duly qualified under the Trust Indenture Act of 1939, as amended (the "TIA"); and (e) the Senior Debt Securities have been issued and sold as contemplated by the Registration Statement, the Prospectus and any Prospectus Supplement relating thereto and the Senior Indenture or a supplemental indenture thereto.

4. The Subordinated Debt Securities (including any Subordinated Debt Securities duly issued upon the exchange or conversion of any Subordinated Debt Securities that are exchangeable or convertible into another series of Subordinated Debt Securities) will constitute valid and binding obligations of the Company at such time as: (a) the Subordinated Indenture, in substantially the form filed as an exhibit to the Registration Statement, has been duly authorized, executed and delivered by the Company and the Trustee; (b) the Trustee is qualified to act as trustee under the Subordinated Indenture; (c) the forms and the terms of the Subordinated Debt Securities and their issuance and sale have been approved by appropriate action of the Company, and the Subordinated Debt Securities have been duly executed and delivered by the Company and authenticated by the Trustee in accordance with the Subordinated Indenture or a supplemental indenture thereto; (d) the Subordinated Indenture has been duly qualified under the TIA; and (e) the Subordinated Debt Securities have been issued and sold as contemplated by the Registration Statement, the Prospectus and any Prospectus Supplement relating thereto and the Subordinated Indenture or a supplemental indenture thereto.

5. The Warrants will constitute valid and binding obligations of the Company at such time as: (a) the warrant agreement relating to the Warrants has been duly authorized, executed and delivered by the Company and the applicable warrant agent; (b) the forms and the terms of the Warrants and their issuance and sale have been approved by appropriate action of the Company, and the Warrants have been duly executed and delivered by the Company and authenticated by the applicable warrant agent in accordance with the applicable warrant agreement; and (c) the Warrants have been issued and sold as contemplated by the Registration Statement, the Prospectus and any Prospectus Supplement relating thereto and the applicable warrant agreement.

6. The Units will constitute valid and binding obligations of the Company at such time as: (a) the terms of the Units (including the Securities underlying the Units) and their issuance and sale have been approved by appropriate action of the Company, and the Units (and the Securities underlying the Units) have been duly executed and delivered by the Company and authenticated by the applicable units agent

Twist Bioscience Corporation
June 3, 2020
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in accordance with the applicable units agreement; (b) the units agreement relating to the Units has been duly authorized, executed and delivered by the Company and the applicable units agent; and (c) the Units have been issued and sold as contemplated by the Registration Statement, the Prospectus and any Prospectus Supplement relating thereto and the applicable units agreement.

The opinions set forth in paragraphs (3) through (6) above are subject, as to enforcement, to (a) the effect of bankruptcy, insolvency, liquidation, receivership, moratorium, reorganization, fraudulent conveyance or similar laws relating to or affecting the rights of creditors generally; (b) general principles of equity, including, without limitation, concepts of materiality, reasonableness, good faith, fair dealing, and the rules governing the availability of specific performance or injunctive relief, whether enforcement is sought in a proceeding in equity or at law; and (c) provisions of law that require that a judgment for money damages rendered by a court in the United States be expressed only in United States dollars.

We express no opinion as to any laws other than the law of the State of New York with respect to the opinions set forth in paragraphs (3) through (6) above and the General Corporation Law of the State of Delaware with respect to the opinions set forth in paragraphs (1) and (2) above, and we express no opinion with respect to the applicability thereto, or the effect thereon, of the laws of any other jurisdiction or, in the case of Delaware, any other laws, or as to any matters of municipal law or the laws of any local agencies within any state.

We hereby consent to the reference to us under the heading "Legal Matters" in the Prospectus and to the filing of this opinion as Exhibit 5.1 to the Registration Statement. By giving this consent, we do not admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act and the rules and regulations promulgated thereunder.

Very truly yours,

/s/ Orrick, Herrington & Sutcliffe LLP

ORRICK, HERRINGTON & SUTCLIFFE LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this Registration Statement on Form S-3 of Twist Bioscience Corporation of our report dated December 12, 2019 relating to the financial statements, which appears in Twist Bioscience Corporation's Annual Report on Form 10-K for the year ended September 30, 2019. We also consent to the reference to us under the heading "Experts" in such Registration Statement.

/s/ PricewaterhouseCoopers LLP
San Jose, California
June 3, 2020