

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered(1)	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee(2)
Common Stock, \$0.01 par value per share	\$300,000,000	\$32,730.00

- (1) The securities registered herein are offered pursuant to an automatic shelf registration statement.
- (2) Calculated pursuant to Rule 457(o) based on the proposed maximum aggregate offering price, and Rule 457(r) under the Securities Act of 1933, as amended (the "Securities Act"). In accordance with Rules 456(b) and 457(r) under the Securities Act, the registrant initially deferred payment of all of the registration fees for the Registration Statement (File No. 333-254946) filed by the registrant on April 1, 2021.

PROSPECTUS SUPPLEMENT
(To Prospectus dated April 1, 2021)

Up to \$ 300,000,000

BEAM THERAPEUTICS INC.

Common Stock

We have entered into an At the Market Sales Agreement, or sales agreement, with Jefferies LLC, a sales agent, relating to shares of our common stock offered by this prospectus supplement and the accompanying prospectus. In accordance with the terms of the sales agreement, we may offer and sell shares of our common stock having an aggregate offering price of up to \$300 million from time to time through the sales agent.

Our common stock is listed on The Nasdaq Global Select Market under the symbol “BEAM.” On March 26, 2021, the last reported sale price of our common stock on The Nasdaq Global Select Market was \$81.33 per share.

Sales of our common stock, if any, under this prospectus supplement may be made in sales deemed to be “at the market offerings” as defined in Rule 415(a)(4) promulgated under the Securities Act of 1933, as amended, or the Securities Act. Subject to the terms of the sales agreement, the sales agent is not required to sell any specific number or dollar amount of securities, but will act as a sales agent using commercially reasonable efforts to sell on our behalf all of the shares of common stock requested to be sold by us, consistent with normal trading and sales practices, on mutually agreed terms between the sales agent and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

The sales agent will be entitled to compensation at a commission rate of 3.0% of the aggregate gross sales price per share sold by it under the sales agreement. In connection with the sale of our common stock on our behalf, the sales agent will be deemed to be an “underwriter” within the meaning of the Securities Act and the compensation of the sales agent will be deemed to be underwriting commissions or discounts.

Investing in our common stock involves a high degree of risk. Before making an investment decision, you should carefully consider all of the information set forth in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein. See “[Risk Factors](#)” beginning on page S-8 of this prospectus supplement, page 3 of the accompanying prospectus and under similar headings in the documents incorporated by reference into this prospectus supplement and the accompanying prospectus.

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

Jefferies

April 1, 2021

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ABOUT THIS PROSPECTUS SUPPLEMENT

This document is in two parts. The first part is the prospectus supplement, including the documents incorporated by reference, which describes the specific terms of this offering. The second part, the accompanying prospectus, including the documents incorporated by reference, provides more general information. Generally, when we refer to this prospectus supplement, we are referring to both parts of this document combined. Before you invest, you should carefully read this prospectus supplement, the accompanying prospectus, all information incorporated by reference herein and therein, as well as the additional information described under “Where You Can Find Additional Information.” These documents contain information you should consider when making your investment decision. This prospectus supplement may add, update or change information contained in the accompanying prospectus. To the extent that any statement that we make in this prospectus supplement is inconsistent with statements made in the accompanying prospectus or any documents incorporated by reference therein filed before the date of this prospectus supplement, the statements made in this prospectus supplement will be deemed to modify or supersede those made in the accompanying prospectus and such documents incorporated by reference therein.

You should rely only on the information contained or incorporated by reference in this prospectus supplement, the accompanying prospectus and in any free writing prospectuses we may provide to you in connection with this offering. Neither we nor the sales agent has authorized any other person to provide any information other than that contained or incorporated by reference in this prospectus supplement or in any free writing prospectus prepared by or on behalf of us. We take no responsibility for, and can provide no assurance as to the reliability of, any information that others may give you. We 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 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 must inform themselves about, and observe any restrictions relating to, the offering of the common stock and the distribution of this prospectus supplement outside the United States. This prospectus supplement does 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 by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation. You should not assume that the information contained in this prospectus supplement, the accompanying prospectus or the documents incorporated herein or therein by reference is accurate as of any date other than their respective dates. We do not imply or represent by delivering this prospectus that Beam Therapeutics Inc., or its business, financial condition or results of operations, are unchanged after the date on the front of this prospectus or that the information in this prospectus is correct as any time after such date.

In this prospectus supplement and the accompanying prospectus, unless the context specifies or implies otherwise, the terms “Beam,” “Beam Therapeutics,” “the Company,” “we,” “us,” and “our” and similar names refer to Beam Therapeutics Inc.

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights selected information appearing elsewhere or incorporated by reference in this prospectus supplement and accompanying prospectus and any free writing prospectus that we have authorized for use in connection with this offering; it may not contain all of the information that is important to you. This prospectus supplement and the accompanying prospectus include information about the shares we are offering as well as information regarding our business and financial data. You should read this prospectus supplement and the accompanying prospectus, including the information incorporated by reference and any free writing prospectuses we have authorized for use in connection with this offering, in their entirety. Investors should carefully consider the information set forth under “Risk Factors” in this prospectus supplement, in the accompanying prospectus and in other periodic reports incorporated by reference herein.

Overview

We are a biotechnology company committed to establishing the leading, fully integrated platform for precision genetic medicines. Our vision is to provide life-long cures to patients suffering from serious diseases. To achieve this vision, we have assembled a platform that includes a suite of gene editing and delivery technologies and are in the process of developing internal manufacturing capabilities. Our suite of gene editing technologies is anchored by our proprietary base editing technology, which potentially enables an entirely new class of precision genetic medicines that target a single base in the genome without making a double-stranded break in the deoxyribonucleic acid, or DNA. This approach uses a chemical reaction designed to create precise, predictable and efficient genetic outcomes at the targeted sequence. Our novel base editors have two principal components: (i) a clustered regularly interspaced short palindromic repeats, or CRISPR, protein, bound to a guide ribonucleic acid, or RNA, that leverages the established DNA-targeting ability of CRISPR, but modified to not cause a double-stranded break; and (ii) a base editing enzyme, such as a deaminase, which carries out the desired chemical modification of the target DNA base. We believe this design contributes to a more precise and efficient edit compared to traditional gene editing methods, which operate by creating targeted double-stranded breaks in the DNA; these breaks can result in unwanted DNA modifications. We believe that the precision of our editors will dramatically increase the impact of gene editing for a broad range of therapeutic applications.

To unlock the full potential of our base editing technology across a wide range of therapeutic applications, we are pursuing a broad suite of clinically validated and novel delivery modalities. For a given tissue type, we use the delivery modality with the most compelling biodistribution. Our current programs are organized by delivery modality into three distinct pipelines: electroporation for efficient delivery to blood cells and immune cells *ex vivo*; lipid nanoparticles, or LNPs, for non-viral *in vivo* delivery to the liver and potentially other organs in the future; and adeno-associated viral vectors, or AAV, for *in vivo* viral delivery to the eye and central nervous system, or CNS.

The elegance of the base editing approach combined with a tissue specific delivery modality, provides the basis for a targeted efficient, precise, and highly versatile gene editing system, capable of gene correction, gene silencing/gene activation, or multiplex editing of several genes simultaneously. We are currently advancing a broad, diversified portfolio of base editing programs against distinct editing targets, utilizing the full range of our development capabilities. We believe the flexibility and versatility of our base editors may lead to broad therapeutic applicability and transformational potential for the field of precision genetic medicines.

We continue to make meaningful advancements across our programs. Within our *ex vivo* platform, we have identified three development candidates to date – two candidates targeting hemoglobinopathies and one candidate in our T-cell therapy program:

- BEAM-101 reproduces single base changes seen in individuals with Hereditary Persistence of Fetal Hemoglobin, or HPFH, to potentially protect them from the effects of mutations causing sickle cell

disease or beta thalassemia. We have achieved proof-of-concept *in vivo* with long-term engraftment of base edited human CD34 cells in mice for BEAM-101. Persistence of engraftment and high levels of editing have been confirmed in several preclinical studies, including in studies using material generated at a clinically relevant scale. Following conversations with regulators and supported by our off-target biology assays, we initiated IND-enabling studies in 2020 and expect to file an IND for BEAM-101 during the second half of 2021.

- BEAM-102 directly corrects the causative mutation in sickle cell disease by recreating a naturally-occurring normal human hemoglobin variant, HbG-Makassar. During the second quarter of 2020, we published preclinical data on BEAM-102 demonstrating that our adenine base editors, or ABEs, can efficiently convert the causative Hemoglobin S, or HbS, point mutation, to HbG-Makassar, with high efficiency (more than 80%). In this preclinical study, the Makassar variant does not cause hemoglobin to polymerize and red blood cells to sickle and, therefore, edited cells are cured through elimination of the disease-causing protein. The results from this study confirmed the ability of the Makassar variant to protect cells from sickling, even in the context of mono-allelic editing (with one sickle allele and one corrected allele). We plan to initiate IND-enabling studies for BEAM-102 during 2021.
- BEAM-201 is a potent and specific anti-CD7, multiplex edited, allogeneic chimeric antigen receptor T cell, or CAR-T, development candidate for the treatment of relapsed/refractory T-cell acute lymphoblastic leukemia, or T-ALL, a severe disease affecting children and adults with a five-year overall survival of less than 25%. BEAM-201 is produced using a Good Manufacturing Practice, or GMP, compliant, clinical-scale process in which T-cells derived from healthy donors are simultaneously base edited at four genomic loci, then transduced with a lentivirus coding for an anti-CD7 CAR. The resulting cells are universally-compatible, allogeneic (“off the shelf”) CD7-targeting CAR-T cells, resistant to both fratricide and immunosuppression. We plan to initiate IND-enabling studies for BEAM-201 during 2021.

We also continue to advance our liver disease programs. In 2020, we showed the ability to directly correct the mutation causing Alpha-1 antitrypsin deficiency, providing both *in vitro* and *in vivo* preclinical proof-of-concept for base editing to correct this disease. We have also achieved editing levels *in vivo*, in preclinical models, for the correction of the two most prevalent mutations causing Glycogen Storage Disease Type IA, or GSDIa, that could be clinically relevant if reproduced in humans. An important next step for the liver disease programs is finalizing our LNP formulation, and we are making progress on developing a formulation using proof-of-concept targets. To date, with this formulation, we have shown high levels of editing in mice at doses consistent with clinical use. We are currently conducting non-human primate studies to evaluate our LNP formulation and anticipate initial data in the first half of 2021. We believe we are on track to nominate our first development candidate from our liver portfolio in the second half of 2021.

The modularity of our platform means that establishing preclinical proof-of-concept of base editing using a particular delivery modality will potentially reduce risk and accelerate the timeline for additional product candidates that we may develop targeting the same tissue. In some cases, a new product candidate may only require changing the guide RNA. Subsequent programs using the same delivery modality can also take advantage of shared capabilities and resources of earlier programs. In this way, we view each delivery modality as its own unique pipeline, where the success of any one program may pave the way for a large number of additional programs to progress quickly to the clinic.

Our Base Editing Portfolio

We believe building a diversified portfolio leveraging the full breadth of our delivery technologies in parallel will maximize our ability to provide life-long therapies to patients over the broadest possible range of diseases. We plan to advance multiple programs through clinical development in parallel, with each one

potentially capable of delivering proof-of-concept in Phase 1 clinical studies in genetically defined patient populations and potentially reaching approval on an accelerated pathway. Our portfolio is purposefully built around a mix of strategic and technical profiles, creating significant optionality and risk diversification. We prioritize and advance programs based on a number of criteria, including high unmet medical need, editing feasibility, clinically validated delivery modalities, favorable clinical and regulatory development pathways, and evidence that base editing offers potentially compelling advantages for patients over available standards-of-care and novel therapeutic modalities in development.

Our programs are organized by delivery modality into three distinct pipelines: electroporation for hematology and oncology cell therapy, LNP for the liver, and AAV for the eye and CNS. The following table summarizes the status of certain of our most advanced programs:

DELIVERY	THERAPEUTIC AREA	PROGRAM / DISEASE	APPROACH	RESEARCH	LEAD OPTIMIZATION	IND ENABLING	PHASE III	PIVOTAL
ELECTROPORATION	Hematology	BEAM-101	Sickle Cell Disease Beta Thalassemia	Fetal hemoglobin activation	[Progress bar]			
		BEAM-102	Sickle Cell Disease	Direct correction of sickle-causing mutation	[Progress bar]			
	Oncology	BEAM-201	T-cell Acute Lymphoblastic Leukemia	Multiplex silenced CD7 CAR-T	[Progress bar]			
		Acute Myeloid Leukemia	Multiplex silenced CAR-T	[Progress bar]				
NON-VIRAL (LNP)	Liver Diseases	Alpha-1 Antitrypsin Deficiency	Precise correction of E342K	[Progress bar]				
			Precise correction of Q347X	[Progress bar]				
		Glycogen Storage Disorder Ia	Precise correction of R83C	[Progress bar]				
		Undisclosed	Multiplex editing	[Progress bar]				
VIRAL (AAV)	Ocular and CNS	Stargardt Disease	Precise correction of G1961E	[Progress bar]				
		Undisclosed	Precise correction	[Progress bar]				
		Undisclosed	Gene silencing	[Progress bar]				

Guide Acquisition

In February 2021, we entered into an Agreement and Plan of Merger to acquire Guide Therapeutics, or Guide. Pursuant to the merger agreement, we paid Guide’s former stockholders and optionholders upfront consideration in an aggregate amount of \$120.0 million, excluding customary purchase price adjustments, in shares of our common stock, based upon the volume-weighted average price of the common stock over the ten trading day period ending on February 19, 2021. In addition, Guide’s former stockholders and optionholders will be eligible to receive up to an additional \$100.0 million in technology and \$220.0 million in product success milestone payments, payable in our common stock.

Corporate Information

We were incorporated in Delaware in January 2017. Our principal executive offices are located at 26 Landsdowne Street, 2nd Floor, Cambridge, MA 02139, and our telephone number is 857-327-8775. Our website address is www.beamtx.com, and our investor relations website is located at investors.beamtx.com. Information on our website is not incorporated by reference herein.

Implications of Being an Emerging Growth Company

We qualify as an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. As an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies, including reduced disclosure about our executive compensation arrangements, exemption from the requirements to hold non-binding advisory

votes on executive compensation and golden parachute payments and exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting.

We may take advantage of these exemptions until the last day of the fiscal year following the fifth anniversary of our initial public offering or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company earlier if we have more than \$1.07 billion in annual revenue, we have more than \$700.0 million in market value of our stock held by non-affiliates (and we have been a public company for at least 12 months and have filed one annual report on Form 10-K) or we issue more than \$1.0 billion of non-convertible debt securities 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 requirements that are applicable to other public companies that are not emerging growth companies. We may choose to take advantage of some, but not all, of the available exemptions.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected not to “opt out” of such extended transition period, which means that when a standard is issued or revised and it has different application dates for public or private companies, we will adopt the new or revised standard at the time private companies adopt the new or revised standard and will do so until such time that we either (i) irrevocably elect to “opt out” of such extended transition period or (ii) no longer qualify as an emerging growth company. Therefore, the reported results of operations contained in our consolidated financial statements may not be directly comparable to those of other public companies.

Risks Associated with our Business

Our business is subject to numerous risks. You should read these risks before you invest in our common stock. In particular, our risks include, but are not limited to, the following:

- Base editing is a novel technology that is not yet clinically validated for human therapeutic use. The approaches we are taking to discover and develop novel therapeutics are unproven and may never lead to marketable products.
- We have incurred significant losses since inception. We expect to incur losses for the foreseeable future and may never achieve or maintain profitability.
- We will need substantial additional funding. If we are unable to raise capital when needed, we would be forced to delay, reduce, or eliminate our research and product development programs or future commercialization efforts.
- Our short operating history may make it difficult for you to evaluate the success of our business to date and to assess our future viability.
- We may not be successful in our efforts to identify and develop potential product candidates. If these efforts are unsuccessful, we may never become a commercial stage company or generate any revenues.
- We are very early in our development efforts. All of our product candidates are still in preclinical development or earlier stages and it will be many years before we or our collaborators commercialize a product candidate, if ever. If we are unable to advance our product candidates to clinical development, obtain regulatory approval and ultimately commercialize our product candidates, or experience significant delays in doing so, our business will be materially harmed.
- If any of the product candidates we may develop or the delivery modalities we rely on cause serious adverse events, undesirable side effects or unexpected characteristics, such events, side effects or characteristics could delay or prevent regulatory approval of the product candidates, limit the commercial potential, or result in significant negative consequences following any potential marketing approval.
- We face significant competition in an environment of rapid technological change, and there is a possibility that our competitors may achieve regulatory approval before us or develop therapies that are safer or more advanced or effective than ours, which may harm our financial condition and our ability to successfully market or commercialize any product candidates we may develop.
- The continuing effects and impacts of the COVID-19 pandemic could have a material adverse effect on our business, financial condition, results of operations and growth prospects.
- We have not tested any of our proposed delivery modes and product candidates in clinical trials and any favorable preclinical results are not predictive of results that may be observed in clinical trials.
- Adverse public perception of genetic medicines, and gene editing and base editing in particular, may negatively impact regulatory approval of, and/or demand for, our potential products.
- The gene editing field is relatively new and is evolving rapidly. We are focusing our research and development efforts on gene editing using base editing technology, but other gene editing technologies may be discovered that provide significant advantages over base editing, which could materially harm our business.
- Because base editing is novel and the regulatory landscape that will govern any product candidates we may develop is uncertain and may change, we cannot predict the time and cost of obtaining regulatory approval, if we receive it at all, for any product candidates we may develop.

- Genetic medicines are novel, and any product candidates we develop may be complex and difficult to manufacture. We could experience delays in satisfying regulatory authorities or production problems that result in delays in our development or commercialization programs, limit the supply of our product candidates we may develop, or otherwise harm our business.
- We currently contract with third parties for the manufacture of materials for our research programs and preclinical studies and unless and until our internal manufacturing facility becomes operational, we expect to continue to do so for clinical trials of all of our product candidates. Even if our internal manufacturing facility becomes operational, we may contract with third parties for manufacturing of materials for clinical trials and potential commercialization of certain of our viral delivery product candidates. This reliance on third parties, and the risk that we are not able to successfully build-out our internal manufacturing facility, increases the risk that we will not have sufficient quantities of such materials, product candidates, or any medicines that we may develop and commercialize, or that such supply will not be available to us at an acceptable cost, which could delay, prevent, or impair our development or commercialization efforts.
- Because we are developing product candidates in the field of genetics medicines, a field that includes gene therapy and gene editing, in which there is little clinical experience, there is increased risk that the FDA, the EMA, or other regulatory authorities may not consider the endpoints of our clinical trials to provide clinically meaningful results and that these results may be difficult to analyze.
- If we are unable to obtain and maintain patent protection for any product candidates we develop and for our technology, or if the scope of the patent protection obtained is not sufficiently broad, or if we or our licensors are unable to successfully defend our or our licensors' patents against third-party challenges or enforce our or our licensors' patents against third parties our competitors could develop and commercialize products and technology similar or identical to ours, and our ability to successfully commercialize any product candidates we may develop, and our technology may be adversely affected.
- Our rights to develop and commercialize technology and product candidates are subject, in part, to the terms and conditions of licenses granted to us by others.
- The intellectual property landscape around genome editing technology, including base editing, is highly dynamic, and third parties may initiate legal proceedings alleging that we are infringing, misappropriating, or otherwise violating their intellectual property rights, the outcome of which would be uncertain and may prevent, delay or otherwise interfere with our product discovery and development efforts.
- Our owned and in-licensed patents and other intellectual property may be subject to priority disputes or inventorship disputes or we may be subject to claims that we have infringed, misappropriated or otherwise violated the intellectual property of a third party and similar proceedings. If we or our licensors are unsuccessful in any of these proceedings, we may be required to obtain licenses from third parties, which may not be available on commercially reasonable terms or at all, or to cease the development, manufacture, and commercialization of one or more of the product candidates we may develop, which could have a material adverse impact on our business.

The Offering

Common stock offered by us:	Shares of our common stock having an aggregate offering price of up to \$300,000,000.
Common stock to be outstanding after this offering:	Up to 65,634,056 shares (as more fully described in the notes following this table), assuming sales of 3,163,889 shares of our common stock in this offering at an offering price of \$94.82 per share, which was the last reported sale price of our common stock on The Nasdaq Global Select Market on March 15, 2021. The actual number of shares issued will vary depending on the sales price under this offering.
Plan of Distribution:	“At the market offering” that may be made from time to time through our sales agent. See “Plan of Distribution” on page S-15.
Use of Proceeds:	We intend to use the net proceeds from this offering, if any, for working capital and general corporate purposes. See “Use of Proceeds” on page S-12.
Risk Factors:	You should read the “Risk Factors” section of this prospectus supplement and in the documents incorporated by reference in this prospectus supplement for a discussion of factors to consider before deciding to purchase shares of our common stock.

The Nasdaq Global Select Market Symbol: “BEAM”

The number of shares of common stock to be outstanding following this offering is based on 62,470,167 shares of common stock outstanding as of March 15, 2021, which includes 835,494 shares of unvested restricted stock, which are not included as outstanding for accounting purposes and are not included as outstanding shares in our consolidated financial statements, and excludes:

- 5,337,999 shares of common stock issuable upon the exercise of stock options outstanding and vesting of restricted stock units as of March 15, 2021 under our equity incentive plans at a weighted average exercise price of \$11.89 per share;
- 4,315,321 shares of common stock available for issuance under our 2019 Plan; and
- 1,049,460 shares of common stock reserved for issuance under our 2019 Employee Stock Purchase Plan, or the 2019 ESPP.

RISK FACTORS

Any investment in our common stock involves a high degree of risk. You should consider carefully the risks described below and discussed under the section captioned “Risk Factors” contained in our annual report on Form 10-K for the year ended December 31, 2020, and in our subsequent quarterly reports on Form 10-Q as updated by our subsequent filings under the Securities Exchange Act of 1934, as amended, or the Exchange Act, each of which is incorporated by reference in this prospectus supplement in their entirety, together with other information in this prospectus supplement and accompanying prospectus, and the information and documents incorporated by reference in this prospectus supplement, and any free writing prospectus that we have authorized for use in connection with this offering before you make a decision to invest in our common stock. If any of the events described in the risk factors below or incorporated by reference in this prospectus supplement actually occur, our business, operating results, prospects or financial condition could be materially and adversely affected. This could cause the trading price of our common stock to decline and you may lose all or part of your investment. The risks below and incorporated by reference in this prospectus supplement are not the only ones we face. Additional risks not currently known to us or that we currently deem immaterial may also affect our business operations. Please also read carefully the section below entitled “Cautionary Note Regarding Forward-Looking Statements.”

Risks Relating To This Offering

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

We cannot specify with certainty the particular uses of the net proceeds we will receive from this offering. Our management will have broad discretion in the application of the net proceeds, including for any of the purposes described in “Use of Proceeds.” Accordingly, you will have to rely upon the judgment of our management with respect to the use of the proceeds, with only limited information concerning management’s specific intentions. Our management may spend a portion or all of the net proceeds from this offering in ways that our stockholders may not desire or that may not yield a favorable return. The failure by our management to apply these funds effectively could harm our business, financial condition, results of operations and prospects. Pending their use, we may invest the net proceeds from this offering in a manner that does not produce income or that loses value.

The actual number of shares of common stock we will issue under the sales agreement, at any one time or in total, is uncertain.

Subject to certain limitations in the sales agreement and compliance with applicable law, we have the discretion to request the sales agent to sell on our behalf shares of common stock at any time throughout the term of the sales agreement, and the sales agent will be obligated to use commercially reasonable efforts to sell the shares. The number of shares that are sold by the sales agent after we request that sales be made will fluctuate based on the market price of our common stock during the sales period and limits we set with the sales agent. Because the price per share of the common stock sold will fluctuate based on the market price of our common stock during the sales period, it is not possible at this stage to predict the number of shares of common stock that will ultimately be issued by us under the sales agreement.

The shares of common stock offered hereby will be sold in “at-the-market offerings,” and investors who buy shares of common stock at different times will likely pay different prices.

Investors who purchase shares of common stock in this offering at different times will likely pay different prices, and therefore may experience different outcomes in their investment results. We will have discretion, subject to market demand, to vary the timing, prices, and number of shares sold. Investors may experience a decline in the value of their shares of common stock as a result of sales of common stock made at prices lower than the prices they paid.

You may experience future dilution as a result of future equity offerings.

To raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock at prices that may not be the same as the price per share in this offering. We may sell shares or other securities in any other offering at a price per share that is less than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by investors in this offering.

We do not expect to pay any dividends for the foreseeable future. Investors in this offering may never obtain a return on their investment.

You should not rely on an investment in our common stock to provide dividend income. We do not anticipate that we will pay any dividends to holders of our common stock in the foreseeable future. Instead, we plan to retain any earnings to maintain and expand our existing operations. In addition, any future credit facility may contain terms prohibiting or limiting the amount of dividends that may be declared or paid on our common stock. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any return on their investment. As a result, investors seeking cash dividends should not purchase our common stock.

You may experience immediate dilution in the book value per share of the common stock you purchase.

Because the price per share of our common stock being offered may be higher than the book value per share of our common stock, you may suffer immediate and substantial dilution by purchasing shares of our common stock in this offering. The shares sold in this offering, if any, will be sold from time to time at various prices. After giving effect to the sale of our common stock in the maximum aggregate offering amount of \$300,000,000 at an assumed offering price of \$94.82 per share, the last reported sale price of our common stock on The Nasdaq Global Select Market on March 15, 2021, and after deducting estimated offering commissions and estimated fees payable by us, and after giving effect to the sale and issuance of 2,795,700 shares of our common stock in a private placement completed on January 21, 2021, resulting in net proceeds of \$252.0 million (the "Private Placement") and the issuance of an additional 1,087,614 shares of our common stock completed on February 22, 2021 pursuant to the Agreement and Plan of Merger with Guide (the "Guide Merger"), our pro forma net tangible book value as of December 31, 2020 would have been \$788.1 million, or \$12.26 per share of common stock. This represents an immediate increase in the pro forma as adjusted net tangible book value of \$4.12 per share to our existing stockholders and an immediate and substantial dilution in pro forma as adjusted net tangible book value of \$82.56 per share to new investors who purchase our common stock in the offering. See section below entitled "Dilution" for a more detailed discussion of the dilution you may incur if you purchase common stock in this offering.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement and the SEC filings that are incorporated by reference into this prospectus supplement contain or incorporate by reference “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. You can generally identify these forward-looking statements by forward-looking words such as “believe,” “anticipate,” “expect,” “intend,” “plan,” “will,” “may,” “estimate,” “could,” “continue,” “ongoing,” “predict,” “potential,” “likely,” “seek” and other similar expressions, as well as variations or negatives of these words. You should read these statements carefully because they discuss future expectations, contain projections of future results of operations or financial condition, or state other “forward-looking” information. These statements relate to our future plans, objectives, expectations, intentions and financial performance and the assumptions that underlie these statements. These forward-looking statements include, but are not limited to:

- our expectations regarding the initiation, timing, progress and results of our research and development programs and preclinical and clinical studies, including our intention to file an Investigational New Drug, or IND, application for BEAM-101 during the second half of 2021, our plans to initiate IND-enabling studies for BEAM-102 and BEAM-201 during 2021, and our belief that we are on track to nominate our first development candidate from our liver portfolio in the second half of 2021;
- our plans for pre-clinical studies for product candidates in our pipeline, including our expectation that we will receive initial data from our non-human primate studies to evaluate our LNP formulation in the first half of 2021;
- our plans to quickly leverage our initial programs and to progress additional programs to create a clinical portfolio, including to rapidly advance our portfolio of novel base editing programs and successfully complete any clinical studies, including the manufacture of any such product candidates;
- our ability to pursue a broad suite of clinically validated delivery modalities and to successfully develop our distinct pipelines and obtain and maintain approval for our product candidates;
- our expectations regarding our ability to generate additional novel LNPs that we believe could accelerate novel nonviral delivery of gene editing payloads to tissues beyond the liver and our ability to expand the reach of gene editing, including as a result of our acquisition of Guide Therapeutics;
- our expectations regarding the build-out of our facilities, including our ability to successfully establish and maintain a commercial-scale current Good Manufacturing Practice, or cGMP, manufacturing facility and that this facility will be operational by the first quarter of 2023, and our belief that our lease agreement with the Massachusetts Institute of Technology for office and laboratory space in Cambridge, Massachusetts will commence at the earliest in late 2021 upon completion of construction of the facility;
- our ability to establish and maintain protection for intellectual property rights covering our product candidates and technology;
- the expected timing, progress and success of our collaborations with third parties and our ability to identify and enter into future license agreements and collaborations;
- our expectations regarding the strategic and other potential benefits of our acquisition of Guide Therapeutics; and
- the impact of the coronavirus disease of 2019, or COVID-19, pandemic on our business.

All forward-looking statements contained herein are expressly qualified in their entirety by this cautionary statement, the risk factors set forth under the heading “Risk Factors” in this prospectus supplement, and in the section entitled “Risk Factors” incorporated herein by reference to our most recent Annual Report on Form 10-K, and our subsequent filings with the SEC, incorporated by reference in this prospectus supplement. Please reference “Where You Can Find Additional Information”. These forward-looking statements speak only as of the date of this prospectus supplement. Except to the extent required by applicable laws and regulations of the SEC,

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we undertake no obligation to update these forward-looking statements to reflect new information, events or circumstances after the date of this prospectus supplement or to reflect the occurrence of unanticipated events. In light of these risks and uncertainties, the forward-looking events and circumstances described in this prospectus supplement may not occur and actual results could differ materially from those anticipated or implied in the forward-looking statements. Accordingly, you are cautioned not to place undue reliance on these forward-looking statements.

USE OF PROCEEDS

The amount of proceeds from this offering will depend upon the number of shares of our common stock sold and the market price at which they are sold. There can be no assurance that we will be able to sell any shares under or fully utilize the sales agreement with the sales agent as a source of financing. We intend to use the net proceeds, if any, from this offering for working capital and general corporate purposes, which may include, among other things, continued advancement of our platform technology, continued research and development of our current portfolio of base editing programs and other potential programs, conducting preclinical studies, including for potential preclinical proof-of-concept of our three delivery modalities, IND-enabling studies and the potential initiation of clinical studies for certain of our current programs, and building-out our in-house manufacturing facility. Amounts and timing of our actual expenditures will depend on numerous factors, including our development and commercialization efforts, as well as the amount of cash used in our operations. We therefore cannot estimate with certainty the amount of net proceeds to be used for the purposes described above. We may find it necessary or advisable to use the net proceeds for other purposes, and we will have broad discretion in the application of the net proceeds. Pending the uses described above, we plan to invest the net proceeds from this offering in short-term, investment-grade, interest-bearing securities.

DILUTION

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

Net tangible book value per share represents our total tangible assets, including operating lease right-of-use assets of \$86.9 million, less total liabilities divided by the number of shares of outstanding common stock as of December 31, 2020, or 57,254,178 shares. The number of outstanding shares of common stock as of December 31, 2020 excludes 1,191,838 shares of unvested restricted stock, which are not included as outstanding for accounting purposes. Our historical net tangible book value as of December 31, 2020 was \$245.6 million, or \$4.29 per share of common stock. After giving effect to the sale and issuance of 2,795,700 shares of our common stock in the Private Placement, resulting in net proceeds of \$252.0 million, and the issuance of an additional 1,087,614 shares of our common stock completed on February 22, 2021 pursuant to the Guide Merger, our pro forma net tangible book value as of December 31, 2020 would have been \$497.6 million, or \$8.14 per share of common stock.

Pro forma as adjusted net tangible book value per share after this offering gives further effect to the sale of \$300 million of common stock in this offering at an assumed offering price of \$94.82 per share, which was the closing price of our common stock as reported on The Nasdaq Global Select Market on March 15, 2021, after deducting offering commissions and estimated expenses payable by us. Our pro forma as adjusted net tangible book value as of December 31, 2020, after giving effect to this offering as described above, would have been \$788.1 million, or \$12.26 per share of common stock. This represents an immediate increase in pro forma net tangible book value of \$4.12 per share to our existing stockholders and an immediate dilution in pro forma net tangible book value of \$82.56 per share to investors participating in this offering. The following table illustrates this dilution per share to investors participating in this offering:

Assumed offering price per share	\$94.82
Historical net tangible book value per share as of December 31, 2020	\$4.29
Increase per share in net tangible book value per share of common stock attributable to pro forma adjustments	3.85
Pro forma net tangible book value per share as of December 31, 2020	8.14
Increase in pro forma net tangible book value per share attributable to new investors in offering	4.12
Pro forma as adjusted net tangible book value per share after giving effect to the offering	12.26
Dilution per share to new investors	\$82.56

The shares sold in this offering, if any, will be sold from time to time at various prices. An increase of \$1.00 per share in the price at which the shares are sold from the assumed offering price of \$94.82 per share shown in the table above, assuming all of our common stock in the aggregate amount of \$300 million is sold at that price, would have no impact on our pro forma adjusted net tangible book value per share and would increase the dilution in pro forma net tangible book value per share to new investors in this offering to \$83.56 per share, after deducting commissions and estimated aggregate offering expenses payable by us. A decrease of \$1.00 per share in the price at which the shares are sold from the assumed offering price of \$94.82 per share shown in the table above, assuming all of our common stock in the aggregate amount of \$300 million is sold at that price, would decrease our pro forma as adjusted net tangible book value per share after the offering to \$12.25 per share and would decrease the dilution in pro forma net tangible book value per share to new investors in this offering to \$81.57 per share, after deducting commissions and estimated aggregate offering expenses payable by us.

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A decrease of 1,000,000 shares in the number of shares offered by us from the assumed number of shares set forth above would decrease our pro forma as adjusted net tangible book value after this offering by approximately \$92.0 million, or approximately \$1.26 per share, and the dilution per share to new investors would be approximately \$1.26 greater per share, assuming that the assumed public offering price remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The information above is supplied for illustrative purposes only and will adjust based on the actual public offering price and the actual number of shares that we sell in the offering.

The number of shares of common stock to be outstanding following this offering is based on 58,446,016 shares of common stock outstanding as of December 31, 2020, which includes 1,191,838 shares of unvested restricted stock, which are not included as outstanding for accounting purposes and are not included as outstanding shares in our consolidated financial statements, and gives effect to the sale and issuance of 2,795,700 shares of our common stock pursuant to the Private Placement and the issuance of 1,087,614 shares of our common stock pursuant to the Guide Merger, and excludes:

- 5,419,941 shares of common stock issuable upon the exercise of stock options outstanding and vesting of restricted stock units as of December 31, 2020 under our equity incentive plans at a weighted average exercise price of \$10.81 per share;
- 2,036,376 shares of common stock available for issuance under our 2019 Plan; and
- 465,000 shares of common stock reserved for issuance under our 2019 Employee Stock Purchase Plan, or the 2019 ESPP.

To the extent that any of the outstanding options and warrants are exercised or restricted stock units vest, there will be further dilution to new investors.

PLAN OF DISTRIBUTION

We have entered into a sales agreement with Jefferies LLC, or Jefferies, under which we may offer and sell up to \$300 million of our shares of common stock from time to time through Jefferies acting as an agent. Sales of our shares of common stock, if any, under this prospectus supplement and the accompanying prospectus will be made by any method that is deemed to be an “at the market offering” as defined in Rule 415(a)(4) under the Securities Act.

Each time we wish to issue and sell shares of common stock under the sales agreement, we will notify the sales agent of the number of shares to be issued, the dates on which such sales are anticipated to be made, any limitation on the number of shares to be sold in any one day and any minimum price below which sales may not be made. Once we have so instructed the sales agent, unless the sales agent declines to accept the terms of such notice, the sales agent has agreed to use its commercially reasonable efforts consistent with its normal trading and sales practices to sell such shares up to the amount specified on such terms. The obligations of the sales agent under the sales agreement to sell our shares of common stock are subject to a number of conditions that we must meet.

The settlement of sales of shares between us and the sales agent is generally anticipated to occur on the second trading day following the date on which the sale was made. Sales of our shares of common stock as contemplated in this prospectus supplement and the accompanying prospectus will be settled through the facilities of The Depository Trust Company or by such other means as we and the sales agent may agree upon. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

We will pay the sales agent a commission equal to 3.0% of the aggregate gross proceeds we receive from each sale of our shares of common stock through such sales agent. Because there is no minimum offering amount required as a condition to close this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time. In addition, we have agreed to reimburse the sales agent for the fees and disbursements of their counsel, payable upon execution of the sales agreement, in an amount not to exceed \$75,000, in addition to certain ongoing disbursements of its legal counsel. We estimate that the total expenses for the offering, excluding any commissions or expense reimbursement payable to the sales agent under the terms of the sales agreement, will be approximately \$500,000. The remaining sale proceeds, after deducting any other transaction fees, will equal our net proceeds from the sale of such shares. Jefferies has agreed to reimburse us for certain expenses in connection with this offering.

The sales agent will provide written confirmation to us before the open on The Nasdaq Global Select Market on the day following each day on which shares of common stock are sold under the sales agreement. Each confirmation will include the number of shares sold on that day, the aggregate gross proceeds of such sales and the proceeds to us.

In connection with the sale of the shares of common stock on our behalf, the sales agent will be deemed to be an “underwriter” within the meaning of the Securities Act, and the compensation of the sales agent will be deemed to be underwriting commissions or discounts. We have agreed to indemnify the sales agent against certain civil liabilities, including liabilities under the Securities Act. We have also agreed to contribute to payments the sales agent may be required to make in respect of such liabilities.

The offering of our shares of common stock pursuant to the sales agreement will terminate upon the earlier of (i) the sale of all shares of common stock subject to the sales agreement and (ii) the termination of the sales agreement as permitted therein. We and the sales agent may each terminate the sales agreement at any time upon ten days’ prior notice.

This summary of the material provisions of the sales agreement does not purport to be a complete statement of its terms and conditions. A copy of the sales agreement is filed as an exhibit to a current report on Form 8-K filed under the Exchange Act and incorporated by reference in this prospectus supplement and the accompanying prospectus.

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The sales agent and its affiliates may in the future provide various investment banking, commercial banking, financial advisory and other financial services for us and our affiliates, for which services they may in the future receive customary fees. In the course of its business, the sales agent may actively trade our securities for its own account or for the accounts of customers, and, accordingly, the sales agent may at any time hold long or short positions in such securities.

A prospectus supplement and the accompanying prospectus in electronic format may be made available on a website maintained by the sales agent, and the sales agent may distribute the prospectus supplement and the accompanying prospectus electronically.

LEGAL MATTERS

The validity of the shares of common stock offered by this prospectus will be passed upon for us by Ropes & Gray, LLP, Boston, Massachusetts. Certain legal matters will be passed upon for the sales agent by Davis Polk & Wardwell LLP.

EXPERTS

The financial statements incorporated in this prospectus by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2020, have been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report, which is incorporated herein by reference. Such financial statements have been so incorporated in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed a registration statement on Form S-3 with the SEC for the shares of common stock offered by this prospectus supplement and the accompanying prospectus. This prospectus supplement and the accompanying prospectus, including the information incorporated by reference herein and therein, do not include all of the information contained in the registration statement. You should refer to the registration statement and its exhibits for additional information.

We file annual, quarterly and current reports, proxy statements and other information with the SEC under the Exchange Act. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K, including any amendments to those reports, and other information that we file with or furnish to the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act can also be accessed free of charge on our website at <http://www.beamtx.com> under the "Investor Center—Financials & Filings" caption. These filings will be available as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. Information contained on our website is not part of this prospectus supplement.

You should rely only on the information provided in, and incorporated by reference in, this prospectus supplement and the accompanying prospectus and the registration statement to which this prospectus supplement and accompanying prospectus form a part. We have not authorized anyone else to provide you with different information. Our securities are not being offered in any jurisdiction where the offer is not permitted. The information contained in documents that are incorporated by reference in this prospectus supplement is accurate only as of the dates of those documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference the information we file with it, which means that we can disclose important information to you by referring you to another document that we have filed separately with the SEC. You should read the information incorporated by reference because it is an important part of this prospectus supplement and the accompanying prospectus. We incorporate by reference the following information or documents that we have filed with the SEC:

- our Annual Report on [Form 10-K](#) for the fiscal year ended December 31, 2020, filed with the SEC on March 15, 2021;
- our Current Reports on Form 8-K, as filed with the SEC on [January 11, 2021](#), [January 19, 2021](#), [February 23, 2021](#), and [April 1, 2021](#) (except, with respect to each of the foregoing, for portions of such reports which were deemed to be furnished and not filed); and
- the description of our common stock contained in our Registration Statement on [Form 8-A](#) (File No. 001-39208), as filed with the SEC on January 31, 2020, including any amendments or reports filed for the purpose of updating such description, including Exhibit 4.11 to our Registration Statement on Form S-3 (File No. 333-254946), as filed with the SEC on April 1, 2021.

All reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the termination of this offering, but excluding any information furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus supplement and deemed to be part of this prospectus supplement and accompanying prospectus from the date of the filing of such reports and documents.

Any statement contained in any document incorporated by reference herein filed before the date of this prospectus supplement shall be deemed to be modified or superseded for purposes of this prospectus supplement to the extent that a statement contained in this prospectus supplement or accompanying prospectus modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus supplement and accompanying prospectus.

We will provide without charge to each person, including any beneficial owner, to whom this prospectus supplement and accompanying prospectus is delivered, upon written or oral request, a copy of any or all documents that are incorporated by reference into this prospectus supplement and accompanying prospectus, but not delivered with the prospectus supplement and accompanying prospectus, other than exhibits to such documents unless such exhibits are specifically incorporated by reference into the documents that this prospectus supplement and accompanying prospectus incorporates. You should direct written requests to: Beam Therapeutics Inc., 26 Landsdowne Street, 2nd Floor, Cambridge, MA 02139, or you may call us at (857) 327-8775.

PROSPECTUS

BEAM THERAPEUTICS INC.

Common Stock, Preferred Stock, Debt Securities, Warrants and Units

Beam Therapeutics Inc. may, from time to time offer, in one or more classes or series, separately or together, and in amounts, at prices and on terms to be set forth in one or more supplements to this prospectus, common stock, preferred stock, debt securities, which may be senior debt securities or subordinated debt securities, warrants to purchase common stock, preferred stock or debt securities, or any combination of the foregoing, either individually or as units comprised of two or more other securities. Certain selling security holders, which we will identify in an applicable supplement to this prospectus, also may, from time to time, offer shares of our common stock, in amounts, at prices and at times to be set forth in one or more supplements to this prospectus.

We refer to the common stock, preferred stock, debt securities, warrants and units registered hereunder collectively as the “securities” in this prospectus. We and the selling security holders will offer our securities in amounts, at prices and on terms determined at the time of the offering of any such security.

The prospectus provides a general description of the securities we or any selling securityholder may offer. The specific terms of each series or class of the securities will be set forth in the applicable prospectus supplement and will include, as applicable: (i) in the case of common stock, any public offering price; (ii) in the case of preferred stock, the specific title and any dividend, liquidation, redemption, conversion, voting and other rights and any public offering price; (iii) in the case of debt securities, the specific terms of such debt securities; (iv) in the case of warrants, the duration, offering price, exercise price and detachability of such warrants; and (v) in the case of units, the constituent securities comprising the units, the offering price and detachability of such units.

We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings. The prospectus supplement and any related free writing prospectus may add, update or change information contained in this prospectus. You should carefully read this prospectus, the applicable prospectus supplement and any related free writing prospectus, as well as the documents incorporated by reference before you invest in any of our securities. This prospectus may not be used to sell securities unless accompanied by a prospectus supplement.

Our common stock is listed on The Nasdaq Global Select Market under the symbol “BEAM.” On March 26, 2021, the last reported sale price on The Nasdaq Global Select Market was \$81.33 per share. There is currently no market for the other securities we may offer. Each prospectus supplement will indicate if the securities offered thereby will be listed on any securities exchange.

Investing in our securities involves a high degree of risk. Please carefully read the information under the heading “[Risk Factors](#)” beginning on page 3 of this prospectus, as well as the risk factors appearing in any prospectus supplement, any related free writing prospectus and/or any other future filings we make with the Securities and Exchange Commission that are incorporated by reference into this prospectus before you invest in our securities.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR DETERMINED IF THIS PROSPECTUS IS TRUTHFUL OR COMPLETE. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

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We and the selling security holders may offer and sell these securities to or through one or more underwriters, dealers and agents, or directly to purchasers, on a continuous or delayed basis. In addition, certain selling securityholders may offer and sell our securities from time to time. We will provide specific information about any selling securityholders in one or more supplements to this prospectus. If any underwriters, dealers or agents are involved in the sale of any of the securities, their names, and any applicable purchase price, fee, commission or discount arrangement between or among them will be set forth, or will be calculable from the information set forth, in the applicable prospectus supplement. See the sections entitled “Plan of Distribution” and “About This Prospectus” for more information. The price to the public of those securities and the net proceeds we or any selling securityholders expect to receive from that sale will also be set forth in a prospectus supplement. No securities may be sold without delivery of this prospectus and the applicable prospectus supplement describing the method and terms of the offering of such series of securities.

The date of this prospectus is April 1, 2021.

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ABOUT THIS PROSPECTUS

This prospectus is part of an “automatic shelf” registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the SEC, as a “well-known seasoned issuer” as defined in Rule 405 under the Securities Act of 1933, as amended, or the Securities Act. Under this shelf process, we or any selling securityholder may, from time to time, offer or sell an indeterminate amount of 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 offered by us or any selling securityholder. Each time we or any selling securityholder sell securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information about the terms of that offering. The prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add to, update or change information contained in the 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 or the related free writing prospectus.

You should only rely on the information contained or incorporated by reference in this prospectus and any prospectus supplement or any related free writing prospectus. We have not authorized any other person to provide you with different information. We take no responsibility for, and can provide no assurance as to the reliability of, any information that others may give you. You should read the entire prospectus and any prospectus supplement and any related issuer free writing prospectus, as well as the documents incorporated by reference into this prospectus or any prospectus supplement, before making an investment decision. The prospectus and the accompanying prospectus supplement, if any, do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor do this prospectus and any accompanying prospectus supplement constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. You should assume that the information in this prospectus or any prospectus supplement is accurate only as of the date on the front of the document and that any information we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus, any related prospectus supplement or any sale of a security. We do not imply or represent by delivering this prospectus that Beam Therapeutics Inc., or its business, financial condition or results of operations, are unchanged after the date on the front of this prospectus or that the information in this prospectus is correct as any time after such date.

In this prospectus, unless the context otherwise requires, “Beam”, “Beam Therapeutics”, the “Company”, “we”, “us”, “our” and similar names refer to Beam Therapeutics Inc.

THE COMPANY

Our Business

We are a biotechnology company committed to establishing the leading, fully integrated platform for precision genetic medicines. Our vision is to provide life-long cures to patients suffering from serious diseases. To achieve this vision, we have assembled a platform that includes a suite of gene editing and delivery technologies and are in the process of developing internal manufacturing capabilities. Our suite of gene editing technologies is anchored by our proprietary base editing technology, which potentially enables an entirely new class of precision genetic medicines that target a single base in the genome without making a double-stranded break in the deoxyribonucleic acid, or DNA. This approach uses a chemical reaction designed to create precise, predictable and efficient genetic outcomes at the targeted sequence. Our novel base editors have two principal components: (i) a clustered regularly interspaced short palindromic repeats, or CRISPR, protein, bound to a guide ribonucleic acid, or RNA, that leverages the established DNA-targeting ability of CRISPR, but modified to not cause a double-stranded break; and (ii) a base editing enzyme, such as a deaminase, which carries out the desired chemical modification of the target DNA base. We believe this design contributes to a more precise and efficient edit compared to traditional gene editing methods, which operate by creating targeted double-stranded breaks in the DNA; these breaks can result in unwanted DNA modifications. We believe that the precision of our editors will dramatically increase the impact of gene editing for a broad range of therapeutic applications.

To unlock the full potential of our base editing technology across a wide range of therapeutic applications, we are pursuing a broad suite of clinically validated and novel delivery modalities. For a given tissue type, we use the delivery modality with the most compelling biodistribution. Our current programs are organized by delivery modality into three distinct pipelines: electroporation for efficient delivery to blood cells and immune cells *ex vivo*; lipid nanoparticles, or LNPs, for non-viral *in vivo* delivery to the liver and potentially other organs in the future; and adeno-associated viral vectors, or AAV, for *in vivo* viral delivery to the eye and central nervous system, or CNS.

The elegance of the base editing approach combined with a tissue specific delivery modality, provides the basis for a targeted efficient, precise, and highly versatile gene editing system, capable of gene correction, gene silencing/gene activation, and or multiplex editing of several genes simultaneously. We are currently advancing a broad, diversified portfolio of base editing programs against distinct editing targets, utilizing the full range of our development capabilities. We believe the flexibility and versatility of our base editors may lead to broad therapeutic applicability and transformational potential for the field of precision genetic medicines.

Since our inception, we have devoted substantially all of our resources to building our base editing platform and advancing development of our portfolio of programs, establishing and protecting our intellectual property, conducting research and development activities, organizing and staffing our company, business planning, raising capital and providing general and administrative support for these operations.

Corporate Information

We are a Delaware corporation formed on January 25, 2017. Our principal executive offices are located at 26 Landsdowne Street, 2nd Floor, Cambridge, MA 02139 and our telephone number is (857) 327-8775. We maintain an Internet website at www.beamtx.com. We have not incorporated the information on our website by reference into this prospectus, and you should not consider it to be a part of this prospectus.

RISK FACTORS

An investment in any of the securities offered pursuant to this prospectus involves risks. You should carefully consider the risk factors incorporated by reference to our most recent Annual Report on Form 10-K, our subsequent Quarterly Reports on Form 10-Q and any Current Reports on Form 8-K we file after the date of this prospectus, together with any amendments or supplements thereto and all other information contained or incorporated by reference into this prospectus, as updated by our subsequent filings under the Securities Exchange Act of 1934, as amended, or the Exchange Act, and the risk factors and other information contained in any applicable prospectus supplement or free writing prospectus, before acquiring any of such securities. The occurrence of any of these risks might cause you to lose all or part of your investment in the offered securities. Please also refer to the section below titled “Cautionary Note Regarding Forward-Looking Statements.” Additional risks not known to us or that we believe are immaterial may also significantly impair our business operations and could result in a loss of all or part of your investment in the offered securities.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, any prospectus supplement and any information incorporated by reference into this prospectus or such prospectus supplement may contain certain “forward-looking statements.” You can generally identify these forward-looking statements by forward-looking words such as “believe,” “anticipate,” “expect,” “intend,” “plan,” “will,” “may,” “estimate,” “could,” “continue,” “ongoing,” “predict,” “potential,” “likely,” “seek” and other similar expressions, as well as variations or negatives of these words. You can also identify forward-looking statements by the fact that they do not relate strictly to historical or current facts. Such forward-looking statements are based on current expectations and involve inherent risks and uncertainties, including factors that could delay, divert or change any of them, and could cause actual outcomes to differ materially from current expectations. These statements are likely to relate to, among other things, the timing, progress and success of our ongoing and planned preclinical studies or clinical trials, the expected timing of regulatory review of our product candidates and our ability to finance contemplated development activities and fund operations for a specified period of time.

Forward-looking statements are not guarantees of future performance and our actual results could differ materially from the results discussed in the forward-looking statements we make. In particular, you should consider the numerous risks described in the risk factors incorporated by reference to our most recent Annual Report on Form 10-K, our subsequent Quarterly Reports on Form 10-Q and any Current Reports on Form 8-K we file after the date of this prospectus, together with any amendments or supplements thereto, as updated by our subsequent filings under the Exchange Act, and the risk factors contained in any applicable prospectus supplement or free writing prospectus. See “Where You Can Find More Information.”

As a result of these and other factors, 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. The forward-looking statements contained in this prospectus reflect our views as of the date hereof. 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.

USE OF PROCEEDS

Except as described in any applicable prospectus supplement or in any free writing prospectus we authorize for use in connection with a specific offering, we currently intend to use the net proceeds from the sale of the securities offered by us hereunder, if any, for working capital, capital expenditures and other general corporate purposes.

The specific allocations of the proceeds we receive from the sale of our securities and any material amounts of other funds necessary to accomplish the specified purposes for which the proceeds are to be obtained will be described in the applicable prospectus supplement.

If a prospectus supplement includes an offering of securities by selling securityholders, we will not receive any proceeds from such sales.

GENERAL DESCRIPTION OF SECURITIES WE MAY SELL

We may offer shares of our common stock and preferred stock, various series of senior and subordinated debt securities and warrants to purchase any of such securities, either individually or in units, from time to time under this prospectus, together with any applicable prospectus supplement and related free writing prospectus, in amounts, at prices and on terms to be determined by market conditions at the time of offering. Certain selling security holders, which we will identify in an applicable supplement to this prospectus, also may, from time to time, offer shares of our common stock, in amounts, at prices and at times to be set forth in one or more supplements to this prospectus. Each time we or any selling securityholder offer securities under this prospectus, we will provide offerees with a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities being offered, including, to the extent applicable:

- designation or classification;
- aggregate principal amount or aggregate offering price;
- maturity, if applicable;
- original issue discount, if any;
- rates and times of payment of interest or dividends, 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;
- ranking;
- restrictive covenants, if any;
- voting or other rights, if any; and
- important U.S. federal income tax considerations.

The prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add, update or change information contained in this prospectus or in documents we have incorporated by reference. However, no prospectus supplement or free writing prospectus will offer a security that is not registered and described in this prospectus at the time of the effectiveness of the registration statement of which this prospectus is a part.

We or any selling securityholder may sell the securities to or through underwriters, dealers or agents or directly to purchasers or as otherwise set forth below under "Plan of Distribution." We and any selling securityholder as well as any agents acting on our or their behalf, reserve the sole right to accept and to reject in whole or in part any proposed purchase of securities. Each prospectus supplement will set forth the names of any underwriters, dealers, agents or other entities involved in the sale of securities described in that prospectus supplement and any applicable fee, commission or discount arrangements with them, details regarding any option to purchase additional securities granted to them, and net proceeds to us.

DESCRIPTION OF CAPITAL STOCK

General

The following is a summary of the material rights of our capital stock and related provisions of our certificate of incorporation and bylaws. The following description of our capital stock does not purport to be complete and is subject to, and qualified in its entirety by, our fourth amended and restated certificate of incorporation, or our certificate of incorporation, and our amended and restated bylaws, or our bylaws, both of which are included as exhibits to the registration statement of which this prospectus is a part.

Our authorized capital stock consists of 275,000,000 shares, each with a par value of \$0.01 per share, including 250,000,000 shares of common stock and 25,000,000 shares of preferred stock.

As of March 15, 2021, we had 62,470,167 shares of common stock and no shares of preferred stock outstanding.

Common Stock

Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders and do not have cumulative voting rights. An uncontested election of directors by our stockholders shall be determined by a majority of the votes cast by the stockholders entitled to vote on the election provided, however, that directors shall be elected by a plurality of the votes properly cast at any meeting of stockholders at which there is a contested election of directors. Holders of common stock are entitled to receive proportionately any dividends as may be declared by our board of directors, subject to any preferential dividend rights of any series of preferred stock that we may designate and issue in the future.

In the event of our liquidation or dissolution, the holders of common stock are entitled to receive proportionately our net assets available for distribution to stockholders after the payment of all debts and other liabilities and subject to the prior rights of any outstanding preferred stock. Holders of common stock have no preemptive, subscription, redemption or conversion rights. Our outstanding shares of common stock are validly issued, fully paid and nonassessable. The rights, preferences and privileges of holders of common stock are subject to and may be adversely affected by the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future.

Preferred Stock

Terms of any series of preferred stock will be described in the prospectus supplement relating to that series of preferred stock and in any related free writing prospectus that we may authorize to be distributed to purchasers. The terms of any series of preferred stock may differ from the terms described below.

Under the terms of our certificate of incorporation, our board of directors is authorized to direct us to issue shares of preferred stock in one or more series without stockholder approval. Our board of directors has the discretion to determine the rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, of each series of preferred stock.

The purpose of authorizing our board of directors to issue preferred stock and determine its rights and preferences is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions, future financings and other corporate purposes, could have the effect of making it more difficult for a third-party to acquire, or could discourage a third-party from seeking to acquire, a majority of our outstanding voting stock.

If we offer a specific class or series of preferred stock under this prospectus, we will describe the terms of the preferred stock in the prospectus supplement for such offering and will file a copy of the certificate of

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designation establishing the terms of the preferred stock with the SEC. To the extent required, the description will include:

- the title and stated value;
- the number of shares offered, the liquidation preference per share and the purchase price;
- the dividend rate(s), period(s) and/or payment date(s), or method(s) of calculation for such dividends;
- whether dividends will be cumulative or non-cumulative and, if cumulative, the date from which dividends will accumulate;
- the procedures for any auction and remarketing, if any;
- the provisions for a sinking fund, if any;
- the provisions for redemption, if applicable;
- any listing of the preferred stock on any securities exchange or market;
- whether the preferred stock will be convertible into our common stock, and, if applicable, the conversion price (or how it will be calculated) and conversion period;
- whether the preferred stock will be exchangeable into debt securities, and, if applicable, the exchange price (or how it will be calculated) and exchange period;
- voting rights, if any, of the preferred stock;
- a discussion of any material U.S. federal income tax considerations applicable to the preferred stock;
- the relative ranking and preferences of the preferred stock as to dividend rights and rights upon liquidation, dissolution or winding up of the affairs of the Company; and
- any material limitations on issuance of any class or series of preferred stock ranking senior to or on a parity with the series of preferred stock as to dividend rights and rights upon liquidation, dissolution or winding up of the Company.

The preferred stock offered by this prospectus, when issued, will not have, or be subject to, any preemptive or similar rights.

Anti-Takeover Effects of our Certificate of Incorporation and Bylaws and Delaware Law

Our certificate of incorporation and bylaws contains certain provisions that are intended to enhance the likelihood of continuity and stability in the composition of our board of directors but which may have the effect of delaying, deferring or preventing a future takeover or change in control of us unless such takeover or change in control is approved by our board of directors. These provisions include:

Classified board.

Our certificate of incorporation provides that our board of directors will be divided into three classes of directors, with the classes as nearly equal in number as possible. As a result, approximately one-third of our board of directors are elected each year. The classification of directors will have the effect of making it more difficult for stockholders to change the composition of our board. Our certificate of incorporation also provides that, subject to any rights of holders of preferred stock to elect additional directors under specified circumstances, the number of directors will be fixed exclusively pursuant to a resolution adopted by our board of directors.

Action by written consent; special meetings of stockholders.

Our certificate of incorporation provides that stockholder action can be taken only at an annual or special meeting of stockholders and cannot be taken by written consent in lieu of a meeting. Our certificate of

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incorporation and our bylaws also provide that, except as otherwise required by law, special meetings of the stockholders can only be called pursuant to a resolution adopted by a majority of our board of directors. Except as described above, stockholders are not permitted to call a special meeting or to require our board of directors to call a special meeting.

Removal of directors.

Our certificate of incorporation provides that our directors may be removed only for cause by the affirmative vote of at least 75% of the voting power of our outstanding shares of capital stock, voting together as a single class. This requirement of a supermajority vote to remove directors could enable a minority of our stockholders to prevent a change in the composition of our board.

Advance notice procedures.

Our bylaws establish an advance notice procedure for stockholder proposals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our board of directors. Stockholders at an annual meeting are only able to consider proposals or nominations specified in the notice of meeting or brought before the meeting by or at the direction of our board of directors or by a stockholder who was a stockholder of record on the record date for the meeting, who is entitled to vote at the meeting and who has given our Secretary timely written notice, in proper form, of the stockholder's intention to bring that business before the meeting. Although our bylaws do not give our board of directors the power to approve or disapprove stockholder nominations of candidates or proposals regarding other business to be conducted at a special or annual meeting, our bylaws may have the effect of precluding the conduct of certain business at a meeting if the proper procedures are not followed or may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect its own slate of directors or otherwise attempting to obtain control of us.

Supermajority approval requirements.

The DGCL generally provides that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or bylaws, unless either a corporation's certificate of incorporation or bylaws requires a greater percentage. Our certificate of incorporation and bylaws provide that the affirmative vote of holders of at least 75% of the total votes eligible to be cast in the election of directors is required to amend, alter, change or repeal specified provisions. This requirement of a supermajority vote to approve amendments to our certificate of incorporation and bylaws could enable a minority of our stockholders to exercise veto power over any such amendments.

Authorized but unissued shares.

Our authorized but unissued shares of common stock and preferred stock are available for future issuance without stockholder approval. These additional shares may be utilized for a variety of corporate purposes, including future public offerings to raise additional capital, corporate acquisitions and employee benefit plans. The existence of authorized but unissued shares of common stock and preferred stock could render more difficult or discourage an attempt to obtain control of a majority of our common stock by means of a proxy contest, tender offer, merger or otherwise.

Exclusive forum.

Our certificate of incorporation requires, to the fullest extent permitted by law, that derivative actions brought in the name of the Company, actions against directors, officers and employees for breach of a fiduciary duty and other similar actions may be brought only in specified courts in the State of Delaware. Under our certificate of incorporation, this exclusive forum provision will not apply to claims that are vested in the exclusive jurisdiction of a court or forum other than the Court of Chancery of the State of Delaware, or for which

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the Court of Chancery of the State of Delaware does not have subject matter jurisdiction and explicitly does not apply to actions arising under federal securities laws, including suits brought to enforce any liability or duty created by the Securities Act, Exchange Act, or the rules and regulations thereunder. Furthermore, our bylaws also provide that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. Although we believe these provisions benefit us by providing increased consistency in the application of Delaware law in the types of lawsuits to which it applies, these provisions may have the effect of discouraging lawsuits against our directors and officers.

Section 203 of the DGCL

We are subject to the provisions of Section 203 of the DGCL. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a three-year period following the time that this stockholder becomes an interested stockholder, unless the business combination is approved in a prescribed manner. A “business combination” includes, among other things, a merger, asset or stock sale or other transaction resulting in a financial benefit to the interested stockholder. An “interested stockholder” is a person who, together with affiliates and associates, owns, or did own within three years prior to the determination of interested stockholder status, 15% or more of the corporation’s voting stock.

Under Section 203, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions: before the stockholder became interested, our board of directors approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder; upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, shares owned by persons who are directors and also officers, and employee stock plans, in some instances; or at or after the time the stockholder became interested, the business combination was approved by our board of directors of the corporation and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

A Delaware corporation may “opt out” of these provisions with an express provision in its original certificate of incorporation or an express provision in its certificate of incorporation or bylaws resulting from a stockholders’ amendment approved by at least a majority of the outstanding voting shares. We have not opted out of these provisions. As a result, mergers or other takeover or change in control attempts of us may be discouraged or prevented.

Transfer agent and registrar

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A.

Listing

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

DESCRIPTION OF DEBT SECURITIES

The applicable prospectus supplement will describe the terms and features of any debt securities which we may issue, in one or more series, as either senior or subordinated debt or as senior or subordinated convertible debt. The following description and any description of debt securities in the applicable prospectus supplement may not be complete and is subject to, and is qualified in its entirety by reference to, the indenture relating to such debt securities that we will file with the SEC in connection with a public offering of debt securities.

DESCRIPTION OF WARRANTS

We may issue warrants for the purchase of shares of our common stock or preferred stock or of debt securities. We may issue warrants independently or together with other securities, and the warrants may be attached to or separate from any offered securities. Each series of warrants will be issued under a separate warrant agreement to be entered into between us and the investors or a warrant agent. Our board of directors or a committee designated by the board will determine the terms of the warrants. This prospectus contains only general terms and provisions of the warrants. The following summary of material provisions of the warrants and warrant agreements are subject to, and qualified in their entirety by reference to, all the provisions of the warrant agreement and warrant certificate applicable to a particular series of warrants. The terms of any warrants offered under a prospectus supplement may differ from the terms described below. We urge you to read the applicable prospectus supplement and any related free writing prospectus, as well as the complete warrant agreements and warrant certificates that contain the terms of the warrants. Specific warrant agreements will contain additional important terms and provisions and we will file as an exhibit to the registration statement of which this prospectus is a part, or will incorporate by reference from another report that we file with the SEC, the form of each warrant agreement relating to warrants offered under this prospectus.

The particular terms of any issue of warrants will be described in the prospectus supplement relating to the issue. Those terms may include:

- the number of shares of common stock or preferred stock purchasable upon the exercise of warrants to purchase such shares and the price at which such number of shares may be purchased upon such exercise;
- the designation, stated value and terms (including, without limitation, liquidation, dividend, conversion and voting rights) of the series of preferred stock purchasable upon exercise of warrants to purchase preferred stock;
- the principal amount of debt securities that may be purchased upon exercise of a debt warrant and the exercise price for the warrants, which may be payable in cash, securities or other property;
- the date on which the right to exercise the warrants will commence and the date on which the right will expire;
- United States federal income tax consequences applicable to the warrants; and
- any additional terms of the warrants, including terms, procedures, and limitations relating to the exchange, exercise and settlement of the warrants.

DESCRIPTION OF UNITS

We may issue units consisting of our common stock or preferred stock, debt securities and/or warrants to purchase any of these securities in one or more series. We may evidence each series of units by unit certificates that we will issue under a separate agreement. We may enter into unit agreements with a unit agent. Each unit agent will be a bank or trust company that we select. We will indicate the name and address of the unit agent in the applicable prospectus supplement relating to a particular series of units.

The following description, together with the additional information included in any applicable prospectus supplement, summarizes the general features of the units that we may offer under this prospectus. You should read any prospectus supplement and any free writing prospectus that we may authorize to be provided to you related to the series of units being offered, as well as the complete unit agreements that contain the terms of the units. Specific unit agreements will contain additional important terms and provisions and we will file as an exhibit to the registration statement of which this prospectus is a part, or will incorporate by reference from another report that we file with the SEC, the form of each unit agreement relating to units offered under this prospectus.

If we offer any units, certain terms of that series of units will be described in the applicable prospectus supplement, including, without limitation, the following, as applicable:

- the title of the series of units;
- identification and description of the separate constituent securities comprising the units;
- the price or prices at which the units will be issued;
- the date, if any, on and after which the constituent securities comprising the units will be separately transferable;
- a discussion of certain U.S. federal income tax considerations applicable to the units; and
- any other terms of the units and their constituent securities.

SELLING SECURITYHOLDERS

Information about selling securityholders, if any, will be set forth in the applicable prospectus supplement.

PLAN OF DISTRIBUTION

We and any selling securityholders may sell the securities offered through this prospectus (i) to or through underwriters or dealers, (ii) directly to purchasers, including our affiliates, (iii) through agents, or (iv) through a combination of any these methods.

If underwriters or dealers are used in the sale, the securities will be acquired by the underwriters or dealers for their own account and may be resold from time to time in one or more transactions, including:

- in one or more transactions at a fixed price or prices, which may be changed from time to time;
- in “at-the-market offerings,” within the meaning of Rule 415(a)(4) of the Securities Act to or through a market maker or into an existing trading market, on an exchange or otherwise;
- through a market maker or into an existing trading market on an exchange or otherwise;
- at prices related to those prevailing market prices; or
- at negotiated prices.

The applicable prospectus supplement will include the following information to the extent applicable:

- the terms of the offering;
- the names of any underwriters, dealers or agents;
- the name or names of any managing underwriter or underwriters;
- the purchase price of the securities;
- the net proceeds from the sale of the securities;
- any delayed delivery arrangements;
- any underwriting discounts, commissions or agency fees and other items constituting underwriters’ compensation;
- any initial public offering price;
- any discounts or concessions allowed or reallocated or paid to dealers; and
- any commissions paid to agents.

Sale Through Underwriters or Dealers

If underwriters are used in the sale, the underwriters will acquire the securities for their own account, including through underwriting, purchase, security lending or repurchase agreements with us. The underwriters may resell the securities from time to time in one or more transactions, including negotiated transactions. Underwriters may sell the securities in order to facilitate transactions in any of our other securities (described in this prospectus or otherwise), including other public or private transactions and short sales. Underwriters may offer securities to the public either through underwriting syndicates represented by one or more managing underwriters or directly by one or more firms acting as underwriters. Unless otherwise indicated in the prospectus supplement, the obligations of the underwriters to purchase the securities will be subject to certain conditions, and the underwriters will be obligated to purchase all the offered securities if they purchase any of them. The underwriters may change from time to time any initial public offering price and any discounts or concessions allowed or reallocated or paid to dealers.

If dealers are used in the sale of securities offered through this prospectus, we will sell the securities to them as principals. They may then resell those securities to the public at varying prices determined by the dealers at the time of resale. The prospectus supplement will include the names of the dealers and the terms of the transaction.

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Direct Sales and Sales Through Agents

We may sell the securities offered through this prospectus directly. In this case, no underwriters or agents would be involved. Such securities may also be sold through agents designated from time to time. The prospectus supplement will name any agent involved in the offer or sale of the offered securities and will describe any commissions payable to the agent. Unless otherwise indicated in the prospectus supplement, any agent will agree to use its reasonable best efforts to solicit purchases for the period of its appointment.

We may sell the securities directly to institutional investors or others who may be deemed to be underwriters within the meaning of the Securities Act with respect to any sale of those securities. The terms of any such sales will be described in the prospectus supplement.

At-the-Market Offerings

To the extent that we make sales through one or more underwriters or agents in at-the-market offerings, we will do so pursuant to the terms of a sales agency financing agreement or other at-the-market offering arrangement between us, on one hand, and the underwriters or agents, on the other. If we engage in at-the-market sales pursuant to any such agreement, we will issue and sell our securities through one or more underwriters or agents, which may act on an agency basis or a principal basis. During the term of any such agreement, we may sell securities on a daily basis in exchange transactions or otherwise as we agree with the underwriters or agents. Any such agreement will provide that any securities sold will be sold at prices related to the then prevailing market prices for our securities. Pursuant to the terms of the agreement, we may agree to sell, and the relevant underwriters or agents may agree to solicit offers to purchase blocks of our common stock or other securities. The terms of any such agreement will be described in the prospectus supplement.

Delayed Delivery Contracts

If the prospectus supplement indicates, we may authorize agents, underwriters or dealers to solicit offers from certain types of institutions to purchase securities at the public offering price under delayed delivery contracts. These contracts would provide for payment and delivery on a specified date in the future. The contracts would be subject only to those conditions described in the prospectus supplement. The applicable prospectus supplement will describe the commission payable for solicitation of those contracts.

Settlement

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. The applicable prospectus supplement may provide that the original issue date for the applicable securities may be more than two scheduled business days after the trade date for the securities. Accordingly, in such a case, if a purchaser of securities wishes to trade securities on any date prior to the second business day before the original issue date for the securities, they will be required, by virtue of the fact that the securities initially are expected to settle more than two scheduled business days after the trade date for the securities, to make alternative settlement arrangements to prevent a failed settlement.

General Information

Agents, underwriters, and dealers may be entitled, under agreements entered into with us, to indemnification by us against certain liabilities, including liabilities under the Securities Act. Our agents, underwriters, and dealers, or their affiliates, may be customers of, engage in transactions with or perform services for us, in the ordinary course of business.

LEGAL MATTERS

The financial statements incorporated in this prospectus by reference from the Company's Annual Report on Form 10-K, have been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report, which is incorporated herein by reference. Such financial statements have been so incorporated in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

EXPERTS

The financial statements incorporated in this prospectus by reference from the Company's Annual Report on Form 10-K, have been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report, which is incorporated herein by reference. Such financial statements have been so incorporated in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and other 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>. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K, including any amendments to those reports, and other information that we file with or furnish to the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act can also be accessed free of charge on our website at <http://www.beamtx.com> under the "Investors—Financials & Filings" caption. These filings will be available as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. Information contained on our website is not part of this prospectus.

INFORMATION INCORPORATED BY REFERENCE

The SEC allows us to incorporate by reference the information we file with it, which means that we can disclose important information to you by referring you to another document that we have filed separately with the SEC. You should read the information incorporated by reference because it is an important part of this prospectus. We incorporate by reference the following information or documents that we have filed with the SEC:

- our Annual Report on [Form 10-K](#) for the fiscal year ended December 31, 2020, as filed with the SEC on March 15, 2021;
- our Current Reports on Form 8-K, as filed with the SEC on [January 11, 2021](#), [January 19, 2021](#), and [February 23, 2021](#) (except, with respect to each of the foregoing, for portions of such reports which were deemed to be furnished and not filed); and
- the description of our common stock contained in our Registration Statement on [Form 8-A](#) (File No. 001-39208), as filed with the SEC on January 31, 2020, including any amendments or reports filed for the purpose of updating such description, including Exhibit 4.3 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2020.

All reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the termination of the offering of securities described in the applicable prospectus supplement, but excluding any information furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus and deemed to be part of this prospectus from the date of the filing of such reports and documents.

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Any statement contained in any document incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus or any prospectus supplement modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

We will provide without charge to each person, including any beneficial owner, to whom this prospectus is delivered, upon written or oral request, a copy of any or all documents that are incorporated by reference into this prospectus, but not delivered with the prospectus, other than exhibits to such documents unless such exhibits are specifically incorporated by reference into the documents that this prospectus incorporates. You should direct written requests to: Beam Therapeutics Inc., 26 Landsdowne Street, 2nd Floor, Cambridge, Massachusetts 02139 or you may call us at (857) 327-8775.

Beam Therapeutics Inc.

Up to \$300,000,000

Common Stock

PROSPECTUS SUPPLEMENT

Jefferies

April 1, 2021
