

The information in this preliminary prospectus supplement is not complete and may be changed. A registration statement relating to these securities has been filed with the Securities and Exchange Commission and is effective. This preliminary prospectus supplement and the accompanying prospectus are not an offer to sell these securities and they are not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to Completion
Dated June 24, 2020

**PRELIMINARY PROSPECTUS SUPPLEMENT
(to Prospectus dated June 24, 2020)**

\$125,000,000
and
6,824,992 Shares Offered by Selling Stockholder



Common Stock

We are offering \$125,000,000 of shares of our common stock, and Shire Human Genetic Therapies, Inc., which we refer to as the selling stockholder, is offering 6,824,992 shares of our common stock, pursuant to this prospectus supplement and the accompanying prospectus. We will not receive any proceeds from the sale of shares of common stock by the selling stockholder.

Our common stock is listed on the Nasdaq Global Select Market under the symbol "TBIO". The last reported sale price of our common stock on the Nasdaq Global Select Market on June 23, 2020 was \$23.87 per share.

Investing in our common stock involves risks. See "[Risk Factors](#)" beginning on page S-13 of this prospectus supplement and in the documents incorporated by reference into this prospectus supplement.

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

	Per Share	Total
Initial price to public	\$	\$
Underwriting discount(1)	\$	\$
Proceeds, before expenses, to us	\$	\$
Proceeds, before expenses, to the selling stockholder	\$	\$

(1) We refer you to "Underwriting" beginning on page S-26 of this prospectus supplement for additional information regarding underwriting compensation.

We have granted the underwriters a 30-day option to purchase up to an additional \$ of shares of our common stock from us at the public offering price, less the underwriting discounts and commissions.

The underwriters expect to deliver the shares on or about , 2020.

Joint Book-Running Managers

Goldman Sachs & Co. LLC

SVB Leerink

Evercore ISI

Co-Lead Managers

H.C. Wainwright & Co.

Roth Capital Partners

Prospectus Supplement dated , 2020

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About This Prospectus Supplement

This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of this common stock offering and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference herein. The second part, the accompanying prospectus, provides additional information. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement and the information contained in the accompanying prospectus or any document incorporated by reference therein filed prior to the date of this prospectus supplement, you should rely on the information in this prospectus supplement; provided that if any statement in one of these documents is inconsistent with a statement in another document having a later date—for example, a document incorporated by reference in the accompanying prospectus—the statement in the document having the later date modifies or supersedes the earlier statement.

We further note that the representations, warranties and covenants made by us 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 or 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.

Neither we nor the underwriters or the selling stockholder have authorized anyone to provide any information other than that contained or incorporated by reference into this prospectus supplement, the accompanying prospectus or in any free writing prospectus prepared by or on behalf of us or to which we have referred you. We, the underwriters and the selling stockholder take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus supplement and the accompanying prospectus do not constitute an offer to sell, or a solicitation of an offer to purchase, the securities offered by this prospectus supplement and the accompanying prospectus in any jurisdiction to or from any person to whom or from whom it is unlawful to make such offer or solicitation of an offer in such jurisdiction. The information contained in this prospectus supplement or the accompanying prospectus, or incorporated by reference herein or therein is accurate only as of the respective dates thereof, regardless of the time of delivery of this prospectus supplement and the accompanying prospectus or of any sale of our common stock. It is important for you to read and consider all information contained in this prospectus supplement and the accompanying prospectus, including the documents incorporated by reference herein and therein, in making your investment decision. You should also read and consider the information in the documents to which we have referred you in the sections entitled “Where You Can Find More Information” and “Incorporation of Certain Information by Reference” in this prospectus supplement and in the accompanying prospectus.

We and the selling stockholder are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and the accompanying prospectus and the offering of the common stock in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement and the accompanying prospectus must inform themselves about, and observe any restrictions relating to, the offering of the common stock and the distribution of this prospectus supplement and the accompanying prospectus outside the United States. This prospectus supplement and the accompanying prospectus do not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement and the accompanying prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

Unless the context otherwise indicates, references in this prospectus to “we,” “our” and “us” refer, collectively, to Translate Bio, Inc., a Delaware corporation, and its consolidated subsidiaries.

Prospectus Supplement Summary

This summary highlights selected information contained elsewhere in this prospectus supplement and the accompanying prospectus and in the documents we incorporate by reference herein and therein. This summary does not contain all of the information you should consider before investing in our common stock. You should read this entire prospectus supplement and accompanying prospectus carefully, especially the risks of investing in our common stock discussed under "Risk Factors" beginning on page S-13 of this prospectus supplement and in our Annual Report on Form 10-K for the year ended December 31, 2019 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, along with our consolidated financial statements and notes to those consolidated financial statements and the other information incorporated by reference into this prospectus supplement and the accompanying prospectus, before making an investment decision.

Company Overview

We are a clinical-stage messenger RNA, or mRNA, therapeutics company developing a new class of potentially transformative medicines to treat diseases caused by protein or gene dysfunction. Using our proprietary mRNA therapeutic platform, or MRT platform, we create mRNA that encodes functional proteins. Our mRNA is designed to be delivered to the target cell where the cell's own machinery recognizes it and translates it, restoring or augmenting protein function to treat or prevent disease. We believe that the mRNA design, delivery and manufacturing capabilities of our MRT platform provide us with the most advanced platform for developing product candidates that deliver mRNA encoding functional proteins for therapeutic uses. We believe that our MRT platform is broadly applicable across multiple diseases in which the production of a desirable protein can have a therapeutic effect, with the potential to transform life-threatening illnesses into manageable chronic conditions. We are primarily focused on applying our MRT platform to treat pulmonary diseases caused by insufficient protein production or where production of proteins can modify disease. We also believe our technology is applicable to a broad range of diseases, including diseases that affect the liver. Additionally, we believe that our MRT platform may be applied to produce various classes of treatments, such as therapeutic antibodies or vaccines in areas such as infectious disease and oncology.

We are developing an MRT product candidate, MRT5005, for the treatment of cystic fibrosis, or CF. We believe MRT5005 is the first clinical-stage mRNA product candidate designed to deliver mRNA encoding fully functional cystic fibrosis transmembrane conductance regulator, or CFTR, protein to the lung. We have designed MRT5005 to be inhaled via a handheld nebulizer and to be administered in a once-weekly dose. Once the inhaled MRT5005 has entered the epithelial cells lining the patient's lungs, our therapeutic mRNA uses the cells' own machinery for translation and expression of fully functional CFTR protein, thereby restoring this essential ion channel, which we believe will address the pathology of CF directly. Currently approved CFTR modulating therapies are limited to patients with specific genetic mutations; therefore, there remains a significant unmet medical need for patients with CF who have genetic mutations non-amenable to currently approved CFTR modulating therapies. Additionally, patients treated with these current therapies still suffer from a long-term decline in lung function and exacerbations that require hospitalization. MRT5005 is being developed to treat the underlying cause of CF, regardless of the specific genetic mutation, including in patients with limited or no CFTR protein. The U.S. Food and Drug Administration, or FDA, has granted orphan drug designation, fast track designation and rare pediatric disease designation for MRT5005 for the treatment of CF.

We are conducting a Phase 1/2 clinical trial to evaluate the safety and tolerability of MRT5005. Percent predicted forced expiratory volume in one second, or ppFEV₁, which is a well-defined and

accepted endpoint measuring lung function, is also being measured at pre-defined timepoints throughout the trial. In April 2019, we completed dosing of patients in the single-ascending dose, or SAD, portion of the Phase 1/2 clinical trial and in July 2019, we reported interim data from the SAD portion of the clinical trial through one-month follow-up post-dosing. MRT5005 was generally well-tolerated at low and mid-dose levels with no serious adverse events reported at any dose level. Marked increases in ppFEV₁ were observed after a single dose of MRT5005, primarily at the mid-dose level. Based on the analysis of the interim results, we have amended the clinical trial protocol to include one additional SAD dose group and two additional dose groups in the ongoing multiple-ascending dose, or MAD, portion of this trial. We began dosing patients in the MAD portion of this trial in early 2019. We had previously provided guidance that we anticipated reporting interim data of the additional SAD dose group and the MAD portion of the clinical trial in the third quarter of 2020. In April 2020, we announced that enrollment and dosing have been paused in the ongoing Phase 1/2 clinical trial in patients with CF as a consequence of the response to the coronavirus disease, or COVID-19, pandemic. As a result of the ongoing delay, we no longer anticipate reporting data in the third quarter of 2020 and plan to provide updated timing on the expected interim data readout at a later date.

We are leveraging our lung delivery platform and focusing our preclinical research efforts on identifying lead product candidates for a next-generation CF program, as well as beyond CF into additional pulmonary diseases with unmet medical need. Building upon the MRT5005 program's success to date, we are exploring innovation in the MRT platform including novel lipid nanoparticles, protein engineering approaches and manufacturing process enhancements to identify next-generation CF candidates that can support expansion of our pipeline opportunities. Beyond CF, we have discovery efforts underway to identify lead product candidates in additional pulmonary diseases, including primary ciliary dyskinesia, or PCD, idiopathic pulmonary fibrosis, or IPF, and pulmonary arterial hypertension, or PAH.

We have also begun to explore ways to leverage our delivery platform and expertise to apply different modalities to diseases where the knock-down or degradation of a protein would lead to therapeutic benefit, including small interfering RNA, or siRNA, or biological protein degradation. For example, in IPF, we are conducting preclinical studies to evaluate the delivery of siRNA and the resulting knock-down effect of a specific target of interest.

Additionally, we intend to leverage the broad applicability of our platform through a collaboration with Sanofi Pasteur Inc., or Sanofi, the vaccines global business unit of Sanofi S.A., to develop infectious disease vaccines using our mRNA technology. We are conducting preclinical studies with a lead candidate for influenza from our vaccine programs to support an anticipated investigational new drug, or IND, filing mid-year 2021. Preclinical studies are ongoing for the other two identified targets, of which one is a viral pathogen and one is a bacterial pathogen. As part of the ongoing vaccine development program, comprehensive *in vivo* studies have been conducted across several infectious disease targets. Multiple development candidates were evaluated against distinct pathogens, all of which were well tolerated across all species tested. Multiple antigens were tested with all demonstrating robust neutralization titers. See "Recent Developments—Amendments to Collaboration with Sanofi" for a discussion of the amendments to the collaboration with Sanofi.

The successful development of our product candidates will require, among other things, our mRNA manufacturing capabilities. To date, we have established 100-gram single-batch production with our clinical-stage mRNA therapeutics platform. Build-out is underway of dedicated manufacturing space through a contract manufacturing partner, which has the potential to accommodate multiple 250-gram batches per month upon continued investments and third-party supplier arrangements. As it relates to development of a COVID-19 vaccine, depending on the final human COVID-19 vaccine

dose, we estimate that we could have manufacturing capacity to produce 90-360 million doses annually by the first half of 2021. We plan to further expand our mRNA manufacturing capabilities to increase production capacity, and will need to work with raw material and other third-party suppliers to achieve this goal.

Since our inception in 2011, we have devoted substantially all of our focus and financial resources to organizing and staffing our company, business planning, raising capital, acquiring or discovering product candidates and securing related intellectual property rights and conducting discovery, research and development activities for our programs. We do not have any products approved for sale and have not generated any revenue from product sales.

Our Strategy

Our goal is to continue building a leading, global mRNA therapeutics company that capitalizes on our extensive experience with proprietary mRNA product development, delivery, manufacturing and process development. Our proprietary MRT platform has enabled us to focus on direct therapeutic approaches to treat specific genetic diseases with significant unmet medical need. We are leveraging our platform's broad applicability and believe that MRT5005, our first-in-class product candidate for the treatment of CF, has the potential to transform this debilitating and life-threatening illness into a manageable chronic condition with an improved quality of life.

The key components of our strategy to achieve our goal include:

- Rapidly advance MRT5005 through clinical development as a first-in-class treatment to provide mRNA encoding the fully functional CFTR protein initially in patients with CF who are considered non-amenable to currently approved CFTR modulators with the potential to pursue future clinical development in all patients with CF, regardless of the specific genetic mutation.
- Continue research and development activities to advance mRNA vaccines through our collaboration with Sanofi.
- Focus primarily on identifying product candidates for additional pulmonary diseases caused by insufficient protein production or where the reduction of proteins can modify disease through use of our lung delivery platform.
- Develop additional product candidates that address diseases with significant unmet medical need in which the production of a desirable protein can have a therapeutics effect, or that could be applied to produce therapeutic antibodies and vaccines in areas such as infectious disease and oncology.
- Continue to develop next-generation delivery technologies for further applications in lung and liver diseases, as well as in vaccine applications.
- Explore opportunities to collaborate where potential partners may add strategic value to our platform or programs.
- Develop deep and active relationships with patient advocacy groups in order to better understand the needs of patients to optimize our treatment approaches and also to identify patients that could potentially benefit from our MRT product candidates, if approved.
- Seek strategic acquisitions or in-licenses of technology or assets that may complement our proprietary MRT platform and programs.
- Continue to invest in our MRT platform and further build out our manufacturing capabilities.

- Strengthen and protect our intellectual property and scientific and technical know-how.
- Maintain the flexibility to develop and potentially commercialize products ourselves.

Recent Developments

Amendments to Collaboration with Sanofi

On March 26, 2020, we amended our collaboration with Sanofi to include the development of an mRNA vaccine for SARS-CoV-2 as an additional infectious disease pathogen. Multiple COVID-19 vaccine candidates are being evaluated in vivo for immunogenicity and neutralizing antibody activity to support lead candidate selection with the goal to be initiating a first-in-human clinical trial in the fourth quarter of 2020. Assuming an accelerated development pathway due to the COVID-19 pandemic and successful completion of clinical studies demonstrating safety and efficacy, earliest approval of a vaccine from this program could occur in the second half of 2021.

On June 22, 2020, we entered into a second amendment to the collaboration and license agreement, or the Amendment, with Sanofi, which amended our previous collaboration and license agreement entered into between the parties as of June 8, 2018, as previously amended, or Agreement. The Amendment amends the Agreement to expand the scope of the collaboration and the licenses granted to Sanofi. The Amendment will become effective on the closing date, or the Effective Date, which will be three business days following receipt of clearance under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, assuming such clearance is received, referred to as the Antitrust Clearance.

Pursuant to the Amendment, we and Sanofi agreed to jointly conduct research and development activities to advance mRNA vaccines for up to seven infectious disease pathogens. The parties have agreed to extend the term of the collaboration until June 2022, referred to as the Collaboration Term, with an option for Sanofi to extend for one additional year. If Sanofi elects to so extend, the collaboration may be further expanded to develop mRNA vaccines for up to an additional three infectious disease pathogens. We have agreed with Sanofi to update collaboration plans and collaboration budgets for the collaboration activities.

Under the terms of the Amendment, we have agreed to expand the licenses granted under the Agreement to grant to Sanofi exclusive, worldwide licenses under applicable patents, patent applications, know-how and materials, including those arising under the collaboration, to develop, commercialize and manufacture mRNA vaccines to prevent, treat or cure diseases, disorders or conditions in humans caused by any infectious disease pathogens, with certain specified exceptions, referred to as Licensed Fields. As a result, the license option in the Agreement, under which Sanofi had an option to acquire licenses to additional pathogens, has been removed from the Agreement under the Amendment.

Pursuant to the Amendment, Sanofi agreed to concurrently enter into the securities purchase agreement further described below and to pay us an additional upfront payment of \$300.0 million within 10 business days after the Effective Date. If Sanofi chooses to exercise its option to extend the Collaboration Term for an additional year, Sanofi has agreed to pay us an additional \$75.0 million. The Agreement and the Amendment collectively provide that we are eligible to receive aggregate potential payments of up to \$1,940.0 million upon the achievement of additional specified development, regulatory, manufacturing and commercialization milestones. In particular, we are entitled to receive development, regulatory and sales milestone payments of up to \$148.0 million for each Licensed Field other than the SARS-CoV-2 Licensed Field, development, regulatory and sales milestone payments of up to \$250.0 million in the SARS-CoV-2 Licensed Field, and one-time manufacturing milestone

payments of up to \$200.0 million. Under the terms of the Amendment, Sanofi has also agreed to pay us royalties on net sales of mRNA vaccines in the SARS-CoV-2 Licensed Field in accordance with the terms of and at the same high single digits to low teens percentages set forth in the Agreement, except where such vaccines are provided as a donation or transferred to a third party without any profit margin.

In connection with the execution of the Amendment, we and Sanofi also entered into a supply agreement governing the terms of the supply of products by us. Pursuant to the supply agreement, we have agreed to use commercially reasonable efforts to manufacture and supply Sanofi with non-clinical and clinical supply of products and other research materials in certain Licensed Fields, as set forth in the Amendment. Under the Amendment, the parties have agreed to enter into a separate supply agreement, which is expected to be entered into this calendar year, for Phase 3 and commercial supply of products in the SARS-CoV-2 Licensed Field. Sanofi will pay us for the non-clinical and clinical supply at our cost to manufacture plus a specified markup.

The supply agreement provides that it will remain in effect until terminated in accordance with its terms. However, our obligation to manufacture and supply products is limited to a defined duration based on the Licensed Field of the applicable product, as set forth in the Amendment. The supply agreement may be terminated by the mutual consent of the parties. Sanofi may terminate the supply agreement for convenience after a specified notice period, or in the event that we do not provide the supply in a timely manner. We may terminate the supply agreement in the event of a breach by Sanofi of its payment obligations and such breach remains uncured for a specified period.

In connection with the execution of the Amendment, we and Sanofi also entered into a securities purchase agreement on June 22, 2020, referred to as the Signing Date, for the sale and issuance of 4,884,434 unregistered shares of common stock, or the Shares, to Sanofi at a price of \$25.59 per share, for an aggregate purchase price of approximately \$125.0 million.

The consummation of the transactions contemplated by the securities purchase agreement is subject to specified conditions, including: (i) the parties' obtaining Antitrust Clearance; (ii) the Amendment remaining in full force and effect; (iii) the registration rights agreement referred to below having been executed; (iv) no material adverse effect having occurred with respect to us; and (v) the satisfaction or waiver of other customary closing conditions. The parties have agreed to hold the closing, or the Closing, of the purchase and sale of the Shares no earlier than the second business day and no later than the fifth business day after the Antitrust Clearance.

The securities purchase agreement may be terminated upon the mutual consent of the parties. Either party may terminate the securities purchase agreement if the Closing has not occurred prior to December 19, 2020. Either party also may terminate the securities purchase agreement prior to the closing if specified conditions set forth therein become incapable of fulfillment and have not been waived by the other party.

In addition, pursuant to the terms of the securities purchase agreement, Sanofi will agree not to, without our prior written approval and subject to specified conditions, directly or indirectly acquire shares of our outstanding common stock, make a tender, exchange, or other offer to acquire shares of our outstanding common stock, solicit proxies or consents with respect to any matter, or undertake other specified actions related to the potential acquisition of additional equity interests in us, which we refer to as the Standstill Restrictions. Further, Sanofi will also agree not to, and to cause its affiliates not to, sell or transfer the Shares without our prior written approval, subject to specified conditions, which we refer to as the Lock-Up Restrictions. The Standstill Restrictions terminate 12 months after the Closing. The Lock-Up Restrictions terminate 18 months from the Closing.

As a condition to the Closing, we and Sanofi must also enter into a registration rights agreement providing Sanofi with certain registration rights with respect to the Shares. Pursuant to the terms of and subject to the conditions set forth in the Registration Rights Agreement, we have agreed to agree to provide Sanofi with certain registration rights, or the Registration Rights such that, promptly, but no later than 30 days, following the Closing, we have agreed to prepare and file with the SEC a registration statement covering the resale of the Shares. We have agreed to use commercially reasonable efforts to keep the registration statement effective until the date on which all Shares (i) are sold pursuant to a registration statement or Rule 144 under the Securities Act of 1933, as amended, or (ii) may be sold without restriction pursuant to Rule 144 under the Securities Act of 1933, as amended.

Business Impact of the COVID-19 Pandemic

The outbreak of a novel strain of virus named SARS-CoV-2 (severe acute respiratory syndrome 2), which causes COVID-19 has presented a substantial public health and economic challenge around the world and is affecting our employees, patients, communities and business operations, as well as the U.S. economy and financial markets. In April 2020, we announced that enrollment and dosing have been paused in our ongoing Phase 1/2 clinical trial in patients with cystic fibrosis, or CF, as a consequence of the response to the COVID-19 pandemic. As a result of the ongoing delay, we no longer anticipate reporting data in the third quarter of 2020 and plan to provide updated timing on the expected interim data readout at a later date. The full extent to which the COVID-19 pandemic will directly or indirectly impact our business, results of operations and financial condition will depend on future developments that are highly uncertain and cannot be accurately predicted, including new information that may emerge concerning COVID-19, the actions taken in an effort to contain it or to potentially treat or vaccinate against COVID-19 and the economic impact on local, regional, national and international markets. Management is actively monitoring this situation and the possible effects on our financial condition, liquidity, operations, suppliers, industry, and workforce. For additional information on risks posed by the COVID-19 pandemic, please see the risk factors included in our Quarterly Report on Form 10-Q for the quarter ended March 31, 2020.

Liquidity

Without giving effect to the payments that we expect to receive from Sanofi assuming Antitrust Clearance and the consummation of the transactions with Sanofi described above under “—Amendments to Collaboration with Sanofi”, which we refer to collectively as the Sanofi Transaction, and the anticipated net proceeds to us from this offering, the Company expects that its cash, cash equivalents and short-term investments of \$155.1 million as of March 31, 2020, together with the net proceeds of approximately \$36.6 million from issuances and sales of common stock pursuant to the Sales Agreement between March 30, 2020 and May 1, 2020, which transactions were settled between April 1, 2020 and May 5, 2020, will be sufficient to fund its operating expenses and capital expenditure requirements into the third quarter of 2021. As disclosed in our Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, which is incorporated by reference into this prospectus supplement, based on our recurring losses and cash outflows from operations since inception, expectation of continuing operating losses and cash outflows from operations for the foreseeable future and the need to raise additional capital to finance our future operations, we concluded that there is substantial doubt about our ability to continue as a going concern.

We believe that our existing cash, cash equivalents and short-term investments of \$155.1 million as of March 31, 2020, together with (i) the net proceeds of approximately \$36.6 million from the issuances and sales of 2,863,163 shares of common stock pursuant to our at-the-market offering facility after March 31, 2020, (ii) the payments that we expect to receive from the Sanofi Transaction,

and (iii) the anticipated net proceeds to us of \$ _____ from this offering, would enable us to fund our operating expenses and capital expenditure requirements for at least the next 36 months. However, we have based this estimate on assumptions that may prove to be wrong, and we could exhaust our available capital resources sooner than we expect. Moreover, we cannot assure you that we will receive Antitrust Clearance or satisfy the other conditions to closing the Sanofi Transaction or that we can close this offering. We will need substantial additional funding to support our continuing operations and pursue our growth strategy. We expect to finance our operations through the sale of equity, debt financings or other capital sources, including collaborations, strategic partnerships or marketing, distribution or licensing arrangements with third parties or grants from organizations and foundations, as well as proceeds from the Sanofi Transaction, assuming receipt of Antitrust Clearance and the satisfaction of other conditions to closing. We may not receive Antitrust Clearance or satisfy the other conditions to closing the Sanofi Transaction or otherwise raise additional funds or enter into such other agreements or arrangements when needed on favorable terms, or at all. If we are unable to obtain funding, we may be required to delay, reduce or eliminate our product development or future commercialization efforts, or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves, which could adversely affect our business prospects, and we may be unable to continue operations. For a further discussion, please refer to "Use of Proceeds."

Risks Associated with Our Business

Our business is subject to a number of risks of which you should be aware before making an investment decision. These risks are discussed more fully in the "Risk Factors" section of this prospectus supplement immediately following this prospectus supplement summary and in our Annual Report on Form 10-K for the year ended December 31, 2019 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, which are incorporated by reference herein. These risks include the following:

- The COVID-19 pandemic has adversely disrupted, and is expected to continue to adversely disrupt, our operations, including our ability to complete our ongoing clinical trials, and may have other adverse effects on our business and operations. In addition, this pandemic has caused substantial disruption in the financial markets and may adversely impact economies worldwide, both of which could result in adverse effects on our business, operations and ability to raise capital.
- The effectiveness of the amendment to the Sanofi Agreement and Sanofi's related equity investment in our company is subject to certain contingencies. Even if such transactions are consummated, we and Sanofi may not be successful in our joint efforts to successfully develop in an expedited timeframe an mRNA vaccine against SARS-CoV-2.
- The manufacture, scale, validation and production of a potential SARS-CoV-2 vaccine is complex and uncertain. We may encounter difficulties, and our ability to develop and provide a vaccine, if approved, could be delayed, interrupted or halted.
- We have incurred significant losses since inception. We expect to incur losses for at least the next several years and may never achieve or maintain profitability. As of March 31, 2020, we had an accumulated deficit of \$373.8 million and determined that there was substantial doubt about our ability to continue as a going concern within one year of the issuance date of our consolidated financial statements for the first quarter of 2020.
- We have identified conditions and events that raise substantial doubt about our ability to continue as a going concern.

- Our approach to the discovery and development of product candidates based on mRNA is unproven, and we do not know whether we will be able to successfully develop any products.
- In the near term, we are dependent on the success of MRT5005. If we are unable to complete satisfactorily the clinical development of, obtain marketing approval for or successfully commercialize MRT5005, either alone or with a future collaborator, or if we experience significant delays in doing so, our business would be substantially harmed.
- Clinical drug development is a lengthy and expensive process with uncertain timelines and uncertain outcomes.
- Our reliance on third parties to manufacture our product candidates and any future products increases the risk that we will not have sufficient quantities of our product candidates or products or such quantities at an acceptable cost, which could delay, prevent or impair our development or commercialization efforts.
- If we are unable to obtain and maintain patent protection for our products and technology, or if the scope of the patent protection obtained is not sufficiently broad or robust, our competitors could develop and commercialize products and technology similar or identical to ours, and our ability to successfully commercialize our products and technology may be adversely affected.
- Our rights to develop and commercialize our product candidates are subject, in part, to the terms and conditions of licenses granted to us by others, and, if we fail to comply with our obligations under these arrangements, we could lose such intellectual property rights or owe damages to the licensor of such intellectual property.
- The regulatory approval processes of the FDA, the European Medicines Agency and comparable foreign authorities are lengthy, time-consuming and inherently unpredictable, and if we are ultimately unable to obtain regulatory approval for our product candidates, our business will be substantially harmed.
- We face substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than we do.

Corporate Information

We are a Delaware corporation that was incorporated on November 10, 2016 under the name RaNA Therapeutics, Inc. On December 5, 2016, we completed a series of transactions, which we refer to as the “Reorganization,” pursuant to which RaNA Therapeutics, LLC, or RaNA LLC, became a direct, wholly owned subsidiary of RaNA Therapeutics, Inc., and all of the outstanding equity securities of RaNA LLC were exchanged for equity securities of RaNA Therapeutics, Inc. The purpose of the Reorganization was to reorganize our corporate structure so that our existing investors would own capital stock in a corporation rather than equity interests in a limited liability company. On June 26, 2017, we changed our name from RaNA Therapeutics, Inc. to Translate Bio, Inc. On December 19, 2017, RaNA LLC merged with and into Translate Bio, Inc., with Translate Bio, Inc. continuing as the surviving corporation.

Our principal executive offices are located at 29 Hartwell Avenue, Lexington, Massachusetts 02421, and our telephone number is (617) 945-7361. Our website address is <http://www.translate.bio>. The information contained on, or that can be accessed through, our website is not a part of this prospectus supplement. We have included our website address in this prospectus supplement solely as an inactive textual reference.

We own or have rights to trademarks, service marks and trade names that we use in connection with the operation of our business, including our corporate name, logos and website names.

Implications of Being an Emerging Growth Company and a Smaller Reporting Company

As a company with less than \$1.07 billion of revenue during our last fiscal year, we qualify as an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012. We may remain an emerging growth company until December 31, 2023, or until such earlier time as we have more than \$1.07 billion in annual revenue, the market value of our stock held by non-affiliates is more than \$700 million as of any June 30, in which case we would cease to be an “emerging growth company” as of the following January 1, or we issue more than \$1 billion of non-convertible debt over a three-year period. For so long as we remain an emerging growth company, we are permitted and intend to rely on exemptions from certain disclosure and other requirements that are applicable to other public companies that are not emerging growth companies.

We are also a “smaller reporting company,” meaning that the market value of our stock held by non-affiliates is less than \$700 million and our annual revenue was less than \$100 million during our most recently completed fiscal year. We may continue to be a smaller reporting company if either (i) the market value of our stock held by non-affiliates is less than \$250 million or (ii) our annual revenue was less than \$100 million during the most recently completed fiscal year and the market value of our stock held by non-affiliates is less than \$700 million. If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. For so long as we remain a smaller reporting company, we are permitted and intend to rely on exemptions from certain disclosure and other requirements that are applicable to other public companies that are not smaller reporting companies.

On June 23, 2020, the market value of our stock held by non-affiliates was greater than \$700 million. If the market value of our stock held by non-affiliates is greater than \$700 million as of June 30, 2020, we will cease to be either an emerging growth company or a smaller reporting company effective January 1, 2021, and will no longer be able to take advantage of the various reporting and other exemptions available to emerging growth companies and smaller reporting companies as of such date.

The Offering

Common stock offered by us	\$125.0 million of shares (or _____ shares if the underwriters exercise their option to purchase additional shares in full).
Common stock offered by the selling stockholder.	6,824,992 shares.
Common stock to be outstanding immediately after this offering	_____ shares (or _____ shares if the underwriters exercise their option to purchase additional shares in full).
Option to purchase additional shares	We have granted the underwriters an option for a period of 30 days from the date of this prospectus supplement to purchase up to an additional _____ shares of common stock.
Use of proceeds	<p>We estimate that the net proceeds to us from this offering, after deducting underwriting discounts and commissions and estimated offering expenses payable by us, will be approximately \$ _____ million, or \$ _____ million if the underwriters exercise their option to purchase additional shares in full.</p> <p>We intend to use the net proceeds to us from this offering (i) to advance the clinical development of our lead program for the treatment of patients with cystic fibrosis, (ii) to fund clinical development and drug discovery of our other pulmonary pipeline candidates and pursue additional lung targets, (iii) to fund clinical development of liver-targeted mRNA candidates, (iv) to continue to invest in our mRNA platform and manufacturing capabilities, and (v) for working capital and other general corporate purposes.</p> <p>We will not receive any proceeds from the sale of shares of common stock by the selling stockholder.</p> <p>See the "Use of Proceeds" section in this prospectus supplement for a more complete description of the intended use of proceeds from this offering.</p>
Risk factors	You should read the "Risk Factors" section of this prospectus supplement beginning on page S-13 and in our Annual Report on Form 10-K for the year ended December 31, 2019 and our Quarterly Report on Form 10-Q for the quarter

ended March 31, 2020 for a discussion of factors to consider carefully before deciding to invest in shares of our common stock.

Nasdaq Global Select Market symbol

TBIO

The number of shares of our common stock to be outstanding after this offering is based on 60,037,663 shares of our common stock outstanding as of March 31, 2020 and excludes:

- 10,983,227 shares of our common stock issuable upon the exercise of stock options outstanding as of March 31, 2020, at a weighted average exercise price of \$7.97 per share;
- 1,902,355 and 870,096 additional shares of our common stock available for future issuance as of March 31, 2020 under our 2018 Equity Incentive Plan and our 2018 Employee Stock Purchase Plan, respectively, as well as any automatic increases in the number of shares of common stock reserved under these plans;
- 2,863,163 shares of common stock issued pursuant to the Open Market Sale AgreementSM, or Sales Agreement, with Jefferies LLC after March 31, 2020; and
- 388,063 shares issued upon the exercise of stock options subsequent to March 31, 2020 at a weighted average exercise price of \$7.11 per share.

Unless otherwise indicated, all information in this prospectus supplement assumes:

- no exercise of the outstanding options described above;
- no sales of additional shares under the Sales Agreement; and
- no exercise by the underwriters of their option to purchase up to additional shares of our common stock.

The foregoing also excludes the 4,884,434 shares of common stock that we may issue and sell to Sanofi pursuant to the securities purchase agreement.

Risk Factors

Investing in our common stock involves a high degree of risk. Before you decide to invest in our common stock, you should carefully consider the risks and uncertainties described below and in our Annual Report on Form 10-K for the year ended December 31, 2019 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, together with all other information contained in this prospectus supplement, the accompanying prospectus and in our filings with the Securities and Exchange Commission, or SEC, that we have incorporated by reference into this prospectus supplement and the accompanying prospectus. If any of the following risks actually occurs, our business, prospects, operating results and financial condition could suffer materially. In such event, the trading price of our common stock could decline and you might lose all or part of your investment.

Risks Related to Our Common Stock and This Offering

Our executive officers, directors and principal stockholders maintain the ability to control all matters submitted to stockholders for approval.

We believe our executive officers, directors and stockholders which own more than 5% of our outstanding common stock, in the aggregate, beneficially own more than a majority of our capital stock. One of our directors is affiliated with a stockholder who beneficially owns more than 5% of our outstanding common stock. We also have one stockholder who holds approximately 29% of our outstanding common stock as of June 22, 2020. If these stockholders were to act together, they would be able to control all matters submitted to our stockholders for approval, as well as our management and business affairs. For example, these persons, if they act together, would control the election of directors and approval of any merger, consolidation or sale of all or substantially all of our assets. This concentration of voting power could delay or prevent an acquisition of our company on terms that other stockholders may desire or result in management of our company that other stockholders disagree with.

The trading price of our common stock has been, and is likely to continue to be highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control.

The stock market in general and the market for smaller pharmaceutical and biotechnology companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, you may not be able to sell your common stock at or above the public offering price and you may lose some or all of your investment.

If you purchase shares of common stock in this offering, you will suffer immediate dilution of your investment.

The price of our common stock to be sold in this offering is substantially higher than the pro forma as adjusted net tangible book value per share of our common stock. Therefore, if you purchase shares of our common stock in this offering, you will pay a price per share that substantially exceeds our pro forma as adjusted net tangible book value per share after this offering. Based on the public offering price of \$ _____ per share, you will experience immediate dilution of \$ _____ per share, representing the difference between our pro forma as adjusted net tangible book value per share after giving effect to this offering and the public offering price. To the extent outstanding options are exercised, you will incur further dilution. For additional information on the dilution that you will experience immediately after this offering, see the section titled "Dilution."

We have broad discretion in the use of the net proceeds from this offering and may invest or spend the proceeds in ways with which you do not agree and in ways that may not yield a return on your investment.

Although we currently intend to use the net proceeds to us from this offering in the manner described in the section titled “Use of Proceeds” in this prospectus supplement, our management will have broad discretion in the application of the net proceeds to us from this offering and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our common stock. You will not have the opportunity to influence our decisions on how to use our net proceeds to us from this offering. The failure by our management to apply these funds effectively could result in financial losses that could harm our business, cause the price of our common stock to decline and delay the development of our product candidates. Pending their use, we may invest the net proceeds to us from this offering in a manner that does not produce income or that loses value.

Because we do not anticipate paying any cash dividends on our capital stock in the foreseeable future, capital appreciation, if any, will be your sole source of gain.

We have never declared or paid cash dividends on our capital stock. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. As a result, capital appreciation, if any, of our common stock will be your sole source of gain for the foreseeable future, and investors seeking cash dividends should not purchase shares of our common stock.

Future sales and issuances of our common stock or rights to purchase common stock could result in additional dilution of the percentage ownership of our stockholders and could cause our stock price to fall.

We expect that significant additional capital will be needed in the future to continue our planned operations. To raise capital, we may sell common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time. For example, we intend to issue and sell to Sanofi 4,884,434 shares of common stock pursuant to the Sanofi Transaction, assuming receipt of Antitrust Clearance and the satisfaction of other conditions to closing. If we sell common stock, convertible securities or other equity securities in more than one transaction, investors may be materially diluted by subsequent sales. Such sales may also result in material dilution to our existing stockholders, and new investors could gain rights, preferences and privileges senior to those of holders of our common stock.

Cautionary Note Regarding Forward-Looking Statements and Industry Data

This prospectus supplement, the accompanying prospectus and 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, and Section 21E of the Securities Exchange Act of 1934, as amended, that involve substantial risks and uncertainties. All statements, other than statements of historical facts, contained in this prospectus supplement, the accompanying prospectus and the information incorporated by reference herein and therein, including statements regarding our strategy, future operations, future financial position, future revenue, projected costs, prospects, plans and objectives of management and expected market growth are forward-looking statements. The words “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “might,” “plan,” “potential,” “predict,” “project,” “should,” “target,” “would” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

These forward-looking statements in this prospectus supplement, the accompanying prospectus and the information incorporated by reference herein and therein include, among other things, statements about:

- the impacts of the ongoing COVID-19 pandemic;
- the initiation, timing, progress and results of our current and future preclinical studies and clinical trials and our research and development programs;
- our estimates regarding expenses, future revenue, capital requirements and need for additional financing;
- our plans to develop our product candidates;
- the timing of and our ability to submit applications for, obtain and maintain regulatory approvals for our product candidates;
- our ability to receive Antitrust Clearance and satisfy the conditions required to consummate the transaction with Sanofi, and our ongoing collaboration with Sanofi;
- our expectations regarding our ability to fund our operating expenses and capital expenditure requirements with our cash, cash equivalents and short-term investments, and the period in which we expect that such cash, cash equivalents and short-term investments will enable us to fund such operating expenses and capital expenditure requirements;
- our ability to continue as a going concern;
- the potential advantages of our product candidates;
- the rate and degree of market acceptance and clinical utility of our product candidates;
- our estimates regarding the potential market opportunity for our product candidates;
- our commercialization, marketing and manufacturing capabilities and strategy;
- our expectations regarding our ability to obtain and maintain intellectual property protection for our product candidates;
- our ability to identify additional products, product candidates or technologies with significant commercial potential that are consistent with our commercial objectives;
- the impact of government laws and regulations;
- our competitive position;
- developments relating to our competitors and our industry;

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- our expectations related to the use of proceeds from this offering;
- our ability to establish collaborations or obtain additional funding; and
- our expectations regarding the time during which we will be an emerging growth company or a smaller reporting company as defined under the federal securities laws.

We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. We have included important factors in the cautionary statements included in this prospectus supplement, particularly in the “Risk Factors” section, and in our Annual Report on Form 10-K for the year ended December 31, 2019 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, which are incorporated by reference herein, that could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, collaborations, joint ventures or investments that we may make or enter into.

You should read this prospectus supplement, the accompanying prospectus and the information incorporated by reference herein and therein completely and with the understanding that our actual future results may be materially different from what we expect. We do not assume any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

This prospectus supplement, the accompanying prospectus and the information incorporated by reference herein and therein include statistical and other industry and market data that we obtained from industry publications and research, surveys and studies conducted by third parties. All of the market data used in this prospectus supplement, the accompanying prospectus and the information incorporated by reference herein and therein involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such data. We believe that the information from these industry publications, surveys and studies is reliable. However, the industry in which we operate is subject to a high degree of uncertainty and risk due to a variety of important factors, including those described in the section titled “Risk Factors” in this prospectus supplement and in our Annual Report on Form 10-K for the year ended December 31, 2019 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2020. These and other factors could cause results to differ materially from those expressed in the estimates made by the independent parties and by us.

Use of Proceeds

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

We will not receive any of the proceeds from the sale of the shares of our common stock by the selling stockholder. However, we have agreed to pay expenses incurred by the selling stockholder in connection with the offering, other than the underwriting discounts and commissions.

We intend to use the net proceeds to us from this offering (i) to advance the clinical development of our lead program for the treatment of patients with cystic fibrosis, (ii) to fund clinical development and drug discovery of our other pulmonary pipeline candidates and pursue additional lung targets, (iii) to fund clinical development of liver-targeted mRNA candidates, (iv) to continue to invest in our mRNA platform and manufacturing capabilities, and (v) for working capital and other general corporate purposes.

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

Assuming the consummation of the transactions with Sanofi, we believe that our existing cash, cash equivalents and short-term investments of \$155.1 million as of March 31, 2020, together with (i) the net proceeds of approximately \$36.6 million from the issuances and sales of common stock pursuant to our at-the-market offering facility between April 1, 2020 and May 1, 2020, (ii) the payments that we expect to receive from the Sanofi transaction, and (iii) the anticipated net proceeds to us of \$ _____ from this offering would enable us to fund our operating expenses and capital expenditure requirements for at least the next 36 months. However, we have based this estimate on assumptions that may prove to be wrong, and we could exhaust our available capital resources sooner than we expect. Moreover, we cannot assure you that we will receive Antitrust Clearance or satisfy the other conditions to closing the Sanofi transaction or that we can close this offering.

We expect that the net proceeds to us from this offering, together with our \$155.1 million in existing cash, cash equivalents and short-term investments as of March 31, 2020 and the net proceeds of approximately \$36.6 million from the sales of our common stock pursuant to the Sales Agreement from April 1, 2020 to May 1, 2020, will be sufficient to fund our operating expenses and capital expenditure requirements for at least the next _____ months. We will require additional capital to advance MRT5005 through necessary clinical trials and complete the clinical development of MRT5005, commercialize MRT5005, if we receive regulatory approval, and pursue in-licenses or acquisitions of other product candidates, if any. Due to the numerous risks and uncertainties associated with product development, including the risks and uncertainties with respect to successful enrollment and completion of clinical trials, at this time, we cannot reasonably estimate the amount of additional funding that will be necessary to complete the clinical development of MRT5005 or any other product candidates. If we receive regulatory approval for MRT5005 or other product candidates, we will incur significant commercialization expenses related to product manufacturing, sales, marketing and distribution.

This expected use of the net proceeds to us from this offering, our \$155.1 million in existing cash, cash equivalents and short-term investments as of March 31, 2020 and the net proceeds of approximately \$36.6 million from the sales of our common stock pursuant to the Sales Agreement from April 1, 2020 to May 1, 2020, represents our intentions based upon our current plans and business conditions, which

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could change in the future as our plans and business conditions evolve. The amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including the progress of our development, the status of and results from clinical trials, the timing of regulatory submissions and the outcome of regulatory review, as well as any collaborations that we may enter into with third parties for our product candidates and any unforeseen cash needs. As a result, our management will retain broad discretion over the allocation of the net proceeds to us from this offering.

Without giving effect to the potential closing of the Sanofi Transaction and the anticipated net proceeds to us from this offering, the Company expects that its cash, cash equivalents and short-term investments of \$155.1 million as of March 31, 2020, together with the net proceeds of approximately \$36.6 million from issuances and sales of common stock pursuant to the Sales Agreement between March 30, 2020 and May 1, 2020, which transactions were settled between April 1, 2020 and May 5, 2020, will be sufficient to fund its operating expenses and capital expenditure requirements into the third quarter of 2021. As disclosed in our Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, which is incorporated by reference into this prospectus supplement, based on our recurring losses and cash outflows from operations since inception, expectation of continuing operating losses and cash outflows from operations for the foreseeable future and the need to raise additional capital to finance our future operations, we concluded that there is substantial doubt about our ability to continue as a going concern.

Dilution

If you invest in our common stock in this offering, your ownership interest will be diluted immediately to the extent of the difference between the public offering price per share you will pay in this offering and the pro forma as adjusted net tangible book value per share of our common stock after this offering.

Our historical net tangible book value as of March 31, 2020 was \$36.5 million, or \$0.61 per share of common stock. Our historical net tangible book value is the amount of our total tangible assets less our total liabilities. Historical net tangible book value per share represents our historical net tangible book value divided by the number of shares of our common stock outstanding as of March 31, 2020.

Our pro forma net tangible book value as of March 31, 2020 was \$73.1 million, or \$1.16 per share of common stock. Pro forma net tangible book value represents the amount of our total tangible assets less our total liabilities, after giving effect to the sale by us of 2,863,163 shares of common stock pursuant to the Sales Agreement between April 1, 2020 and May 1, 2020 for net proceeds of \$36.6 million. Pro forma net tangible book value per share represents pro forma net tangible book value divided by the total number of shares outstanding as of March 31, 2020, after giving effect to the pro forma adjustments described above.

After giving effect to the issuance and sale of _____ shares of common stock by us in this offering at the public offering price of \$ _____ per share, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of March 31, 2020 would have been \$ _____ million, or \$ _____ per share. This represents an immediate increase of \$ _____ in pro forma as adjusted net tangible book value per share to existing stockholders and immediate dilution of \$ _____ in pro forma as adjusted net tangible book value per share to investors purchasing shares of our common stock in this offering. Dilution per share to investors purchasing shares of our common stock in this offering is determined by subtracting pro forma as adjusted net tangible book value per share after this offering from the public offering price per share paid by investors purchasing shares of our common stock in this offering. The following table illustrates this dilution to the investors purchasing shares of our common stock in this offering without giving effect to any exercise by the underwriters of their option to purchase additional shares.

Public offering price per share		\$
Historical net tangible book value per share as of March 31, 2020	\$0.61	
Increase per share attributable to the pro forma adjustments described above	<u>0.55</u>	
Pro forma net tangible book value per share as of March 31, 2020	1.16	
Increase in pro forma as adjusted net tangible book value per share attributable to investors purchasing shares of our common stock in this offering		
Pro forma as adjusted net tangible book value per share after giving effect to this offering		\$
Dilution per share to investors purchasing shares of our common stock in this offering		<u>\$</u>

If the underwriters exercise their option to purchase up to _____ additional shares from us in full, the pro forma as adjusted net tangible book value will increase to \$ _____ per share, representing an immediate increase to existing stockholders of \$ _____ per share and immediate dilution of \$ _____ per share to investors purchasing shares of our common stock in this offering.

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The table above excludes:

- 10,983,227 shares of our common stock issuable upon the exercise of stock options outstanding as of March 31, 2020, at a weighted average exercise price of \$7.97 per share;
- 1,902,355 and 870,096 additional shares of our common stock available for future issuance as of March 31, 2020 under our 2018 Equity Incentive Plan and our 2018 Employee Stock Purchase Plan, respectively, as well as any automatic increases in the number of shares of common stock reserved under these plans; and
- 388,063 shares issued upon the exercise of stock options subsequent to March 31, 2020 at a weighted average exercise price of \$7.11 per share.

To the extent that stock options are exercised, new stock options are issued under our equity incentive plans, or we issue additional shares of common stock in the future, including pursuant to the Sales Agreement, there will be further dilution to investors participating in this offering.

Selling Stockholder

This prospectus supplement relates in part to the offering by Shire Human Genetic Therapies, Inc., which we refer to as the selling stockholder, of 6,824,992 shares of our common stock. The following table sets forth, based on information provided to us by the selling stockholder or known to us, the number of shares of our common stock beneficially owned by the selling stockholder before this offering and the maximum number of shares of our common stock to be offered by the selling stockholder pursuant to this prospectus supplement. The table also sets forth the number of shares of our common stock that will be beneficially owned by the selling stockholder, assuming the sale of all of the shares of common stock offered by the selling stockholder pursuant to this prospectus supplement.

The number of shares owned are those beneficially owned, as determined under the rules of the SEC, and the information is not necessarily indicative of beneficial ownership for any other purpose. Under these rules, beneficial ownership includes any shares of common stock as to which a person has sole or shared voting power or investment power and any shares of common stock which the person has the right to acquire within 60 days through the exercise of any option, warrant or right, through conversion of any security or pursuant to the automatic termination of a power of attorney or revocation of a trust, discretionary account or similar arrangement.

Because the selling stockholder may offer all or any portions of the shares of common stock listed in the table below, no estimate can be given as to the amount of those shares of common stock covered by this prospectus supplement that will be held by the selling stockholder upon the termination of the offering. The percent of shares beneficially owned by the selling stockholder prior to the offering is based on 60,037,663 shares of our common stock outstanding on March 31, 2020. The percentage of shares beneficially owned by the selling stockholders after the offering assumes the sale by us of \$125.0 million of shares of our common stock in the offering at an assumed public offering price of \$23.87 per share, the last reported sale price on the the Nasdaq Global Select Market on June 23, 2020.

Name of Selling Stockholder	Shares Beneficially Owned Prior to Offering		Number of Shares to be Sold	Shares Beneficially Owned After Offering	
	Shares	Percentage		Shares	Percentage
Shire Human Genetic Therapies, Inc.(1)	6,824,992	11.4%	6,824,992	0	*

* Less than one percent.

- (1) Consists of 6,824,992 shares of common stock held by the selling stockholder. These shares are owned directly by Shire Human Genetic Therapies, Inc., which is an indirect wholly owned subsidiary of Takeda Pharmaceutical Company Limited. Takeda Pharmaceutical Company Limited is an indirect beneficial owner of the reported securities.

Material U.S. Federal Income and Estate Tax Considerations for Non-U.S. Holders of our Common Stock

The following is a discussion of material U.S. federal income and estate tax considerations relating to ownership and disposition of our common stock by a non-U.S. holder. For purposes of this discussion, the term “non-U.S. holder” means a beneficial owner (other than a partnership or other pass-through entity) of our common stock that is not, for U.S. federal income tax purposes:

- an individual who is a citizen or resident of the United States;
- a corporation, or other entity treated as a corporation for U.S. federal income tax purposes, created or organized in or under the laws of the United States, any state thereof or the District of Columbia;
- an estate the income of which is subject to U.S. federal income taxation regardless of its source; or
- a trust, if a U.S. court is able to exercise primary supervision over the administration of the trust and one or more U.S. persons has authority to control all substantial decisions of the trust or if the trust has a valid election in effect to be treated as a U.S. person under applicable U.S. Treasury Regulations.

This discussion is based on current provisions of the U.S. Internal Revenue Code of 1986, as amended, which we refer to as the Code, existing and proposed U.S. Treasury Regulations promulgated thereunder, current administrative rulings, and judicial decisions, as in effect as of the date of this prospectus supplement and all of which are subject to change or to differing interpretation, possibly with retroactive effect. Any change or differing interpretation could alter the tax consequences to non-U.S. holders described in this prospectus supplement. In addition, there can be no assurance that the Internal Revenue Service, which we refer to as the IRS, will not challenge one or more of the tax consequences described in this prospectus supplement.

This discussion addresses only non-U.S. holders that hold shares of our common stock as a capital asset (generally, property held for investment). This discussion does not address all aspects of U.S. federal income and estate taxation that may be relevant to a particular non-U.S. holder in light of that non-U.S. holder’s individual circumstances nor does it address the alternative minimum tax, the Medicare tax on net investment income or any aspects of U.S. state, local, or non-U.S. taxes. This discussion also does not consider any specific facts or circumstances that may apply to a non-U.S. holder and does not address the special tax rules applicable to particular non-U.S. holders, such as:

- insurance companies;
- tax-exempt organizations and governmental organizations;
- financial institutions;
- brokers or dealers in securities;
- pension plans;
- controlled foreign corporations;
- passive foreign investment companies;
- persons who have elected to mark securities to market;
- owners that hold our common stock as part of a straddle, hedge, conversion transaction, synthetic security, or other integrated investment; and
- certain U.S. expatriates.

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In addition, this discussion does not address the tax treatment of partnerships (or entities or arrangements that are classified as partnerships for U.S. federal income tax purposes) or persons who hold their common stock through partnerships or other entities that are pass-through entities for U.S. federal income tax purposes. A partner in a partnership or other pass-through entity that will hold our common stock should consult his, her, or its own tax advisor regarding the tax consequences of the purchase, ownership, and disposition of our common stock through a partnership or other pass-through entity, as applicable.

Prospective investors should consult their own tax advisors regarding the U.S. federal, state, local, and non-U.S. income and other tax considerations of acquiring, holding, and disposing of our common stock.

Dividends

If we pay distributions on our common stock, those distributions generally 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. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder's investment, up to such holder's tax basis in the common stock. Any remaining excess will be treated as capital gain, subject to the tax treatment described below under the heading "—Gain on Disposition of Common Stock."

Subject to the discussions below regarding effectively connected income, backup withholding and provisions of the Code commonly referred to as the Foreign Account Tax Compliance Act, or FATCA, dividends paid to a non-U.S. holder generally will be subject to withholding of U.S. federal income tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence. A non-U.S. holder of our common stock who claims the benefit of an applicable income tax treaty between the United States and such holder's country of residence generally will be required to provide a properly executed IRS Form W-8BEN or W-8BEN-E (or successor form) and satisfy applicable certification and other requirements. This certification must be provided to us or our paying agent before the payment of dividends and must be updated periodically. A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim with the IRS.

Dividends that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States and, if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by the non-U.S. holder within the United States are generally exempt from the 30% withholding tax if the non-U.S. holder furnishes a valid IRS Form W-8ECI (or applicable successor form) to us or our paying agent and satisfies applicable certification and disclosure requirements. However, such U.S. effectively connected income is taxed on a net income basis at the same U.S. federal income tax rates applicable to United States persons (as defined in the Code). Any U.S. effectively connected income received by a non-U.S. holder that is a corporation may also, under certain circumstances, be subject to an additional "branch profits tax" at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence.

Non-U.S. holders are urged to consult their own tax advisors regarding their entitlement to benefits (or different rules) under an applicable income tax treaty.

Gain on Disposition of Common Stock

A non-U.S. holder generally will not be subject to U.S. federal income tax on gain recognized on a disposition of our common stock unless:

- the gain is effectively connected with the non-U.S. holder's conduct of a trade or business in the United States and, if an applicable income tax treaty so provides, the gain is attributable to a permanent establishment or fixed base maintained by the non-U.S. holder in the United States; in these cases, the non-U.S. holder will be taxed on a net income basis at the same U.S. federal income tax rates applicable to United States persons (as defined in the Code), and if the non-U.S. holder is a foreign corporation, an additional branch profits tax at a 30% rate, or such lower rate as may be specified by an applicable income tax treaty, may also apply;
- the non-U.S. holder is a nonresident alien present in the United States for 183 days or more in the taxable year of the disposition and certain other requirements are met, in which case the non-U.S. holder will be subject to a 30% tax (or such lower rate as may be specified by an applicable income tax treaty) on the net gain derived from the disposition, which may be offset by U.S.-source capital losses of the non-U.S. holder, if any; or
- we are, or have been at any time during the five-year period preceding such disposition (or the non-U.S. holder's holding period, if shorter), a "U.S. real property holding corporation," unless our common stock is regularly traded on an established securities market and the non-U.S. holder held no more than 5% of our outstanding common stock, directly or indirectly, during the shorter of the five year period ending on the date of the disposition or the period that the non-U.S. holder held our common stock. If we are determined to be a U.S. real property holding corporation and either our common stock is not regularly traded on an established securities market or a non-U.S. holder holds more than 5% of our outstanding common stock, directly or indirectly, during the applicable testing period, then the non-U.S. holder generally will be taxed on its net gain derived from the disposition at the U.S. federal income tax rates applicable to United States persons (as defined in the Code). Generally, a corporation is a "U.S. real property holding corporation" if the fair market value of its "U.S. real property interests" equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. Although there can be no assurance, we believe that we are not currently, and we do not anticipate becoming, a "U.S. real property holding corporation" for U.S. federal income tax purposes. No assurance can be provided that our common stock will be regularly traded on an established securities market for purposes of the rule described above.

Information Reporting and Backup Withholding

We must report annually to the IRS and to each non-U.S. holder the gross amount of the distributions on our common stock paid to such holder and the tax withheld, if any, with respect to such distributions. Non-U.S. holders may have to comply with specific certification procedures to establish that the holder is not a United States person (as defined in the Code) in order to avoid backup withholding at the applicable rate with respect to dividends on our common stock. Generally, a non-U.S. holder will comply with such procedures if it provides a properly executed IRS Form W-8BEN or W-8BEN-E (or other applicable Form W-8) or otherwise meets documentary evidence requirements for establishing that it is a non-U.S. holder, or otherwise establishes an exemption. Dividends paid to non-U.S. holders subject to withholding of U.S. federal income tax, as described above under the heading "—Dividends," will generally be exempt from U.S. backup withholding.

Information reporting and backup withholding generally will apply to the proceeds of a disposition of our common stock by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or foreign, unless the holder certifies its status as a non-U.S. holder and satisfies certain other

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requirements, or otherwise establishes an exemption. Generally, information reporting and backup withholding will not apply to a payment of disposition proceeds to a non-U.S. holder where the transaction is effected outside the United States through a non-U.S. office of a broker. However, for information reporting purposes, dispositions effected through a non-U.S. office of a broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker. Non-U.S. holders should consult their own tax advisors regarding the application of the information reporting and backup withholding rules to them.

Copies of information returns may be made available to the tax authorities of the country in which the non-U.S. holder resides or is incorporated under the provisions of a specific treaty or agreement.

Backup withholding is not an additional tax. Rather, any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder can be refunded or credited against the non-U.S. holder's U.S. federal income tax liability, if any, provided that an appropriate claim is timely filed with the IRS.

FATCA

FATCA generally imposes a 30% withholding tax on dividends on, and gross proceeds from the sale or other disposition of, our common stock if paid to a foreign entity unless (i) if the foreign entity is a "foreign financial institution," the foreign entity undertakes certain due diligence, reporting, withholding, and certification obligations, (ii) if the foreign entity is not a "foreign financial institution," the foreign entity identifies certain of its U.S. investors, or (iii) the foreign entity is otherwise excepted under FATCA.

Withholding under FATCA generally applies to payments of dividends on our common stock. While withholding under FATCA would also apply to payments of gross proceeds from a sale or other disposition of our common stock, under proposed U.S. Treasury Regulations withholding on payments of gross proceeds is not required. Although such regulations are not final, applicable withholding agents may rely on the proposed regulations until final regulations are issued.

If withholding under FATCA is required on any payment related to our common stock, investors not otherwise subject to withholding (or that otherwise would be entitled to a reduced rate of withholding) on such payment may be required to seek a refund or credit from the IRS. An intergovernmental agreement between the United States and an applicable foreign country may modify the requirements described in this section. Non-U.S. holders should consult their own tax advisors regarding the possible implications of FATCA on their investment in our common stock and the entities through which they hold our common stock.

Federal Estate Tax

Common stock owned or treated as owned by an individual who is a non-U.S. holder (as specially defined for U.S. federal estate tax purposes) at the time of death will be included in the individual's gross estate for U.S. federal estate tax purposes and, therefore, may be subject to U.S. federal estate tax, unless an applicable estate tax or other treaty provides otherwise.

The preceding discussion of material U.S. federal tax considerations is for prospective investors' information only. It is not tax advice. Prospective investors should consult their own tax advisors regarding the particular U.S. federal, state, local, and non-U.S. tax consequences of purchasing, holding, and disposing of our common stock, including the consequences of any proposed changes in applicable laws.

Underwriting

We, the underwriters named below and the selling stockholder have entered into an underwriting agreement with respect to the shares being offered. Subject to certain conditions, each underwriter has severally agreed to purchase the number of shares indicated in the following table. Goldman Sachs & Co. LLC, SVB Leerink LLC and Evercore Group L.L.C. are the representatives of the underwriters.

Underwriters	Number of Shares
Goldman Sachs & Co. LLC	
SVB Leerink LLC	
Evercore Group L.L.C.	
H.C. Wainwright & Co., LLC	
Roth Capital Partners, LLC	
Total	

The underwriters will be committed to take and pay for all of the shares being offered, if any are taken, other than the shares covered by the option described below unless and until this option is exercised.

The underwriters have an option to buy up to an additional _____ shares from us. They may exercise that option for 30 days. If any shares are purchased pursuant to this option, the underwriters will severally purchase shares in approximately the same proportion as set forth in the table above.

The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters by us and the selling stockholder. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase _____ additional shares from us.

Paid by Translate Bio, Inc.	No Exercise	Full Exercise
Per Share	\$	\$
Total	\$	\$

Paid by Shire Human Genetic Therapies, Inc.	No Exercise	Full Exercise
Per Share	\$	\$
Total	\$	\$

Shares sold by the underwriters to the public will initially be offered at the public offering price set forth on the cover of this prospectus supplement. Any shares sold by the underwriters to securities dealers may be sold at a discount of up to \$ _____ per share from the public offering price. After the initial offering of the shares, the representatives may change the offering price and the other selling terms. 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 for a period of 90 days after the date of this prospectus not to, subject to limited exceptions, offer, sell, contract to sell, pledge, or otherwise dispose of, (or enter into any transaction which is designed to, or might reasonably be expected to, result in the disposition (whether by actual disposition or effective economic disposition due to cash settlement or otherwise) by us or any affiliate of ours or any person in privity with us or any affiliate of ours) directly or indirectly, including the filing (or participation in the filing) of a registration statement (other than a registration statement on Form S-8) with the SEC in respect of, or establish or increase a put equivalent position or liquidate or decrease a call equivalent position within the meaning of Section 16 of the Exchange Act, any other shares of our capital stock or any securities convertible into, or exercisable, or exchangeable for, shares of such capital stock; or publicly announce an intention to effect any such transaction, without the prior written consent of the representatives.

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Our executive officers and directors have entered into lock-up agreements with the underwriters prior to the commencement of this offering pursuant to which each of these, subject to limited exceptions, for a period of 60 days after the date of this prospectus, will not dispose of or hedge any of their common stock or securities convertible into or exchangeable for shares of common stock, except with the prior written consent of the representatives.

The selling stockholder has entered into a lock-up agreement with the underwriters prior to the commencement of this offering pursuant to which it, subject to limited exceptions, for a period of 45 days after the date of this prospectus, will not dispose of or hedge any of its common stock or securities convertible into or exchangeable for shares of common stock, except with the prior written consent of the representatives.

In connection with the offering, the underwriters may purchase and sell shares of common stock in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering, and a short position represents the amount of such sales that have not been covered by subsequent purchases. A "covered short position" is a short position that is not greater than the amount of additional shares for which the underwriters' option described above may be exercised. The underwriters may cover any covered short position by either exercising their option to purchase additional shares or purchasing shares in the open market. In determining the source of shares to cover the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase additional shares pursuant to the option described above.

"Naked" short sales are any short sales that create a short position greater than the amount of additional shares for which the option described above may be exercised. The underwriters must cover any such naked short position by purchasing shares in the open market. 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 after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of various bids for or purchases of common stock made by the underwriters in the open market prior to the completion of the offering.

The underwriters may also impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the representatives have repurchased shares sold by or for the account of such underwriter in stabilizing or short covering transactions.

Purchases to cover a short position and stabilizing transactions, as well as other purchases by the underwriters for their own accounts, may have the effect of preventing or retarding a decline in the market price of our stock, and together with the imposition of the penalty bid, may stabilize, maintain or otherwise affect the market price of the common stock. As a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. The underwriters are not required to engage in these activities and may end any of these activities at any time. These transactions may be effected on The Nasdaq Global Select Market, in the over-the-counter market or otherwise.

We may enter into derivative transactions with third parties, or sell securities not covered by this prospectus supplement to third parties in privately negotiated transactions. In connection with those derivatives, the third parties may sell securities covered by this prospectus supplement, including in short sale transactions. If so, the third party may use securities pledged by us or borrowed from us or others to settle those sales or to close out any related open borrowings of stock, and may use

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securities received from us in settlement of those derivatives to close out any related open borrowings of stock. The third party in such sale transactions will be an underwriter or will be identified in a post-effective amendment.

We estimate that the total expenses of the offering, excluding underwriting discounts and commissions, will be approximately \$. We have also agreed to reimburse the underwriters for certain of their expenses in an amount up to \$.

We and the selling stockholder have agreed to indemnify the several underwriters against certain liabilities, including liabilities under the Securities Act of 1933.

The underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include sales and trading, commercial and investment banking, advisory, investment management, investment research, principal investment, hedging, market making, brokerage and other financial and non-financial activities and services. Certain of the underwriters and their respective affiliates have provided, and may in the future provide, a variety of these services to the issuer and to persons and entities with relationships with the issuer, for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the underwriters and their respective affiliates, officers, directors and employees may purchase, sell or hold a broad array of investments and actively trade securities, derivatives, loans, commodities, currencies, credit default swaps and other financial instruments for their own account and for the accounts of their customers, and such investment and trading activities may involve or relate to assets, securities and/or instruments of the issuer (directly, as collateral securing other obligations or otherwise) and/or persons and entities with relationships with the issuer. The underwriters and their respective affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such assets, securities or instruments and may at any time hold, or recommend to clients that they should acquire, long and/or short positions in such assets, securities and instruments.

European Economic Area and United Kingdom

In relation to each Member State of the European Economic Area and the United Kingdom (each a "Relevant State"), no shares of common stock (the "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 representatives for any such offer; or
- (c) in any other circumstances falling within Article 1(4) of the Prospectus Regulation,

provided that no such offer of Shares shall require the company or any representative to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation.

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For the purposes of this provision, the expression an “offer to the public” in relation to any 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.

United Kingdom

Each underwriter has represented and agreed that:

- (a) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the Financial Services and Markets Act 2000 (as amended, the “FSMA”)) received by it in connection with the issue or sale of the shares in circumstances in which Section 21(1) of the FSMA does not apply to the company; and
- (b) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the shares in, from or otherwise involving the United Kingdom.

Canada

The securities may be sold in Canada 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 securities must be made in accordance with an exemption form, 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 offering memorandum (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 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.

Hong Kong

The shares may not be offered or sold in Hong Kong by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32 of the Laws of Hong Kong) (“Companies (Winding Up and Miscellaneous Provisions) Ordinance”) or which do not constitute an invitation to the public within the meaning of the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong) (“Securities and Futures Ordinance”), or (ii) to “professional investors” as defined in the Securities and Futures Ordinance and any rules made thereunder, or (iii) in other circumstances which do not result in the document being a “prospectus” as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance, and no advertisement, invitation or document relating to the

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shares may be issued or may be in the possession of any person for the purpose of issue (in each case 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 in 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” in Hong Kong as defined in the Securities and Futures Ordinance and any rules made thereunder.

Singapore

This prospectus supplement has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus supplement 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 Singapore other than (i) to an institutional investor (as defined under Section 4A of the Securities and Futures Act, Chapter 289 of Singapore (the “SFA”) under Section 274 of the SFA, (ii) 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 (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA, in each case subject to conditions set forth in the SFA.

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is 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, the securities (as defined in Section 239(1) of the SFA) of that corporation shall not be transferable for 6 months after that corporation has acquired the shares under Section 275 of the SFA except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person (as defined in Section 275(2) of the SFA), (2) where such transfer arises from an offer in that corporation’s securities pursuant to Section 275(1A) of the SFA, (3) where no consideration is or will be given for the transfer, (4) where the transfer is by operation of law, (5) as specified in Section 276(7) of the SFA, or (6) as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore (“Regulation 32”).

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is a trust (where the trustee is not an accredited investor (as defined in Section 4A of the SFA)) whose sole purpose is to hold investments and each beneficiary of the trust is an accredited investor, the beneficiaries’ rights and interest (howsoever described) in that trust shall not be transferable for 6 months after that trust has acquired the shares under Section 275 of the SFA except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person (as defined in Section 275(2) of the SFA), (2) where such transfer arises from an offer that is made on terms that such rights or interest are acquired at a consideration of not less than \$200,000 (or its equivalent in a foreign currency) for each transaction (whether such amount is to be paid for in cash or by exchange of securities or other assets), (3) where no consideration is or will be given for the transfer, (4) where the transfer is by operation of law, (5) as specified in Section 276(7) of the SFA, or (6) as specified in Regulation 32.

Japan

The securities have not been and will not be registered under the Financial Instruments and Exchange Act of Japan (the “FIEA”) (Act No. 25 of 1948, as amended). The securities may not be

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offered or sold, directly or indirectly, in Japan or to or for the benefit of any resident of Japan (including any person resident in Japan or any corporation or other entity organized under the laws of Japan) or to others for reoffering or resale, directly or indirectly, in Japan or to or for the benefit of any resident of Japan, except pursuant to an exemption from the registration requirements of the FIEA and otherwise in compliance with any relevant laws and regulations of Japan.

Legal Matters

The validity of the shares of our common stock offered hereby is being passed upon for us by Wilmer Cutler Pickering Hale and Dorr LLP. Certain legal matters in connection with this offering will be passed upon for the underwriters by Cooley LLP, New York, New York.

Experts

The financial statements incorporated in this prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2019 have been so incorporated in reliance on the report (which contains an explanatory paragraph relating to the Company's ability to continue as a going concern as described in Note 1 to the financial statements) of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

Where You Can Find More Information

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. Copies of certain information filed by us with the SEC are also available on our website at <http://www.translate.bio>. Our website is not a part of this prospectus supplement and is not incorporated by reference into this prospectus supplement.

This prospectus supplement is part of a registration statement that we filed with the SEC. The registration statement contains more information than this prospectus supplement and the accompanying prospectus regarding us and the securities, including certain exhibits and schedules. You can obtain a copy of the registration statement from the SEC's internet site.

Incorporation of Certain Information by Reference

The SEC allows us to incorporate by reference into this prospectus supplement and the accompanying prospectus much of the information we file with the SEC, which means that we can disclose important information to you by referring you to those publicly available documents. The information that we incorporate by reference into this prospectus supplement and the accompanying prospectus is considered to be part of this prospectus supplement and the accompanying prospectus. Because we are incorporating by reference future filings with the SEC, this prospectus supplement and the accompanying prospectus is continually updated and those future filings may modify or supersede some of the information included or incorporated in this prospectus supplement and the accompanying prospectus. This means that you must look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus supplement, the accompanying prospectus or in any document previously incorporated by reference have been modified or superseded. This prospectus supplement and the accompanying prospectus incorporate by reference the documents listed below (File No. 001-38550) and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended (in each case, other than those documents or the portions of those documents not deemed to be filed), until the offering of the securities under the registration statement is terminated or completed.

- Annual Report on [Form 10-K](#) for the fiscal year ended December 31, 2019 filed on March 12, 2020, including the information specifically incorporated by reference into the Annual Report on Form 10-K from our [definitive proxy statement](#) on Schedule 14A for the 2020 Annual Meeting of Stockholders filed on April 22, 2020;
- Quarterly Report on [Form 10-Q](#) for the fiscal quarter ended March 31, 2020 filed on May 7, 2020;
- Current Reports on Form 8-K filed on [January 13, 2020](#) (with respect to Item 8.01 only), [March 26, 2020](#), [March 27, 2020](#), [April 7, 2020](#), [June 16, 2020](#) and [June 23, 2020](#); and
- The description of our common stock contained in our Registration Statement on [Form 8-A](#) filed on June 22, 2018, including any amendments or reports filed for the purpose of updating such description.

You may request a copy of these documents at no cost, by writing or calling us at the following address or phone number:

Translate Bio, Inc.
Attention: Paul Burgess, Chief Legal Officer and Chief Operating Officer
29 Hartwell Avenue
Lexington, Massachusetts 02421
(617) 945-7361

PROSPECTUS



**Debt Securities
Common Stock
Preferred Stock
Units
Warrants**

We may offer and sell securities from time to time in one or more offerings. This prospectus describes the general terms of these securities and the general manner in which these securities will be offered. We will provide the specific terms of these securities in supplements to this prospectus. The prospectus supplements will also describe the specific manner in which these securities will be offered and may also supplement, update or amend information contained in this document. You should read this prospectus and any applicable prospectus supplement before you invest.

We may offer these securities in amounts, at prices and on terms determined at the time of offering. The securities may be sold directly to you, through agents, or through underwriters and dealers. If agents, underwriters or dealers are used to sell the securities, we will name them and describe their compensation in a prospectus supplement.

Our common stock is listed on The Nasdaq Global Select Market under the symbol "TBIO."

Investing in these securities involves certain risks. See "[Risk Factors](#)" on page 8 of this prospectus, included in any accompanying prospectus supplement and in the documents incorporated by reference in this prospectus for a discussion of the factors you should carefully consider before deciding to purchase these securities.

We may amend or supplement this prospectus from time to time by filing amendments or supplements as required. We urge you to read the entire prospectus, any amendments or supplements, any free writing prospectuses, and any documents incorporated by reference carefully before you make your investment decision.

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. Any representation to the contrary is a criminal offense.

The date of this prospectus is June 24, 2020

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, which we refer to as the “SEC,” utilizing a “shelf” registration process. Under this shelf registration process, we may from time to time sell any combination of the securities described in this prospectus in one or more offerings.

This prospectus provides you with a general description of the securities we may offer. Each time we sell securities, we will provide one or more prospectus supplements that will contain specific information about the terms of the offering. The prospectus supplement may also add, update or change information contained in this prospectus or in any documents that we have incorporated by reference into this prospectus and, accordingly, to the extent inconsistent, information in this prospectus is superseded by the information in the prospectus supplement. You should read both this prospectus and the accompanying prospectus supplement together with the additional information described under the heading “Where You Can Find More Information” beginning on page 2 of this prospectus.

You should rely only on the information contained in or incorporated by reference in this prospectus, any accompanying prospectus supplement or in any related free writing prospectus filed by us with the SEC. We have not authorized anyone to provide you with different information. This prospectus and any accompanying prospectus supplement do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the securities described in this prospectus or such accompanying 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. You should assume that the information appearing in this prospectus, any prospectus supplement, the documents incorporated by reference and any related free writing prospectus is accurate only as of their respective dates. Our business, financial condition, results of operations and prospects may have changed materially since those dates.

Unless the context otherwise indicates, references in this prospectus to “we,” “our” and “us” refer, collectively, to Translate Bio, Inc., a Delaware corporation, and its consolidated subsidiaries. We own or have rights to trademarks, service marks and trade names that we use in connection with the operation of our business, including our corporate name, logos and website names. Other trademarks, service marks and trade names appearing in this prospectus are the property of their respective owners. Solely for convenience, some of the trademarks, service marks and trade names referred to in this prospectus are listed without the ® and ™ symbols, but we will assert, to the fullest extent under applicable law, our rights to our trademarks, service marks and trade names.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. Copies of certain information filed by us with the SEC are also available on our website at <http://www.translate.bio>. Our website is not a part of this prospectus and is not incorporated by reference in this prospectus.

This prospectus is part of a registration statement we filed with the SEC. This prospectus omits some information contained in the registration statement in accordance with SEC rules and regulations. You should review the information and exhibits in the registration statement for further information about us and our consolidated subsidiaries and the securities we are offering. Statements in this prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to these filings. You should review the complete document to evaluate these statements.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to incorporate by reference much of the information we file with the SEC, which means that we can disclose important information to you by referring you to those publicly available documents. The information that we incorporate by reference in this prospectus is considered to be part of this prospectus. Because we are incorporating by reference future filings with the SEC, this prospectus is continually updated and those future filings may modify or supersede some of the information included or incorporated in this prospectus. This means that you must look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus or in any document previously incorporated by reference have been modified or superseded. This prospectus and the registration statement of which this prospectus is a part incorporates by reference the information on documents listed below (File No. 001-38550):

- our Annual Report on [Form 10-K](#) for the fiscal year ended December 31, 2019, including the information specifically incorporated by reference into the Annual Report on Form 10-K from our [definitive proxy statement](#) for the 2020 Annual Meeting of Stockholders which was filed with the SEC on April 22, 2020;
- our Quarterly Report on [Form 10-Q](#) for the fiscal quarter ended March 31, 2020 which was filed with the SEC on May 7, 2020;
- our Current Reports on Form 8-K filed on [January 13, 2020](#) (with respect to Item 8.01 only), [March 26, 2020](#), [March 27, 2020](#), [April 7, 2020](#), [June 16, 2020](#) and [June 23, 2020](#); and
- the description of our common stock contained in our Registration Statement on [Form 8-A](#) filed on June 22, 2018, including any amendments or reports filed for the purpose of updating such description.

We also incorporate by reference any future filings (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items unless such Form 8-K expressly provides to the contrary) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act until we file a post-effective amendment that indicates the termination of the offering of the securities made by this prospectus and will become a part of this prospectus from the date that such documents are filed with the SEC. Information in such future filings updates and supplements the information provided in this prospectus. Any statements in any such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later filed document modify or replace such earlier statements.

You may request a copy of these filings, at no cost, by writing or telephoning us at the following address or telephone number:

Translate Bio, Inc.
Attention: Paul Burgess, Chief Legal Officer and Chief Operating Officer
29 Hartwell Avenue
Lexington, Massachusetts 02421
(617) 945-7361

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS AND INDUSTRY DATA

This prospectus and the documents incorporated by reference herein 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 Exchange Act that involve substantial risks and uncertainties. All statements, other than statements of historical fact, contained in this prospectus or incorporated by reference herein, including statements regarding our strategy, future operations, future financial position, future revenue, projected costs, prospects, plans and objectives of management, are forward-looking statements. The words “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “might,” “plan,” “potential,” “predict,” “project,” “should,” “target,” “would,” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

The forward-looking statements contained in this prospectus and incorporated by reference herein include, among other things, statements about:

- the impacts of the ongoing COVID-19 pandemic;
- the initiation, timing, progress and results of our current and future preclinical studies and clinical trials and our research and development programs;
- our estimates regarding expenses, future revenue, capital requirements and need for additional financing;
- our expectations regarding our ability to fund our operating expenses and capital expenditure requirements with our cash, cash equivalents and short-term investments, and the period in which we expect that such cash, cash equivalents and short-term investments will enable us to fund such operating expenses and capital expenditure requirements;
- our ability to continue as a going concern;
- our plans to develop our product candidates;
- the timing of and our ability to submit applications for, obtain and maintain regulatory approvals for our product candidates;
- the potential advantages of our product candidates;
- the rate and degree of market acceptance and clinical utility of our product candidates;
- our estimates regarding the potential market opportunity for our product candidates;
- our commercialization, marketing and manufacturing capabilities and strategy;
- our expectations regarding our ability to obtain and maintain intellectual property protection for our product candidates;
- our ability to identify additional products, product candidates or technologies with significant commercial potential that are consistent with our commercial objectives;
- the impact of government laws and regulations;
- our competitive position;
- developments relating to our competitors and our industry;
- our ability to establish collaborations or obtain additional funding; and
- our expectations regarding the time during which we will be an emerging growth company under the JOBS Act.

We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Actual results or events could differ

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materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. You are cautioned that these forward-looking statements are only predictions and are subject to risks, uncertainties and assumptions that are referenced in the section of any accompanying prospectus supplement entitled "Risk Factors." You should also carefully review the risk factors and cautionary statements described in the other documents we file from time to time with the SEC, specifically our most recent Annual Report on Form 10-K, our Quarterly Reports on Form 10-Q and our Current Reports on Form 8-K. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, collaborations, joint ventures or investments that we may make or enter into.

You should read this prospectus, the documents incorporated by reference in this prospectus and the documents that we have filed as exhibits to the registration statement of which this prospectus is a part completely and with the understanding that our actual future results may be materially different from what we expect. The forward-looking statements contained in this prospectus and incorporated by reference herein are made as of the date hereof, and we do not assume any obligation to update any forward-looking statements except as required by applicable law.

This prospectus includes and incorporates by reference certain statistical and other industry and market data that we obtained from industry publications and research, surveys and studies conducted by third parties as well as our own estimates of potential market opportunities. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. Our estimates of the potential market opportunities for our product candidates include several key assumptions based on our industry knowledge, industry publications, third-party research and other surveys, which may be based on a small sample size and may fail to accurately reflect market opportunities. While we believe that our internal assumptions are reasonable, no independent source has verified such assumptions.

PROSPECTUS SUMMARY

This summary highlights selected information contained elsewhere in this prospectus or incorporated by reference in this prospectus, and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus, the applicable prospectus supplement and any related free writing prospectus, including the risks of investing in our securities discussed under the heading “Risk Factors” contained in the applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus. You should also carefully read the information incorporated by reference into this prospectus, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part.

TRANSLATE BIO, INC.

Overview

We are a clinical-stage messenger RNA, or mRNA, therapeutics company developing a new class of potentially transformative medicines to treat diseases caused by protein or gene dysfunction. Using our proprietary mRNA therapeutic platform, or MRT platform, we create mRNA that encodes functional proteins. Our mRNA is designed to be delivered to the target cell where the cell’s own machinery recognizes it and translates it, restoring or augmenting protein function to treat or prevent disease. We believe that the mRNA design, delivery and manufacturing capabilities of our MRT platform provide us with the most advanced platform for developing product candidates that deliver mRNA encoding functional proteins for therapeutic uses. We believe that our MRT platform is broadly applicable across multiple diseases in which the production of a desirable protein can have a therapeutic effect, with the potential to transform life-threatening illnesses into manageable chronic conditions. We are primarily focused on applying our MRT platform to treat pulmonary diseases caused by insufficient protein production or where production of proteins can modify disease. We also believe our technology is applicable to a broad range of diseases, including diseases that affect the liver. Additionally, our MRT platform may be applied to produce various classes of treatments, such as therapeutic antibodies or vaccines in areas such as infectious disease and oncology.

Corporate Information

We are a Delaware corporation that was incorporated on November 10, 2016 under the name RaNA Therapeutics, Inc. On December 5, 2016, we completed a series of transactions pursuant to which RaNA Therapeutics, LLC, or RaNA LLC, became a direct, wholly owned subsidiary of RaNA Therapeutics, Inc., and all of the outstanding equity securities of RaNA LLC were exchanged for equity securities of RaNA Therapeutics, Inc. On June 26, 2017, we changed our name from RaNA Therapeutics, Inc. to Translate Bio, Inc. On December 19, 2017, RaNA LLC merged with and into Translate Bio, Inc., with Translate Bio, Inc. continuing as the surviving corporation.

Our principal executive offices are located at 29 Hartwell Avenue, Lexington, Massachusetts 02421, and our telephone number is (617) 945-7361. Our website address is <http://www.translate.bio>. The information contained on, or that can be accessed through, our website is not a part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

Description of Securities

We may offer shares of our common stock and various series of debt securities, either individually or in combination with other securities, from time to time under this prospectus, together with the applicable prospectus supplement and any related free writing prospectus, at prices and on terms to be determined by market conditions at the time of any offering. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities under this prospectus, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities, including, to the extent applicable:

- designation or classification;

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- aggregate principal amount or aggregate offering price;
- maturity date, if applicable;
- original issue discount, if any;
- rates and times of payment of interest or dividends, if any;
- redemption, conversion, exercise, exchange or sinking fund terms, if any;
- ranking;
- restrictive covenants, if any;
- voting or other rights, if any;
- conversion or exchange prices or rates, if any, and, if applicable, any provisions for changes to or adjustments in the conversion or exchange prices or rates and in the securities or other property receivable upon conversion or exchange; and
- material or special U.S. federal income tax considerations, if any.

The applicable prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add, update or change any of the information contained in this prospectus or in the documents we have incorporated by reference.

We may sell the securities directly to investors or to or through agents, underwriters or dealers. If we do offer securities to or through agents or underwriters, we will include in the applicable prospectus supplement:

- the names of those agents or underwriters;
- applicable fees, discounts and commissions to be paid to them;
- details regarding over-allotment or other options, if any; and
- the net proceeds to us, if any.

Common Stock. We may issue shares of our common stock from time to time. The holders of common stock are entitled to one vote per share on all matters to be voted on by the stockholders. Subject to the preferences of any outstanding shares of preferred stock, the holders of common stock are entitled to receive ratably any dividends our board of directors declares out of funds legally available for the payment of dividends. If we are liquidated, dissolved or wound up, the holders of common stock are entitled to share pro rata all assets remaining after payment of liabilities and liquidation preferences of any outstanding shares of preferred stock. Holders of common stock have no preemptive rights or rights to convert their common stock into any other securities. There are no redemption or sinking fund provisions applicable to the common stock. In this prospectus, we have summarized certain general features of the common stock under the heading “Description of Capital Stock—Common Stock.” We urge you, however, to read the applicable prospectus supplement (and any related free writing prospectus that we may authorize to be provided to you) related to any common stock being offered.

Debt Securities. We may issue debt securities from time to time, in one or more series, as either senior or subordinated debt or as senior or subordinated convertible debt. The senior debt securities will rank equally with any other unsecured and unsubordinated debt. The subordinated debt securities will be subordinate and junior in right of payment, to the extent and in the manner described in the instrument governing the debt, to all of our senior indebtedness. Convertible debt securities will be convertible into or exchangeable for our common stock or our other securities. Conversion may be mandatory or at the holder’s option and would be at prescribed conversion rates.

The debt securities will be issued under an indenture that we will enter into with a national banking association or other eligible party, as trustee. In this prospectus, we have summarized certain general features of the debt

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securities under the heading “Description of Debt Securities.” We urge you, however, to read the applicable prospectus supplement (and any related free writing prospectus that we may authorize to be provided to you) related to the series of debt securities being offered, as well as the complete indenture and any supplemental indentures that contain the terms of the debt securities. We have filed the form of indenture as an exhibit to the registration statement of which this prospectus is a part, and supplemental indentures and forms of debt securities containing the terms of the debt securities being offered will be filed as exhibits to the registration statement of which this prospectus is a part or will be incorporated by reference from reports that we file with the SEC.

Use of Proceeds

Except as described in any applicable prospectus supplement or in any free writing prospectuses we have authorized for use in connection with a specific offering, we intend to use the net proceeds from the sale of the securities under this prospectus for general corporate purposes, which may include funding commercialization, research and development and sales and marketing activities, increasing our working capital, acquisitions or investments in businesses, products or technologies that are complementary to our own, capital expenditures and the repayment or refinancing of outstanding debt. See “Use of Proceeds” on page 9 of this prospectus.

NASDAQ Global Select Market Listing

Our common stock is listed on The Nasdaq Global Select Market under the symbol “TBIO.”

RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the risks and uncertainties described in this prospectus and any accompanying prospectus supplement, including the risk factors set forth in our filings we make with the SEC from time to time, that are incorporated by reference herein, including the risk factors set forth in our Annual Report on Form 10-K for the year ended December 31, 2019 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2020 before making an investment decision pursuant to this prospectus and any accompanying prospectus supplement relating to a specific offering.

Our business, financial condition and results of operations could be materially and adversely affected by any or all of these risks or by additional risks and uncertainties not presently known to us or that we currently deem immaterial that may adversely affect us in the future.

USE OF PROCEEDS

We intend to use the net proceeds from the sale of any securities offered under this prospectus for general corporate purposes unless otherwise indicated in the applicable prospectus supplement. General corporate purposes may include working capital and capital expenditures, research and development expenses, including clinical trial costs, general and administrative expenses, potential acquisition of, or investment in, companies, technologies, products or assets that complement our business, and repayment and refinancing of debt. We have not determined the amount of net proceeds to be used specifically for such purposes. As a result, management will retain broad discretion over the allocation of net proceeds.

DESCRIPTION OF DEBT SECURITIES

We may offer debt securities which may be senior or subordinated. We refer to the senior debt securities and the subordinated debt securities collectively as debt securities. The following description summarizes the general terms and provisions of the debt securities. We will describe the specific terms of the debt securities and the extent, if any, to which the general provisions summarized below apply to any series of debt securities in the prospectus supplement relating to the series and any applicable free writing prospectus that we authorize to be delivered. When we refer to “the Company,” “we,” “our,” and “us” in this section, we mean Translate Bio, Inc. excluding, unless the context otherwise requires or as otherwise expressly stated, our subsidiaries.

We may issue senior debt securities from time to time, in one or more series under a senior indenture to be entered into between us and a senior trustee to be named in a prospectus supplement, which we refer to as the senior trustee. We may issue subordinated debt securities from time to time, in one or more series under a subordinated indenture to be entered into between us and a subordinated trustee to be named in a prospectus supplement, which we refer to as the subordinated trustee. The forms of senior indenture and subordinated indenture are filed as exhibits to the registration statement of which this prospectus forms a part. The senior indenture and the subordinated indenture are referred to individually as an indenture and together as the indentures and the senior trustee and the subordinated trustee are referred to individually as a trustee and together as the trustees. This section summarizes some of the provisions of the indentures and is qualified in its entirety by the specific text of the indentures, including definitions of terms used in the indentures. Wherever we refer to particular sections of, or defined terms in, the indentures, those sections or defined terms are incorporated by reference in this prospectus or the applicable prospectus supplement. You should review the indentures that are filed as exhibits to the registration statement of which this prospectus forms a part for additional information.

Neither indenture will limit the amount of debt securities that we may issue. The applicable indenture will provide that debt securities may be issued up to an aggregate principal amount authorized from time to time by us and may be payable in any currency or currency unit designated by us or in amounts determined by reference to an index.

General

The senior debt securities will constitute our unsecured and unsubordinated general obligations and will rank equally in right of payment with our other unsecured and unsubordinated obligations. The subordinated debt securities will constitute our unsecured and subordinated general obligations and will be junior in right of payment to our senior indebtedness (including senior debt securities), as described under the heading “—Certain Terms of the Subordinated Debt Securities—Subordination.” The debt securities will be structurally subordinated to all existing and future indebtedness and other liabilities of our subsidiaries unless such subsidiaries expressly guarantee such debt securities.

The debt securities will be our unsecured obligations. Any secured debt or other secured obligations will be effectively senior to the debt securities to the extent of the value of the assets securing such debt or other obligations. Unless otherwise indicated in the applicable prospectus supplement, the debt securities will not be guaranteed by any of our subsidiaries.

The applicable prospectus supplement and/or free writing prospectus will include any additional or different terms of the debt securities of any series being offered, including the following terms:

- the title and type of the debt securities;
- whether the debt securities will be senior or subordinated debt securities, and, with respect to any subordinated debt securities the terms on which they are subordinated;
- the initial aggregate principal amount of the debt securities;

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- the price or prices at which we will sell the debt securities;
- the maturity date or dates of the debt securities and the right, if any, to extend such date or dates;
- the rate or rates, if any, at which the debt securities will bear interest, or the method of determining such rate or rates;
- the date or dates from which such interest will accrue, the interest payment dates on which such interest will be payable or the method of determination of such dates;
- the right, if any, to extend the interest payment periods and the duration of that extension;
- the manner of paying principal and interest and the place or places where principal and interest will be payable;
- provisions for a sinking fund, purchase fund or other analogous fund, if any;
- any redemption dates, prices, obligations and restrictions on the debt securities;
- the currency, currencies or currency units in which the debt securities will be denominated and the currency, currencies or currency units in which principal and interest, if any, on the debt securities may be payable;
- any conversion or exchange features of the debt securities;
- whether the debt securities will be subject to the defeasance provisions in the indenture;
- whether the debt securities will be issued in definitive or global form or in definitive form only upon satisfaction of certain conditions;
- whether the debt securities will be guaranteed as to payment or performance;
- any special tax implications of the debt securities;
- any events of defaults or covenants in addition to or in lieu of those set forth in the indenture; and
- any other material terms of the debt securities.

When we refer to “principal” in this section with reference to the debt securities, we are also referring to “premium, if any.”

We may from time to time, without notice to or the consent of the holders of any series of debt securities, create and issue further debt securities of any such series ranking equally with the debt securities of such series in all respects (or in all respects other than (1) the payment of interest accruing prior to the issue date of such further debt securities or (2) the first payment of interest following the issue date of such further debt securities). Such further debt securities may be consolidated and form a single series with the debt securities of such series and have the same terms as to status, redemption or otherwise as the debt securities of such series.

You may present debt securities for exchange and you may present debt securities for transfer in the manner, at the places and subject to the restrictions set forth in the debt securities and the applicable prospectus supplement. We will provide you those services without charge, although you may have to pay any tax or other governmental charge payable in connection with any exchange or transfer, as set forth in the indenture.

Debt securities may bear interest at a fixed rate or a floating rate. Debt securities bearing no interest or interest at a rate that at the time of issuance is below the prevailing market rate (original issue discount securities) may be sold at a discount below their stated principal amount. U.S. federal income tax considerations applicable to any such discounted debt securities or to certain debt securities issued at par which are treated as having been issued at a discount for U.S. federal income tax purposes will be described in the applicable prospectus supplement.

We may issue debt securities with the principal amount payable on any principal payment date, or the amount of interest payable on any interest payment date, to be determined by reference to one or more currency exchange

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rates, securities or baskets of securities, commodity prices or indices. You may receive a payment of principal on any principal payment date, or a payment of interest on any interest payment date, that is greater than or less than the amount of principal or interest otherwise payable on such dates, depending on the value on such dates of the applicable currency, security or basket of securities, commodity or index. Information as to the methods for determining the amount of principal or interest payable on any date, the currencies, securities or baskets of securities, commodities or indices to which the amount payable on such date is linked and certain related tax considerations will be set forth in the applicable prospectus supplement.

Certain Terms of the Senior Debt Securities

Covenants. Unless we indicate otherwise in a prospectus supplement with respect to a particular series of senior debt securities, the senior debt securities will not contain any financial or restrictive covenants, including covenants restricting either us or any of our subsidiaries from incurring, issuing, assuming or guaranteeing any indebtedness secured by a lien on any of our or our subsidiaries' property or capital stock, or restricting either us or any of our subsidiaries from entering into sale and leaseback transactions.

Consolidation, Merger and Sale of Assets. Unless we indicate otherwise in a prospectus supplement with respect to a particular series of senior debt securities, we may not consolidate with or merge into any other person, in a transaction in which we are not the surviving corporation, or convey, transfer or lease our properties and assets substantially as an entirety to any person, in either case, unless:

- the successor entity, if any, is a U.S. corporation, limited liability company, partnership or trust;
- the successor entity assumes our obligations on the senior debt securities and under the senior indenture;
- immediately after giving effect to the transaction, no default or event of default shall have occurred and be continuing; and
- we have delivered to the senior trustee an officer's certificate and an opinion of counsel, each stating that the consolidation, merger, conveyance, transfer or lease and, if a supplemental indenture is required in connection with such transaction, such supplemental indenture, comply with the senior indenture and all conditions precedent provided for in the senior indenture relating to such transaction have been complied with.

The restrictions described in the bullets above do not apply (1) to our consolidation with or merging into one of our affiliates, if our board of directors determines in good faith that the purpose of the consolidation or merger is principally to change our state of incorporation or our form of organization to another form or (2) if we merge with or into a single direct or indirect wholly-owned subsidiary of ours.

The surviving business entity will succeed to, and be substituted for, us under the senior indenture and the senior debt securities and, except in the case of a lease, we shall be released from all obligations under the senior indenture and the senior debt securities.

No Protection in the Event of a Change in Control. Unless we indicate otherwise in a prospectus supplement with respect to a particular series of senior debt securities, the senior debt securities will not contain any provisions that may afford holders of the senior debt securities protection in the event we have a change in control or in the event of a highly leveraged transaction (whether or not such transaction results in a change in control).

Events of Default. Unless we indicate otherwise in a prospectus supplement with respect to a particular series of senior debt securities, the following are events of default under the senior indenture with respect to senior debt securities of each series:

- failure to pay interest on any senior debt securities of such series when due and payable, if that default continues for a period of 30 days (or such other period as may be specified for such series);

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- failure to pay principal on the senior debt securities of such series when due and payable whether at maturity, upon redemption, by declaration or otherwise (and, if specified for such series, the continuance of such failure for a specified period);
- default in the performance of or breach of any of our covenants or agreements in the senior indenture applicable to senior debt securities of such series, other than a covenant breach which is specifically dealt with elsewhere in the senior indenture, and that default or breach continues for a period of 90 days after we receive written notice from the trustee or from the holders of 25% or more in aggregate principal amount of the senior debt securities of such series;
- certain events of bankruptcy or insolvency, whether or not voluntary; and
- any other event of default provided for in such series of senior debt securities as may be specified in the applicable prospectus supplement.

The default by us under any other debt, including any other series of debt securities, is not a default under the senior indenture.

If an event of default other than an event of default specified in the fourth bullet point above occurs with respect to a series of senior debt securities and is continuing under the senior indenture, then, and in each such case, either the trustee or the holders of not less than 25% in aggregate principal amount of such series then outstanding under the senior indenture (each such series voting as a separate class) by written notice to us and to the trustee, if such notice is given by the holders, may, and the trustee at the request of such holders shall, declare the principal amount of and accrued interest on such series of senior debt securities to be immediately due and payable, and upon this declaration, the same shall become immediately due and payable.

If an event of default specified in the fourth bullet point above occurs and is continuing, the entire principal amount of and accrued interest on each series of senior debt securities then outstanding shall automatically become immediately due and payable.

Unless otherwise specified in the prospectus supplement relating to a series of senior debt securities originally issued at a discount, the amount due upon acceleration shall include only the original issue price of the senior debt securities, the amount of original issue discount accrued to the date of acceleration and accrued interest, if any.

Upon certain conditions, declarations of acceleration may be rescinded and annulled and past defaults may be waived by the holders of a majority in aggregate principal amount of all the senior debt securities of such series affected by the default, each series voting as a separate class. Furthermore, subject to various provisions in the senior indenture, the holders of a majority in aggregate principal amount of a series of senior debt securities, by notice to the trustee, may waive a continuing default or event of default with respect to such senior debt securities and its consequences, except a default in the payment of principal of or interest on such senior debt securities (other than any such default in payment resulting solely from an acceleration of the senior debt securities) or in respect of a covenant or provision of the senior indenture which cannot be modified or amended without the consent of the holders of each such senior debt security. Upon any such waiver, such default shall cease to exist, and any event of default with respect to such senior debt securities shall be deemed to have been cured, for every purpose of the senior indenture; but no such waiver shall extend to any subsequent or other default or event of default or impair any right consequent thereto.

The holders of a majority in aggregate principal amount of a series of senior debt securities may direct the time, method and place of conducting any proceeding for any remedy available to the trustee or exercising any trust or power conferred on the trustee with respect to such senior debt securities. However, the trustee may refuse to follow any direction that conflicts with law or the senior indenture, that may involve the trustee in personal liability or that the trustee determines in good faith may be unduly prejudicial to the rights of holders of such

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series of senior debt securities not joining in the giving of such direction and may take any other action it deems proper that is not inconsistent with any such direction received from holders of such series of senior debt securities. A holder may not pursue any remedy with respect to the senior indenture or any series of senior debt securities unless:

- the holder gives the trustee written notice of a continuing event of default;
- the holders of at least 25% in aggregate principal amount of such series of senior debt securities make a written request to the trustee to pursue the remedy in respect of such event of default;
- the requesting holder or holders offer the trustee indemnity satisfactory to the trustee against any costs, liability or expense;
- the trustee does not comply with the request within 60 days after receipt of the request and the offer of indemnity; and
- during such 60-day period, the holders of a majority in aggregate principal amount of such series of senior debt securities do not give the trustee a direction that is inconsistent with the request.

These limitations, however, do not apply to the right of any holder of a senior debt security of any affected series to receive payment of the principal of and interest on such senior debt security in accordance with the terms of such debt security, or to bring suit for the enforcement of any such payment in accordance with the terms of such debt security, on or after the due date for the senior debt securities, which right shall not be impaired or affected without the consent of the holder.

The senior indenture requires certain of our officers to certify, on or before a fixed date in each year in which any senior debt security is outstanding, as to their knowledge of our compliance with all covenants, agreements and conditions under the senior indenture.

Satisfaction and Discharge. We can satisfy and discharge our obligations to holders of any series of debt securities if:

- we have paid or caused to be paid the principal of and interest on all senior debt securities of such series (with certain limited exceptions) when due and payable; or
- we deliver to the senior trustee for cancellation all senior debt securities of such series theretofore authenticated under the senior indenture (with certain limited exceptions); or
- all senior debt securities of such series have become due and payable or will become due and payable within one year (or are to be called for redemption within one year under arrangements satisfactory to the senior trustee) and we deposit in trust an amount of cash or a combination of cash and U.S. government or U.S. government agency obligations (or in the case of senior debt securities denominated in a foreign currency, foreign government securities or foreign government agency securities) sufficient to make interest, principal and any other payments on the debt securities of that series on their various due dates;

and if, in any such case, we also pay or cause to be paid all other sums payable under the senior indenture, as and when the same shall be due and payable and we deliver to the senior trustee an officer's certificate and an opinion of counsel, each stating that these conditions have been satisfied.

Under current U.S. federal income tax law, the deposit and our legal release from the debt securities would be treated as though we took back your debt securities and gave you your share of the cash and debt securities or bonds deposited in trust. In that event, you could recognize gain or loss on the debt securities you give back to us. Purchasers of the debt securities should consult their own advisers with respect to the tax consequences to them of such deposit and discharge, including the applicability and effect of tax laws other than the U.S. federal income tax law.

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Defeasance. Unless the applicable prospectus supplement provides otherwise, the following discussion of legal defeasance and covenant defeasance will apply to any series of debt securities issued under the indentures.

Legal Defeasance. We can legally release ourselves from any payment or other obligations on the debt securities of any series (called “legal defeasance”) if certain conditions are met, including the following:

- We deposit in trust for your benefit and the benefit of all other direct holders of the debt securities of the same series cash or a combination of cash and U.S. government or U.S. government agency obligations (or, in the case of senior debt securities denominated in a foreign currency, foreign government or foreign government agency obligations) that will generate enough cash to make interest, principal and any other payments on the debt securities of that series on their various due dates.
- There is a change in current U.S. federal income tax law or an IRS ruling that lets us make the above deposit without causing you to be taxed on the debt securities any differently than if we did not make the deposit and instead repaid the debt securities ourselves when due. Under current U.S. federal income tax law, the deposit and our legal release from the debt securities would be treated as though we took back your debt securities and gave you your share of the cash and debt securities or bonds deposited in trust. In that event, you could recognize gain or loss on the debt securities you give back to us.
- We deliver to the trustee a legal opinion of our counsel confirming the tax law change or ruling described above.

If we accomplish legal defeasance, as described above, you would have to rely solely on the trust deposit for repayment of the debt securities. You could not look to us for repayment in the event of any shortfall.

Covenant Defeasance. Without any change in current U.S. federal tax law, we can make the same type of deposit described above and be released from some of the covenants in the debt securities (called “covenant defeasance”). In that event, you would lose the protection of those covenants but would gain the protection of having money and securities set aside in trust to repay the debt securities. In order to achieve covenant defeasance, we must do the following (among other things):

- We must deposit in trust for your benefit and the benefit of all other direct holders of the debt securities of the same series cash or a combination of cash and U.S. government or U.S. government agency obligations (or, in the case of senior debt securities denominated in a foreign currency, foreign government or foreign government agency obligations) that will generate enough cash to make interest, principal and any other payments on the debt securities of that series on their various due dates.
- We must deliver to the trustee a legal opinion of our counsel confirming that under current U.S. federal income tax law we may make the above deposit without causing you to be taxed on the debt securities any differently than if we did not make the deposit and instead repaid the debt securities ourselves when due.

If we accomplish covenant defeasance, you could still look to us for repayment of the debt securities if there were a shortfall in the trust deposit. In fact, if one of the events of default occurred (such as our bankruptcy) and the debt securities become immediately due and payable, there may be such a shortfall. Depending on the events causing the default, you may not be able to obtain payment of the shortfall.

Modification and Waiver. We and the trustee may amend or supplement the senior indenture or the senior debt securities of any series without the consent of any holder:

- to convey, transfer, assign, mortgage or pledge any assets as security for the senior debt securities of one or more series;
- to evidence the succession of a corporation, limited liability company, partnership or trust to us, and the assumption by such successor of our covenants, agreements and obligations under the senior

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indenture or to otherwise comply with the covenant relating to mergers, consolidations and sales of assets;

- to comply with the requirements of the SEC in order to effect or maintain the qualification of the senior indenture under the Trust Indenture Act of 1939, as amended (the “Trust Indenture Act”);
- to add to our covenants such new covenants, restrictions, conditions or provisions for the protection of the holders, and to make the occurrence, or the occurrence and continuance, of a default in any such additional covenants, restrictions, conditions or provisions an event of default;
- to cure any ambiguity, defect or inconsistency in the senior indenture or in any supplemental indenture or to conform the senior indenture or the senior debt securities to the description of senior debt securities of such series set forth in this prospectus or any applicable prospectus supplement;
- to provide for or add guarantors with respect to the senior debt securities of any series;
- to establish the form or forms or terms of the senior debt securities as permitted by the senior indenture;
- to evidence and provide for the acceptance of appointment under the senior indenture by a successor trustee, or to make such changes as shall be necessary to provide for or facilitate the administration of the trusts in the senior indenture by more than one trustee;
- to add to, change or eliminate any of the provisions of the senior indenture in respect of one or more series of senior debt securities, provided that any such addition, change or elimination shall (a) neither (1) apply to any senior debt security of any series created prior to the execution of such supplemental indenture and entitled to the benefit of such provision nor (2) modify the rights of the holder of any such senior debt security with respect to such provision or (b) become effective only when there is no senior debt security described in clause (a)(1) outstanding;
- to make any change to the senior debt securities of any series so long as no senior debt securities of such series are outstanding; or
- to make any change that does not adversely affect the rights of any holder in any material respect.

Other amendments and modifications of the senior indenture or the senior debt securities issued may be made, and our compliance with any provision of the senior indenture with respect to any series of senior debt securities may be waived, with the consent of the holders of a majority of the aggregate principal amount of the outstanding senior debt securities of each series affected by the amendment or modification (voting as separate series); provided, however, that each affected holder must consent to any modification, amendment or waiver that:

- extends the final maturity of any senior debt securities of such series;
- reduces the principal amount of any senior debt securities of such series;
- reduces the rate, or extends the time for payment of, interest on any senior debt securities of such series;
- reduces the amount payable upon the redemption of any senior debt securities of such series;
- changes the currency of payment of principal of or interest on any senior debt securities of such series;
- reduces the principal amount of original issue discount securities payable upon acceleration of maturity or the amount provable in bankruptcy;
- waives a continuing default in the payment of principal of or interest on the senior debt securities (other than any such default in payment resulting solely from an acceleration of the senior debt securities);
- changes the provisions relating to the waiver of past defaults or impairs the right of holders to receive payment or to institute suit for the enforcement of any payment or conversion of any senior debt securities of such series on or after the due date therefor;

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- modifies any of the provisions of these restrictions on amendments and modifications, except to increase any required percentage or to provide that certain other provisions cannot be modified or waived without the consent of the holder of each senior debt security of such series affected by the modification;
- adversely affects the right to convert or exchange senior debt securities into common stock or other property in accordance with the terms of the senior debt securities; or
- reduces the above-stated percentage of outstanding senior debt securities of such series whose holders must consent to a supplemental indenture or modifies or amends or waives certain provisions of or defaults under the senior indenture.

It shall not be necessary for the holders to approve the particular form of any proposed amendment, supplement or waiver, but it shall be sufficient if the holders' consent approves the substance thereof. After an amendment, supplement or waiver of the senior indenture in accordance with the provisions described in this section becomes effective, the trustee must give to the holders affected thereby certain notice briefly describing the amendment, supplement or waiver. Any failure by the trustee to give such notice, or any defect therein, shall not, however, in any way impair or affect the validity of any such amendment, supplemental indenture or waiver.

No Personal Liability of Incorporators, Stockholders, Officers, Directors. The senior indenture provides that no recourse shall be had under any obligation, covenant or agreement of ours in the senior indenture or any supplemental indenture, or in any of the senior debt securities or because of the creation of any indebtedness represented thereby, against any of our incorporators, stockholders, officers or directors, past, present or future, or of any predecessor or successor entity thereof under any law, statute or constitutional provision or by the enforcement of any assessment or by any legal or equitable proceeding or otherwise. Each holder, by accepting the senior debt securities, waives and releases all such liability.

Concerning the Trustee. The senior indenture provides that, except during the continuance of an event of default, the trustee will not be liable except for the performance of such duties as are specifically set forth in the senior indenture. If an event of default has occurred and is continuing, the trustee will exercise such rights and powers vested in it under the senior indenture and will use the same degree of care and skill in its exercise as a prudent person would exercise under the circumstances in the conduct of such person's own affairs.

The senior indenture and the provisions of the Trust Indenture Act incorporated by reference therein contain limitations on the rights of the trustee thereunder, should it become a creditor of ours or any of our subsidiaries, to obtain payment of claims in certain cases or to realize on certain property received by it in respect of any such claims, as security or otherwise. The trustee is permitted to engage in other transactions, provided that if it acquires any conflicting interest (as defined in the Trust Indenture Act), it must eliminate such conflict or resign.

We may have normal banking relationships with the senior trustee in the ordinary course of business.

Unclaimed Funds. All funds deposited with the trustee or any paying agent for the payment of principal, premium, interest or additional amounts in respect of the senior debt securities that remain unclaimed for two years after the date upon which such amounts became due and payable will be repaid to us. Thereafter, any right of any holder of senior debt securities to such funds shall be enforceable only against us, and the trustee and paying agents will have no liability therefor.

Governing Law. The senior indenture and the senior debt securities will be governed by, and construed in accordance with, the internal laws of the State of New York.

Certain Terms of the Subordinated Debt Securities

Other than the terms of the subordinated indenture and subordinated debt securities relating to subordination or otherwise as described in the prospectus supplement relating to a particular series of subordinated debt securities,

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the terms of the subordinated indenture and subordinated debt securities are identical in all material respects to the terms of the senior indenture and senior debt securities.

Additional or different subordination terms may be specified in the prospectus supplement applicable to a particular series.

Subordination. The indebtedness evidenced by the subordinated debt securities is subordinate to the prior payment in full of all of our senior indebtedness, as defined in the subordinated indenture. During the continuance beyond any applicable grace period of any default in the payment of principal, premium, interest or any other payment due on any of our senior indebtedness, we may not make any payment of principal of or interest on the subordinated debt securities (except for certain sinking fund payments). In addition, upon any payment or distribution of our assets upon any dissolution, winding-up, liquidation or reorganization, the payment of the principal of and interest on the subordinated debt securities will be subordinated to the extent provided in the subordinated indenture in right of payment to the prior payment in full of all our senior indebtedness. Because of this subordination, if we dissolve or otherwise liquidate, holders of our subordinated debt securities may receive less, ratably, than holders of our senior indebtedness. The subordination provisions do not prevent the occurrence of an event of default under the subordinated indenture.

The term “senior indebtedness” of a person means with respect to such person the principal of, premium, if any, interest on, and any other payment due pursuant to any of the following, whether outstanding on the date of the subordinated indenture or incurred by that person in the future:

- all of the indebtedness of that person for money borrowed;
- all of the indebtedness of that person evidenced by notes, debentures, bonds or other securities sold by that person for money;
- all of the lease obligations that are capitalized on the books of that person in accordance with generally accepted accounting principles;
- all indebtedness of others of the kinds described in the first two bullet points above and all lease obligations of others of the kind described in the third bullet point above that the person, in any manner, assumes or guarantees or that the person in effect guarantees through an agreement to purchase, whether that agreement is contingent or otherwise; and
- all renewals, extensions or refundings of indebtedness of the kinds described in the first, second or fourth bullet point above and all renewals or extensions of leases of the kinds described in the third or fourth bullet point above;

unless, in the case of any particular indebtedness, renewal, extension or refunding, the instrument creating or evidencing it or the assumption or guarantee relating to it expressly provides that such indebtedness, renewal, extension or refunding is not superior in right of payment to the subordinated debt securities. Our senior debt securities constitute senior indebtedness for purposes of the subordinated indenture.

DESCRIPTION OF CAPITAL STOCK

The following description of our capital stock is intended as a summary only and therefore is not a complete description of our capital stock. This description is based upon, and is qualified by reference to, our certificate of incorporation, our bylaws and applicable provisions of Delaware corporate law. You should read our certificate of incorporation and bylaws, which are filed as exhibits to the registration statement of which this prospectus forms a part, for the provisions that are important to you.

Our authorized capital stock consists of 200,000,000 shares of common stock, \$0.001 par value per share, and 10,000,000 shares of preferred stock, \$0.001 par value per share.

Common Stock

Annual Meeting. Annual meetings of our stockholders are held on the date designated in accordance with our bylaws. Written notice must be mailed to each stockholder entitled to vote not less than ten nor more than 60 days before the date of the meeting. The presence in person, by remote communication, if authorized by our board of directors, or by proxy of the holders of record of a majority of our issued and outstanding shares entitled to vote at such meeting constitutes a quorum for the transaction of business at meetings of the stockholders. Special meetings of the stockholders may be called for any purpose or purposes at any time only by our board of directors and may not be called by any other person or persons. Except as may be otherwise provided by applicable law, our certificate of incorporation or our bylaws, all elections shall be decided by a plurality, and all other questions shall be decided by a majority, of the votes cast by stockholders entitled to vote thereon at a duly held meeting of stockholders at which a quorum is present.

Voting Rights. Each holder of common stock is entitled to one vote for each share held of record on all matters to be voted upon by stockholders.

Dividends. Subject to the rights, powers and preferences of any outstanding preferred stock, and except as provided by law or in our certificate of incorporation, dividends may be declared and paid or set aside for payment on the common stock out of legally available assets or funds when and as declared by the board of directors.

Liquidation, Dissolution and Winding Up. Subject to the rights, powers and preferences of any outstanding preferred stock, in the event of our liquidation, dissolution or winding up, our net assets will be distributed pro rata to the holders of our common stock.

Other Rights. Holders of the common stock have no right to:

- convert the stock into any other security;
- have the stock redeemed;
- purchase additional stock; or
- maintain their proportionate ownership interest.

The common stock does not have cumulative voting rights. Holders of shares of the common stock are not required to make additional capital contributions.

Transfer Agent and Registrar. Computershare Trust Company, N.A. is transfer agent and registrar for the common stock.

Preferred Stock

We are authorized to issue "blank check" preferred stock, which may be issued in one or more series upon authorization of our board of directors. Our board of directors is authorized to fix the designations, powers,

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preferences and the relative, participating, optional or other special rights and any qualifications, limitations and restrictions of the shares of each series of preferred stock, including dividend rights, conversion rights, redemption privileges and liquidation preferences. The authorized shares of our preferred stock are available for issuance without further action by our stockholders, unless such action is required by applicable law or the rules of any stock exchange on which our securities may be listed. If the approval of our stockholders is not required for the issuance of shares of our preferred stock, our board may determine not to seek stockholder approval. The specific terms of any series of preferred stock offered pursuant to this prospectus will be described in the prospectus supplement relating to that series of preferred stock.

A series of our preferred stock could, depending on the terms of such series, impede the completion of a merger, tender offer or other takeover attempt. Our board of directors will make any determination to issue preferred shares based upon its judgment as to the best interests of our stockholders. Our directors, in so acting, could issue preferred stock having terms that could discourage an acquisition attempt through which an acquirer may be able to change the composition of our board of directors, including a tender offer or other transaction that some, or a majority, of our stockholders might believe to be in their best interests or in which stockholders might receive a premium for their stock over the then-current market price of the stock.

The preferred stock has the terms described below unless otherwise provided in the prospectus supplement relating to a particular series of preferred stock. You should read the prospectus supplement relating to the particular series of preferred stock being offered for specific terms, including:

- the designation and stated value per share of the preferred stock and the number of shares offered;
- the amount of liquidation preference per share;
- the price at which the preferred stock will be issued;
- the dividend rate, or method of calculation of dividends, the dates on which dividends will be payable, whether dividends will be cumulative or noncumulative and, if cumulative, the dates from which dividends will commence to accumulate;
- any redemption or sinking fund provisions;
- if other than the currency of the United States, the currency or currencies including composite currencies in which the preferred stock is denominated and/or in which payments will or may be payable;
- any conversion provisions; and
- any other rights, preferences, privileges, limitations and restrictions on the preferred stock.

The preferred stock will, when issued, be fully paid and non-assessable. Unless otherwise specified in the prospectus supplement, each series of preferred stock will rank equally as to dividends and liquidation rights in all respects with each other series of preferred stock. The rights of holders of shares of each series of preferred stock will be subordinate to those of our general creditors.

Rank. Unless otherwise specified in the prospectus supplement, the preferred stock will, with respect to dividend rights and rights upon our liquidation, dissolution or winding up of our affairs, rank:

- senior to our common stock and to all equity securities ranking junior to such preferred stock with respect to dividend rights or rights upon our liquidation, dissolution or winding up of our affairs;
- on a parity with all equity securities issued by us, the terms of which specifically provide that such equity securities rank on a parity with the preferred stock with respect to dividend rights or rights upon our liquidation, dissolution or winding up of our affairs; and
- junior to all equity securities issued by us, the terms of which specifically provide that such equity securities rank senior to the preferred stock with respect to dividend rights or rights upon our liquidation, dissolution or winding up of our affairs.

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The term “equity securities” does not include convertible debt securities.

Dividends. Holders of the preferred stock of each series will be entitled to receive, when, as and if declared by our board of directors, cash dividends at such rates and on such dates described in the prospectus supplement. Different series of preferred stock may be entitled to dividends at different rates or based on different methods of calculation. The dividend rate may be fixed or variable or both. Dividends will be payable to the holders of record as they appear on our stock books on record dates fixed by our board of directors, as specified in the applicable prospectus supplement.

Dividends on any series of preferred stock may be cumulative or noncumulative, as described in the applicable prospectus supplement. If our board of directors does not declare a dividend payable on a dividend payment date on any series of noncumulative preferred stock, then the holders of that noncumulative preferred stock will have no right to receive a dividend for that dividend payment date, and we will have no obligation to pay the dividend accrued for that period, whether or not dividends on that series are declared payable on any future dividend payment dates. Dividends on any series of cumulative preferred stock will accrue from the date we initially issue shares of such series or such other date specified in the applicable prospectus supplement.

No dividends may be declared or paid or funds set apart for the payment of any dividends on any parity securities unless full dividends have been paid or set apart for payment on the preferred stock. If full dividends are not paid, the preferred stock will share dividends pro rata with the parity securities.

No dividends may be declared or paid or funds set apart for the payment of dividends on any junior securities unless full dividends for all dividend periods terminating on or prior to the date of the declaration or payment will have been paid or declared and a sum sufficient for the payment set apart for payment on the preferred stock.

Liquidation Preference. Upon any voluntary or involuntary liquidation, dissolution or winding up of our affairs, then, before we make any distribution or payment to the holders of any common stock or any other class or series of our capital stock ranking junior to the preferred stock in the distribution of assets upon any liquidation, dissolution or winding up of our affairs, the holders of each series of preferred stock shall be entitled to receive out of assets legally available for distribution to stockholders, liquidating distributions in the amount of the liquidation preference per share set forth in the prospectus supplement, plus any accrued and unpaid dividends thereon. Such dividends will not include any accumulation in respect of unpaid noncumulative dividends for prior dividend periods. Unless otherwise specified in the prospectus supplement, after payment of the full amount of their liquidating distributions, the holders of preferred stock will have no right or claim to any of our remaining assets. Upon any such voluntary or involuntary liquidation, dissolution or winding up, if our available assets are insufficient to pay the amount of the liquidating distributions on all outstanding preferred stock and the corresponding amounts payable on all other classes or series of our capital stock ranking on parity with the preferred stock and all other such classes or series of shares of capital stock ranking on parity with the preferred stock in the distribution of assets, then the holders of the preferred stock and all other such classes or series of capital stock will share ratably in any such distribution of assets in proportion to the full liquidating distributions to which they would otherwise be entitled.

Upon any such liquidation, dissolution or winding up and if we have made liquidating distributions in full to all holders of preferred stock, we will distribute our remaining assets among the holders of any other classes or series of capital stock ranking junior to the preferred stock according to their respective rights and preferences and, in each case, according to their respective number of shares. For such purposes, our consolidation or merger with or into any other corporation, trust or entity, or the sale, lease or conveyance of all or substantially all of our property or assets will not be deemed to constitute a liquidation, dissolution or winding up of our affairs.

Redemption. If so provided in the applicable prospectus supplement, the preferred stock will be subject to mandatory redemption or redemption at our option, as a whole or in part, in each case upon the terms, at the times and at the redemption prices set forth in such prospectus supplement.

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The prospectus supplement relating to a series of preferred stock that is subject to mandatory redemption will specify the number of shares of preferred stock that shall be redeemed by us in each year commencing after a date to be specified, at a redemption price per share to be specified, together with an amount equal to all accrued and unpaid dividends thereon to the date of redemption. Unless the shares have a cumulative dividend, such accrued dividends will not include any accumulation in respect of unpaid dividends for prior dividend periods. We may pay the redemption price in cash or other property, as specified in the applicable prospectus supplement. If the redemption price for preferred stock of any series is payable only from the net proceeds of the issuance of shares of our capital stock, the terms of such preferred stock may provide that, if no such shares of our capital stock shall have been issued or to the extent the net proceeds from any issuance are insufficient to pay in full the aggregate redemption price then due, such preferred stock shall automatically and mandatorily be converted into the applicable shares of our capital stock pursuant to conversion provisions specified in the applicable prospectus supplement.

Notwithstanding the foregoing, we will not redeem any preferred stock of a series unless:

- if that series of preferred stock has a cumulative dividend, we have declared and paid or contemporaneously declare and pay or set aside funds to pay full cumulative dividends on the preferred stock for all past dividend periods and the then current dividend period; or
- if such series of preferred stock does not have a cumulative dividend, we have declared and paid or contemporaneously declare and pay or set aside funds to pay full dividends for the then current dividend period.

In addition, we will not acquire any preferred stock of a series unless:

- if that series of preferred stock has a cumulative dividend, we have declared and paid or contemporaneously declare and pay or set aside funds to pay full cumulative dividends on all outstanding shares of such series of preferred stock for all past dividend periods and the then current dividend period; or
- if that series of preferred stock does not have a cumulative dividend, we have declared and paid or contemporaneously declare and pay or set aside funds to pay full dividends on the preferred stock of such series for the then current dividend period.

However, at any time we may purchase or acquire preferred stock of that series (1) pursuant to a purchase or exchange offer made on the same terms to holders of all outstanding preferred stock of such series or (2) by conversion into or exchange for shares of our capital stock ranking junior to the preferred stock of such series as to dividends and upon liquidation.

If fewer than all of the outstanding shares of preferred stock of any series are to be redeemed, we will determine the number of shares that may be redeemed pro rata from the holders of record of such shares in proportion to the number of such shares held or for which redemption is requested by such holder or by any other equitable manner that we determine. Such determination will reflect adjustments to avoid redemption of fractional shares.

Unless otherwise specified in the prospectus supplement, we will mail notice of redemption at least 30 days but not more than 60 days before the redemption date to each holder of record of preferred stock to be redeemed at the address shown on our stock transfer books. Each notice shall state:

- the redemption date;
- the number of shares and series of preferred stock to be redeemed;
- the redemption price;
- the place or places where certificates for such preferred stock are to be surrendered for payment of the redemption price;

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- that dividends on the shares to be redeemed will cease to accrue on such redemption date;
- the date on which the holder's conversion rights, if any, as to such shares shall terminate; and
- the specific number of shares to be redeemed from each such holder if fewer than all the shares of any series are to be redeemed.

If notice of redemption has been given and we have set aside the funds necessary for such redemption in trust for the benefit of the holders of any shares called for redemption, then from and after the redemption date, dividends will cease to accrue on such shares, and all rights of the holders of such shares will terminate, except the right to receive the redemption price.

Voting Rights. Holders of preferred stock will not have any voting rights, except as required by law or as indicated in the applicable prospectus supplement.

Unless otherwise provided for under the terms of any series of preferred stock, no consent or vote of the holders of shares of preferred stock or any series thereof shall be required for any amendment to our certificate of incorporation that would increase the number of authorized shares of preferred stock or the number of authorized shares of any series thereof or decrease the number of authorized shares of preferred stock or the number of authorized shares of any series thereof (but not below the number of authorized shares of preferred stock or such series, as the case may be, then outstanding).

Conversion Rights. The terms and conditions, if any, upon which any series of preferred stock is convertible into our common stock will be set forth in the applicable prospectus supplement relating thereto. Such terms will include the number of shares of common stock into which the shares of preferred stock are convertible, the conversion price, rate or manner of calculation thereof, the conversion period, provisions as to whether conversion will be at our option or at the option of the holders of the preferred stock, the events requiring an adjustment of the conversion price and provisions affecting conversion in the event of the redemption.

Transfer Agent and Registrar. The transfer agent and registrar for the preferred stock will be set forth in the applicable prospectus supplement.

Registration Rights

Amended and Restated Registration Rights Agreement

We are party to an amended and restated registration rights agreement dated as of December 22, 2016, with Shire Human Genetic Therapies, Inc. and certain other of our stockholders. This amended and restated registration rights agreement provides these stockholders the right to require us to register their shares under the Securities Act under specified circumstances as described below.

Demand and Form S-3 Registration Rights. Subject to specified limitations set forth in the amended and restated registration rights agreement, at any time, the holders of at least 60% of the then outstanding registrable securities may demand that we register registrable securities then outstanding under the Securities Act for purposes of a public offering having an aggregate offering price to the public of not less than \$5.0 million. We are not obligated to file a registration statement pursuant to this provision on more than two occasions.

In addition, subject to specified limitations set forth in the amended and restated registration rights agreement, at any time after we become eligible to file a registration statement on Form S-3, holders of at least 25% of the registrable securities then outstanding may request that we register their registrable securities on Form S-3 for purposes of a public offering for which the reasonably anticipated aggregate offering price to the public would exceed \$1.0 million. We are not obligated to file a registration statement pursuant to this provision on more than two occasions in any 12-month period.

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Incidental Registration Rights. If we propose to register for our own account any of our securities under the Securities Act, the holders of registrable securities will be entitled to notice of the registration and, subject to specified exceptions, have the right to require us to register all or a portion of the registrable securities then held by them in that registration.

In the event that any registration in which the holders of registrable securities participate pursuant to our amended and restated registration rights agreement is an underwritten public offering, we have agreed to enter into an underwriting agreement in usual and customary form and use our reasonable best efforts to facilitate such offering.

Expenses. Pursuant to the amended and restated registration rights agreement, we are required to pay all registration expenses, including all registration and filing fees, exchange listing fees, printing expenses, fees and expenses of one counsel selected by the selling stockholders to represent the selling stockholders, state Blue Sky fees and expenses and the expense of any special audits incident to or required by any such registration, but excluding underwriting discounts, selling commissions and the fees and expenses of the selling stockholders' own counsel (other than the counsel selected to represent all selling stockholders).

Indemnification. The amended and restated registration rights agreement contains customary cross-indemnification provisions, pursuant to which we are obligated to indemnify the selling stockholders in the event of material misstatements or omissions in the registration statement attributable to us or any violation or alleged violation whether by action or inaction by us under the Securities Act, the Exchange Act, any state securities or Blue Sky law or any rule or regulation promulgated under the Securities Act, the Exchange Act or any state securities or Blue Sky law in connection with such registration statement or the qualification or compliance of the offering, and they are obligated to indemnify us for material misstatements or omissions in the registration statement attributable to them.

Provisions of Our Certificate of Incorporation and Bylaws and Delaware Law That May Have Anti-Takeover Effects

Board of Directors. Our certificate of incorporation provide for a board of directors divided as nearly equally as possible into three classes. Each class is elected to a term expiring at the annual meeting of stockholders held in the third year following the year of such election. The number of directors comprising our board of directors is fixed from time to time by the board of directors.

Removal of Directors by Stockholders. Our certificate of incorporation provides that, subject to the rights of holders of any series of preferred stock, members of our board of directors may be removed only for cause and only by the affirmative vote of the holders of at least seventy-five percent (75%) of the votes that all the stockholders would be entitled to cast in an election of directors or class of directors.

Stockholder Nomination of Directors. Our bylaws provide that a stockholder must notify us in writing of any stockholder nomination of a director not earlier than the 120th day and not later than the 90th day prior to the first anniversary of the preceding year's annual meeting; provided, that if the date of the annual meeting is advanced by more than 30 days, or delayed by more than 60 days, from such anniversary date, notice by the stockholder to be timely must be so delivered not earlier than the 120th day prior to the date of such annual meeting and not later than the close of business on the later of (1) the 90th day prior to the date of such meeting and (2) the tenth day following the day on which notice of the date of such annual meeting was mailed or public disclosure of the date of such annual meeting was made, whichever first occurs.

No Action by Written Consent. Our certificate of incorporation provides that our stockholders may not act by written consent and may only act at duly called meetings of stockholders.

Super-Majority Voting. The General Corporation Law of the State of Delaware, which we refer to as the DGCL, provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required

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to amend a corporation's certificate of incorporation or bylaws unless a corporation's certificate of incorporation or bylaws, as the case may be, requires a greater percentage. Our bylaws may be amended or repealed by a majority vote of our board of directors or the affirmative vote of the holders of at least 75% of the votes that all our stockholders would be entitled to cast in any annual election of directors. In addition, the affirmative vote of the holders of at least 75% of the votes that all our stockholders would be entitled to cast in any election of directors is required to amend or repeal or to adopt any provisions inconsistent with any of the provisions of our certificate of incorporation described above.

Delaware Business Combination Statute. Section 203 of the DGCL is applicable to us. Section 203 of the DGCL restricts some types of transactions and business combinations between a corporation and a 15% stockholder. A 15% stockholder is generally considered by Section 203 to be a person owning 15% or more of the corporation's outstanding voting stock. Section 203 refers to a 15% stockholder as an "interested stockholder." Section 203 restricts these transactions for a period of three years from the date the stockholder acquires 15% or more of our outstanding voting stock. With some exceptions, unless the transaction is approved by the board of directors and the holders of at least two-thirds of the outstanding voting stock of the corporation, Section 203 prohibits significant business transactions such as:

- a merger with, disposition of significant assets to or receipt of disproportionate financial benefits by the interested stockholder, and
- any other transaction that would increase the interested stockholder's proportionate ownership of any class or series of our capital stock.

The shares held by the interested stockholder are not counted as outstanding when calculating the two-thirds of the outstanding voting stock needed for approval.

The prohibition against these transactions does not apply if:

- prior to the time that any stockholder became an interested stockholder, the board of directors approved either the business combination or the transaction in which such stockholder acquired 15% or more of our outstanding voting stock, or
- the interested stockholder owns at least 85% of our outstanding voting stock as a result of a transaction in which such stockholder acquired 15% or more of our outstanding voting stock. Shares held by persons who are both directors and officers or by some types of employee stock plans are not counted as outstanding when making this calculation.

Exclusive Forum Selection. Our certificate of incorporation provides that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (or, if the Court of Chancery of the State of Delaware does not have jurisdiction, the federal district court for the District of Delaware) shall be the sole and exclusive forum for (1) any derivative action or proceeding brought on behalf of our company, (2) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers, employees or stockholders to our company or our stockholders, (3) any action asserting a claim arising pursuant to any provision of the DGCL or as to which the DGCL confers jurisdiction on the Court of Chancery of the State of Delaware, or (4) any action asserting a claim arising pursuant to any provision of our certificate of incorporation or bylaws (in each case, as they may be amended from time to time) or governed by the internal affairs doctrine. Although our certificate of incorporation contains the choice of forum provision described above, it is possible that a court could rule that such a provision is inapplicable for a particular claim or action or that such provision is unenforceable. We do not expect this choice of forum provision will apply to suits brought to enforce a duty or liability created by the Securities Act, the Exchange Act, or any other claim for which federal courts have exclusive jurisdiction.

DESCRIPTION OF UNITS

The following description, together with the additional information we may include in any applicable prospectus supplements, summarizes the material terms and provisions of the units that we may offer under this prospectus. While the terms summarized below will apply generally to any units that we may offer, we will describe the particular terms of any series of units in more detail in the applicable prospectus supplement. If we indicate in the prospectus supplement, the terms of any units offered under that prospectus supplement may differ from the terms described below. Specific unit agreements will contain additional important terms and provisions and will be incorporated by reference as an exhibit to the registration statement that includes this prospectus.

General

We may issue units consisting of debt securities, common stock, preferred stock, or warrants for the purchase of debt securities, common stock and/or preferred stock in one or more series, in any combination. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date.

We will describe in the applicable prospectus supplement the terms of the series of units being offered, including:

- the material terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- any material provisions relating to the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units; and
- any material provisions of the governing unit agreement that differ from those described above.

We may issue units in such amounts and in such numbers of distinct series as we determine.

The provisions described in this section, as well as those described under “Description of Debt Securities,” “Description of Capital Stock” and “Description of Warrants” will apply to each unit, as applicable, and to any debt securities, common stock, preferred stock or warrant included in each unit, as applicable.

Unit Agent

The name and address of the unit agent for any units we offer will be set forth in the applicable prospectus supplement.

Enforceability of Rights by Holders of Units

Each unit agent will act solely as our agent under the applicable unit agreement and will not assume any obligation or relationship of agency or trust with any holder of any unit. A single bank or trust company may act as unit agent for more than one series of units. A unit agent will have no duty or responsibility in case of any default by us under the applicable unit agreement or unit, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a unit may, without the consent of the related unit agent or the holder of any other unit, enforce by appropriate legal action its rights as holder under any security included in the unit.

DESCRIPTION OF WARRANTS

We may issue warrants to purchase common stock, preferred stock or debt securities. We may offer warrants separately or together with one or more additional warrants, common stock, preferred stock or debt securities, or any combination of those securities in the form of units, as described in the applicable prospectus supplement. If we issue warrants as part of a unit, the accompanying prospectus supplement will specify whether those warrants may be separated from the other securities in the unit prior to the expiration date of the warrants. The applicable prospectus supplement will also describe the following terms of any warrants:

- the specific designation and aggregate number of, and the offering price at which we will issue, the warrants;
- the currency or currency units in which the offering price, if any, and the exercise price are payable;
- the date on which the right to exercise the warrants will begin and the date on which that right will expire or, if you may not continuously exercise the warrants throughout that period, the specific date or dates on which you may exercise the warrants;
- whether the warrants are to be sold separately or with other securities as parts of units;
- whether the warrants will be issued in definitive or global form or in any combination of these forms, although, in any case, the form of a warrant included in a unit will correspond to the form of the unit and of any security included in that unit;
- any applicable material U.S. federal income tax consequences;
- the identity of the warrant agent for the warrants and of any other depositaries, execution or paying agents, transfer agents, registrars or other agents;
- the proposed listing, if any, of the warrants or any securities purchasable upon exercise of the warrants on any securities exchange;
- the designation and terms of any equity securities purchasable upon exercise of the warrants;
- the designation, aggregate principal amount, currency and terms of any debt securities that may be purchased upon exercise of the warrants;
- if applicable, the designation and terms of the preferred stock with which the warrants are issued and the number of warrants issued with each security;
- if applicable, the date from and after which any warrants issued as part of a unit and the related debt securities, preferred stock or common stock will be separately transferable;
- the number of shares of common stock or preferred stock purchasable upon exercise of a warrant and the price at which those shares may be purchased;
- if applicable, the minimum or maximum amount of the warrants that may be exercised at any one time;
- information with respect to book-entry procedures, if any;
- the anti-dilution provisions of, and other provisions for changes to or adjustment in the exercise price of, the warrants, if any;
- any redemption or call provisions; and
- any additional terms of the warrants, including terms, procedures and limitations relating to the exchange or exercise of the warrants.

FORMS OF SECURITIES

Each debt security, unit and warrant will be represented either by a certificate issued in definitive form to a particular investor or by one or more global securities representing the entire issuance of securities. Unless the applicable prospectus supplement provides otherwise, certificated securities in definitive form and global securities will be issued in registered form. Definitive securities name you or your nominee as the owner of the security, and in order to transfer or exchange these securities or to receive payments other than interest or other interim payments, you or your nominee must physically deliver the securities to the trustee, registrar, paying agent or other agent, as applicable. Global securities name a depositary or its nominee as the owner of the debt securities, units or warrants represented by these global securities. The depositary maintains a computerized system that will reflect each investor's beneficial ownership of the securities through an account maintained by the investor with its broker/dealer, bank, trust company or other representative, as we explain more fully below.

Global Securities

We may issue the debt securities, units and warrants in the form of one or more fully registered global securities that will be deposited with a depositary or its nominee identified in the applicable prospectus supplement and registered in the name of that depositary or nominee. In those cases, one or more global securities will be issued in a denomination or aggregate denominations equal to the portion of the aggregate principal or face amount of the securities to be represented by global securities. Unless and until it is exchanged in whole for securities in definitive registered form, a global security may not be transferred except as a whole by and among the depositary for the global security, the nominees of the depositary or any successors of the depositary or those nominees.

If not described below, any specific terms of the depositary arrangement with respect to any securities to be represented by a global security will be described in the prospectus supplement relating to those securities. We anticipate that the following provisions will apply to all depositary arrangements.

Ownership of beneficial interests in a global security will be limited to persons, called participants, that have accounts with the depositary or persons that may hold interests through participants. Upon the issuance of a global security, the depositary will credit, on its book-entry registration and transfer system, the participants' accounts with the respective principal or face amounts of the securities beneficially owned by the participants. Any dealers, underwriters or agents participating in the distribution of the securities will designate the accounts to be credited. Ownership of beneficial interests in a global security will be shown on, and the transfer of ownership interests will be effected only through, records maintained by the depositary, with respect to interests of participants, and on the records of participants, with respect to interests of persons holding through participants. The laws of some states may require that some purchasers of securities take physical delivery of these securities in definitive form. These laws may impair your ability to own, transfer or pledge beneficial interests in global securities.

So long as the depositary, or its nominee, is the registered owner of a global security, that depositary or its nominee, as the case may be, will be considered the sole owner or holder of the securities represented by the global security for all purposes under the applicable indenture, warrant agreement or unit agreement. Except as described below, owners of beneficial interests in a global security will not be entitled to have the securities represented by the global security registered in their names, will not receive or be entitled to receive physical delivery of the securities in definitive form and will not be considered the owners or holders of the securities under the applicable indenture, warrant agreement or unit agreement. Accordingly, each person owning a beneficial interest in a global security must rely on the procedures of the depositary for that global security and, if that person is not a participant, on the procedures of the participant through which the person owns its interest, to exercise any rights of a holder under the applicable indenture, warrant agreement or unit agreement. We understand that under existing industry practices, if we request any action of holders or if an owner of a beneficial interest in a global security desires to give or take any action that a holder is entitled to give or take

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under the applicable indenture, warrant agreement or unit agreement, the depositary for the global security would authorize the participants holding the relevant beneficial interests to give or take that action, and the participants would authorize beneficial owners owning through them to give or take that action or would otherwise act upon the instructions of beneficial owners holding through them.

Principal, premium, if any, and interest payments on debt securities, and any payments to holders with respect to warrants or units, represented by a global security registered in the name of a depositary or its nominee will be made to the depositary or its nominee, as the case may be, as the registered owner of the global security. None of us, or any trustee, warrant agent, unit agent or other agent of ours, or any agent of any trustee, warrant agent or unit agent will have any responsibility or liability for any aspect of the records relating to payments made on account of beneficial ownership interests in the global security or for maintaining, supervising or reviewing any records relating to those beneficial ownership interests.

We expect that the depositary for any of the securities represented by a global security, upon receipt of any payment to holders of principal, premium, interest or other distribution of underlying securities or other property on that registered global security, will immediately credit participants' accounts in amounts proportionate to their respective beneficial interests in that global security as shown on the records of the depositary. We also expect that payments by participants to owners of beneficial interests in a global security held through participants will be governed by standing customer instructions and customary practices, as is now the case with the securities held for the accounts of customers or registered in "street name," and will be the responsibility of those participants.

If the depositary for any of the securities represented by a global security is at any time unwilling or unable to continue as depositary or ceases to be a clearing agency registered under the Exchange Act, and a successor depositary registered as a clearing agency under the Exchange Act is not appointed by us within 90 days, we will issue securities in definitive form in exchange for the global security that had been held by the depositary. Any securities issued in definitive form in exchange for a global security will be registered in the name or names that the depositary gives to the relevant trustee, warrant agent, unit agent or other relevant agent of ours or theirs. It is expected that the depositary's instructions will be based upon directions received by the depositary from participants with respect to ownership of beneficial interests in the global security that had been held by the depositary.

PLAN OF DISTRIBUTION

We may sell securities:

- to or through underwriters;
- to or through brokers or dealers;
- through agents;
- directly to one or more purchasers in negotiated sales or competitively bid transactions;
- through a block trade in which the broker or dealer engaged to handle the block trade will attempt to sell the securities as agent, but may position and resell a portion of the block as principal to facilitate the transaction; or
- through a combination of any of these methods of sale.

In addition, we may issue the securities as a dividend or distribution or in a subscription rights offering to our existing security holders. This prospectus may be used in connection with any offering of our securities through any of these methods or other methods described in the applicable prospectus supplement.

We may directly solicit offers to purchase securities, or agents may be designated to solicit such offers. We will, in the prospectus supplement relating to such offering, name any agent that could be viewed as an underwriter under the Securities Act, and describe any commissions that we must pay. Any such agent will be acting on a best efforts basis for the period of its appointment or, if indicated in the applicable prospectus supplement, on a firm commitment basis.

The distribution of the securities may be effected from time to time in one or more transactions:

- at a fixed price, or prices, which may be changed from time to time;
- at market prices prevailing at the time of sale;
- at prices related to such prevailing market prices; or
- at negotiated prices.

Each prospectus supplement will describe the method of distribution of the securities and any applicable restrictions.

The prospectus supplement with respect to the securities of a particular series will describe the terms of the offering of the securities, including the following:

- the name of the agent or any underwriters;
- the public offering or purchase price and the proceeds we will receive from the sale of the securities;
- any discounts and commissions to be allowed or re-allowed or paid to the agent or underwriters;
- all other items constituting underwriting compensation;
- any discounts and commissions to be allowed or re-allowed or paid to dealers; and
- any exchanges on which the securities will be listed.

If any underwriters or agents are utilized in the sale of the securities in respect of which this prospectus is delivered, we will enter into an underwriting agreement or other agreement with them at the time of sale to them, and we will set forth in the prospectus supplement relating to such offering the names of the underwriters or agents and the terms of the related agreement with them.

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If a dealer is utilized in the sale of the securities in respect of which this prospectus is delivered, we will sell such securities to the dealer, as principal. The dealer may then resell such securities to the public at varying prices to be determined by such dealer at the time of resale.

If we offer securities in a subscription rights offering to our existing security holders, we may enter into a standby underwriting agreement with dealers, acting as standby underwriters. We may pay the standby underwriters a commitment fee for the securities they commit to purchase on a standby basis. If we do not enter into a standby underwriting arrangement, we may retain a dealer-manager to manage a subscription rights offering for us.

Remarketing firms, agents, underwriters, dealers and other persons may be entitled under agreements which they may enter into with us to indemnification by us against certain civil liabilities, including liabilities under the Securities Act, and may be customers of, engage in transactions with or perform services for us in the ordinary course of business.

If so indicated in the applicable prospectus supplement, we will authorize underwriters or other persons acting as our agents to solicit offers by certain institutions to purchase securities from us pursuant to delayed delivery contracts providing for payment and delivery on the date stated in the prospectus supplement. Each contract will be for an amount not less than, and the aggregate amount of securities sold pursuant to such contracts shall not be less nor more than, the respective amounts stated in the prospectus supplement. Institutions with whom the contracts, when authorized, may be made include commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and other institutions, but shall in all cases be subject to our approval. Delayed delivery contracts will not be subject to any conditions except that:

- the purchase by an institution of the securities covered under that contract shall not at the time of delivery be prohibited under the laws of the jurisdiction to which that institution is subject; and
- if the securities are also being sold to underwriters acting as principals for their own account, the underwriters shall have purchased such securities not sold for delayed delivery. The underwriters and other persons acting as our agents will not have any responsibility in respect of the validity or performance of delayed delivery contracts.

Certain agents, underwriters and dealers, and their associates and affiliates may be customers of, have borrowing relationships with, engage in other transactions with, and/or perform services, including investment banking services, for us or one or more of our respective affiliates in the ordinary course of business.

In order to facilitate the offering of the securities, any underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of the securities or any other securities the prices of which may be used to determine payments on such securities. Specifically, any underwriters may overallocate in connection with the offering, creating a short position for their own accounts. In addition, to cover overallocations or to stabilize the price of the securities or of any such other securities, the underwriters may bid for, and purchase, the securities or any such other securities in the open market. Finally, in any offering of the securities through a syndicate of underwriters, the underwriting syndicate may reclaim selling concessions allowed to an underwriter or a dealer for distributing the securities in the offering if the syndicate repurchases previously distributed securities in transactions to cover syndicate short positions, in stabilization transactions or otherwise. Any of these activities may stabilize or maintain the market price of the securities above independent market levels. Any such underwriters are not required to engage in these activities and may end any of these activities at any time.

Under Rule 15c6-1 of the Exchange Act, trades in the secondary market generally are required to settle in two business days, unless the parties to any such trade expressly agree otherwise or the securities are sold by us to an underwriter in a firm commitment underwritten offering. The applicable prospectus supplement may provide that the original issue date for your securities may be more than two scheduled business days after the trade date for your securities. Accordingly, in such a case, if you wish to trade securities on any date prior to the second

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business day before the original issue date for your securities, you will be required, by virtue of the fact that your securities initially are expected to settle in more than two scheduled business days after the trade date for your securities, to make alternative settlement arrangements to prevent a failed settlement.

The securities may be new issues of securities and may have no established trading market. The securities may or may not be listed on a national securities exchange. We can make no assurance as to the liquidity of or the existence of trading markets for any of the securities.

LEGAL MATTERS

Unless the applicable prospectus supplement indicates otherwise, the validity of the securities in respect of which this prospectus is being delivered will be passed upon by Wilmer Cutler Pickering Hale and Dorr LLP.

EXPERTS

The financial statements incorporated in this prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2019 have been so incorporated in reliance on the report (which contains an explanatory paragraph relating to the Company's ability to continue as a going concern as described in Note 1 to the financial statements) of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

\$125,000,000
and
6,824,992 Shares Offered by Selling Stockholder



Common Stock

PROSPECTUS SUPPLEMENT
, 2020

Joint Book-Running Managers

Goldman Sachs & Co. LLC

SVB Leerink

Evercore ISI

Co-Lead Managers

H.C. Wainwright & Co.

Roth Capital Partners
