

Prospectus



32,871,200 Shares of Common Stock

This prospectus relates to the resale by the Selling Stockholders named in this prospectus (the “Selling Stockholders”) of shares of common stock, par value \$0.0001 per share (the “Common Stock”), of Benitec Biopharma Inc. (the “Company”). The shares of Common Stock offered hereunder include (i) 7,247,532 shares of Common Stock currently held by the Selling Stockholders and (ii) an aggregate of 25,623,668 shares of Common Stock underlying pre-funded warrants (the “Pre-Funded Warrants”) and common warrants (the “Common Warrants,” and together with the Pre-Funded Warrants, the “Warrants”) held by the Selling Stockholders, which consists of 12,950,610 shares of Common Stock underlying Pre-Funded Warrants with an exercise price of \$0.0001 per share, 588,235 shares of Common Stock underlying Pre-Funded Warrants with an exercise price of \$0.0017 per share, 1,240,264 shares of Common Stock underlying Common Warrants with an exercise price of \$1.93 per share, and 10,844,559 shares of Common Stock underlying Common Warrants with an exercise price of \$3.86 per share.

We are registering the resale of these shares of Common Stock to satisfy certain registration rights we have granted pursuant to the terms of the Registration Rights Agreement (as defined in the prospectus). We entered into the Registration Rights Agreement in connection with our private placement of securities for gross proceeds of approximately \$40 million that closed on April 22, 2024. We will not receive any of the proceeds from the sale of the Common Stock by the Selling Stockholders. We will receive proceeds from Warrants exercised in the event that such Warrants are exercised for cash. We will pay the expenses associated with registering the sales by the Selling Stockholders, as described in more detail in the section titled “Use of Proceeds” appearing elsewhere in this prospectus.

Our registration for resale of the shares of Common Stock covered by this prospectus does not mean that the Selling Stockholders will offer or sell any of the shares of Common Stock. The Selling Stockholders may sell the shares of Common Stock covered by this prospectus in a number of different ways and at varying prices. For additional information on the possible methods of sale that may be used by the Selling Stockholders, you should refer to the section of this prospectus entitled “Plan of Distribution” beginning on page 22 of this prospectus. For information on the Selling Stockholders, see the section entitled “Selling Stockholders” on page 19 of this prospectus.

Our Common Stock is listed on The Nasdaq Capital Market under the symbol “BNTC.” On May 28, 2024, the last reported sale price of our Common Stock on The Nasdaq Capital Market was \$8.55 per share.

You should read this prospectus, together with additional information described under the heading “Where You Can Find More Information,” carefully before you invest in any of our securities.

Investing in our securities involves a high degree of risk. See “[Risk Factors](#)” beginning on page 10.

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

The date of this prospectus is May 28, 2024

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ABOUT THIS PROSPECTUS

Unless the context otherwise requires, the terms “Benitec,” the “Company,” “we,” “us,” “our” and similar terms used in this prospectus refer to Benitec Biopharma Inc., a Delaware corporation, and its subsidiaries.

This prospectus is part of a registration statement on Form S-1 that we filed with the Securities and Exchange Commission (“SEC”). You should rely only on the information contained in or incorporated by reference into this prospectus or contained in any free writing prospectus prepared by or on behalf of us or to which we have referred you. We have not, and the Selling Stockholders have not, authorized anyone to provide you with information that is different from that contained in such prospectuses. The Selling Stockholders are offering to sell shares of Common Stock, and are seeking offers to buy shares of Common Stock, only in jurisdictions where such offers and sales are permitted. For investors outside the United States: We have not, and the Selling Stockholders have not, taken any action that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the securities covered hereby and the distribution of this prospectus outside the United States. The information in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or any sale of our shares of Common Stock.

This prospectus and the information incorporated herein by reference contain summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the section entitled “Where You Can Find Additional Information.” We urge you to read carefully this prospectus, together with the information incorporated herein by reference, before deciding whether to participate in the offering hereunder.

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

Our fiscal year-end is June 30. References to a particular “fiscal year” are to our fiscal year ended June 30 of that calendar year.

INDUSTRY AND MARKET DATA

This prospectus includes information with respect to market and industry conditions and market share from third-party sources or based upon estimates using such sources when available. We believe that such information and estimates are reasonable and reliable. We also believe the information extracted from publications of third-party sources has been accurately reproduced. However, we have not independently verified any of the data from third-party sources. Similarly, our internal research is based upon our understanding of industry conditions, and such information has not been verified by any independent sources.

TRADEMARKS AND TRADE NAMES

We have proprietary and licensed rights to trademarks used in this prospectus which are important to our business, many of which are registered under applicable intellectual property laws. These trademarks include:

- BENITEC BIOPHARMA®
- BENITEC®
- GIVING DISEASE THE SILENT TREATMENT®
- SILENCING GENES FOR LIFE®

Solely for convenience, trademarks and trade names referred to in this prospectus appear without the “®” or “™” symbols, but such references are not intended to indicate, in any way, that we will not assert, to the fullest extent possible under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use or display of other companies’ trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of us by, any other companies. Each trademark, trade name or service mark of any other company appearing in this prospectus is the property of its respective holder.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements that are subject to a number of risks and uncertainties, many of which are beyond our control. Our forward-looking statements relate to future events or our future performance and include, but are not limited to, statements concerning our business strategy, future commercial revenues, market growth, capital requirements, new product introductions, expansion plans and the adequacy of our funding. All statements, other than statements of historical fact included in this prospectus, are forward-looking statements. When used in this prospectus, the words “could,” “believe,” “anticipate,” “intend,” “estimate,” “expect,” “may,” “continue,” “predict,” “potential,” “project,” or the negative of these terms, and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain such identifying words. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements.

Some of the risks and uncertainties that may cause our actual results, performance or achievements to differ materially from those expressed or implied by forward-looking statements include the following:

- the success of our plans to develop and potentially commercialize our product candidates;
- the timing of the completion of preclinical studies and clinical trials;
- the timing of the availability of data from our clinical trials;
- the timing and sufficiency of patient enrollment and dosing in any future clinical trials;
- the timing and outcome of expected regulatory filings and approvals;
- the clinical utility and potential attributes and benefits of ddRNAi and our product candidates, including the potential duration of treatment effects and the potential for a “one shot” cure;
- the development of novel AAV (as defined below) vectors;
- our potential future out-licenses and collaborations;
- the plans of licensees of our technology;
- our intellectual property position and the duration of our patent portfolio;
- expenses, ongoing losses, future revenue, capital needs and needs for additional financing, and our ability to access additional financing given market conditions and other factors, including our capital structure;
- our ability to continue as a going concern;
- the length of time over which we expect our cash and cash equivalents to be sufficient to execute on our business plan;
- unanticipated delays;
- further research and development and the results of clinical trials possibly being unsuccessful or insufficient to meet applicable regulatory standards or warrant continued development;
- the ability to enroll sufficient numbers of subjects in clinical trials;
- determinations made by the U.S. Food and Drug Administration and other governmental authorities
- regulatory developments in the United States of America;
- our ability to protect and enforce our patents and other intellectual property rights;
- our dependence on our relationships with our collaboration partners and other third parties;

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- the efficacy or safety of our products and the products of our collaboration partners;
- the acceptance of our products and the products of our collaboration partners in the marketplace and market competition;
- sales, marketing, manufacturing and distribution requirements;
- greater than expected expenses, expenses relating to litigation or strategic activities;
- our ability to satisfy our capital needs through increasing revenue and obtaining additional financing;
- the impact of the COVID-19 pandemic, the disease caused by the SARS-CoV-2 virus, or any similar event, which may adversely impact our business and clinical trials; and
- the impact of local, regional, and national and international economic conditions and events

as well as other risks detailed under the caption “Risk Factors” in this prospectus and in other reports filed with the SEC. Although we believe that we have a reasonable basis for each forward-looking statement contained in this prospectus, we caution you that these statements are based on a combination of facts and important factors currently known by us and our expectations of the future, about which we cannot be certain. Such statements are based on assumptions and the actual outcome will be affected by known and unknown risks, trends, uncertainties and factors that are beyond our control or ability to predict. We have based the forward-looking statements included in this prospectus and in the documents incorporated herein by reference on information available to us on the date of this prospectus or on the date thereof. Except as required by law we undertake no obligation to revise or update any forward-looking statements, whether as a result of new information, future events or otherwise. You are advised to consult any additional disclosures that we may make directly to you or through reports that we, in the future, may file with the SEC, including annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K.

All forward-looking statements included herein or in documents incorporated herein by reference are expressly qualified in their entirety by the cautionary statements contained or referred to elsewhere in this prospectus.

SUMMARY

This summary highlights information contained in other parts of this prospectus and in the documents incorporated by reference herein and does not contain all of the information that you should consider in making your investment decision. Before investing in our securities, you should carefully read this entire prospectus and the documents incorporated by reference herein, including our consolidated financial statements and the related notes, and the information set forth under the section titled “Risk Factors,” as well as those risk factors included in our Annual Report on Form 10-K for the fiscal year ended June 30, 2023 and any subsequent Quarterly Report on Form 10-Q. Some of the statements in this prospectus and the documents incorporated by reference herein constitute forward-looking statements that involve risks and uncertainties. See the information set forth under the section “Special Note Regarding Forward-Looking Statements.”

Company Overview

We endeavor to become the leader in discovery, development, and commercialization of therapeutic agents capable of addressing significant unmet medical need via the application of the silence and replace approach to the treatment of genetic disorders.

Benitec Biopharma Inc. (“Benitec” or the “Company” or in the third person, “we” or “our”) is a clinical-stage biotechnology company focused on the advancement of novel genetic medicines with headquarters in Hayward, California. The proprietary platform, called DNA-directed RNA interference, or ddRNAi, combines RNA interference, or RNAi, with gene therapy to create medicines that facilitate sustained silencing of disease-causing genes following a single administration. The unique therapeutic constructs also enable the simultaneous delivery of wildtype replacement genes, facilitating the proprietary “silence and replace” approach to the treatment of genetically defined diseases. The Company is developing a silence and replace-based therapeutic (BB-301) for the treatment of Oculopharyngeal Muscular Dystrophy (OPMD), a chronic, life-threatening genetic disorder.

BB-301 is a silence and replace-based genetic medicine currently under development by Benitec. BB-301 is an AAV-based gene therapy designed to permanently silence the expression of the disease-causing gene (to slow, or halt, the biological mechanisms underlying disease progression in OPMD) and to simultaneously replace the mutant gene with a wildtype gene (to drive restoration of function in diseased cells). This fundamental therapeutic approach to disease management is called “silence and replace.” The silence and replace mechanism offers the potential to restore the normative physiology of diseased cells and tissues and to improve treatment outcomes for patients suffering from the chronic, and potentially fatal, effects of OPMD. BB-301 has been granted Orphan Drug Designation in the United States and the European Union.

The targeted gene silencing effects of RNAi, in conjunction with the durable transgene expression achievable via the use of modified viral vectors, imbues the silence and replace approach with the potential to produce permanent silencing of disease-causing genes along with simultaneous replacement of the wild type gene function following a single administration of the proprietary genetic medicine. We believe that this novel mechanistic profile of the current and future investigational agents developed by Benitec could facilitate the achievement of robust and durable clinical activity while greatly reducing the frequency of drug administration traditionally expected for medicines employed for the management of chronic diseases. Additionally, the achievement of permanent gene silencing and gene replacement may significantly reduce the risk of patient non-compliance during the course of medical management of potentially fatal clinical disorders.

We will require additional financing to progress our product candidates through to key inflection points.

Closing of Private Placement

On April 22, 2024 we closed a private investment in public equity (PIPE) financing (the “April 2024 private placement”) in which we sold 5,749,152 shares of our common stock, par value \$0.0001 per share (the “Common Stock”) at a price per share of \$4.80 and, in lieu of shares of Common Stock, pre-funded warrants to purchase up to an aggregate of 2,584,239 shares of Common Stock at a price per pre-funded warrant of \$4.7999 (the “Pre-Funded Warrants”), to certain institutional accredited investors pursuant to a securities purchase agreement dated April 17, 2024 (the “Securities Purchase Agreement”). The Pre-Funded Warrants were immediately exercisable until exercised in full at an exercise price of \$0.0001 per share of Common Stock. Gross proceeds from the financing totaled \$40.0 million. Net proceeds, net of commissions and other offering expenses, totaled approximately \$37.2 million.

Voting Commitment Agreement

In connection with the April 2024 private placement, we entered into a Voting Commitment Agreement with the purchasers in the private placement (the “Voting Commitment Agreement”). Pursuant to the Voting Commitment Agreement, the Company is obligated to use its reasonable best efforts to obtain stockholder approval of the exercise of the Pre-Funded Warrants issued in the private placement and the warrants issued in the Company’s underwritten public offerings on September 15, 2022 and August 11, 2023 (the “Existing Warrants,” and together with the Pre-Funded Warrants, the “Warrants”) in accordance with the rules of the Nasdaq Stock Market which otherwise would be subject to the Beneficial Ownership Limitation, as defined in the Warrants (the “Stockholder Approval”) at the Company’s 2024 annual meeting of stockholders (the “Annual Meeting”), provided that the Company may elect to call a special meeting of its stockholders (the “Special Meeting”) before the Annual Meeting to obtain the Stockholder Approval. If the Stockholder Approval is not obtained at the Annual Meeting (or at a Special Meeting called prior to the Annual Meeting, at the election of the Company), the Company is obligated to use its reasonable best efforts to obtain the Stockholder Approval at its 2025 annual meeting of stockholders (the “2025 Annual Meeting”). If the Stockholder Approval is not obtained before or at the 2025 Annual Meeting, then the Company would no longer be obligated to seek to obtain the Stockholder Approval. The purchasers agreed that the Company will not be liable for any penalty, damages, or other remedy if the Company fails, after using its reasonable best efforts in accordance with the Voting Commitment Agreement to obtain the Stockholder Approval. Pursuant to the Voting Commitment Agreement, the purchasers agreed to vote or cause to be voted any and all shares of the Company’s Common Stock over which it or its affiliates has or shares voting control on the record date for shares eligible to vote at any Company Special Meeting or Annual Meeting seeking the Stockholder Approval where such proposal is presented in favor of approving the proposal or proposals seeking the Stockholder Approval.

Board Designation Letter

We also entered into a Board Designation Side Letter (the “Board Designation Agreement”) with Suvretta Capital Management, LLC (“Suvretta Capital”) at the closing of the April 2024 private placement. Pursuant to the Board Designation Agreement, the Company agreed to consider for appointment and appoint Kishen Mehta to the Company’s Board of Directors (the “Board”) following consummation of the transactions contemplated by the Securities Purchase Agreement, and in such board class as determined by the Company prior to his appointment. Suvretta Capital will be entitled to propose additional candidates for appointment to the Board to the extent the Board does not appoint Mr. Mehta for one or more of the reasons set forth in the Board Designation Agreement. Pursuant to the Board Designation Agreement, Suvretta Capital agreed that (1) in connection with the closing of the April 2024 private placement, (i) the Company and Suvretta Capital will take such action as may be required to permit Suvretta Capital to exercise its Warrants up to the 19.99% Beneficial Ownership Limitation, and (ii) Suvretta Capital will vote all of its shares of Common Stock owned on the record date for such votes in favor of (1) all of the Company’s director nominees for election to the Board at the Company’s annual meetings of stockholders to be held during the term of the Board Designation Agreement, and

(2) the proposal seeking the Stockholder Approval pursuant to the Voting Commitment Agreement at any annual or special meeting of the Company where such proposal is presented.

Registration Rights Agreement

As previously disclosed, in connection with the closing of the April 2024 private placement, on April 22, 2024 (the “Closing Date”) we entered into a registration rights agreement (the “Registration Rights Agreement”) with the purchasers in the private placement, pursuant to which we agreed to register for resale the shares of Common Stock and the shares underlying Warrants held by the purchasers in the private placement (the “Registrable Securities”). Under the Registration Rights Agreement, we agreed to file a registration statement covering the resale of the Registrable Securities by no later than the 30th calendar day following the Closing Date. We filed the registration statement of which this prospectus forms a part pursuant to the terms of the Registration Rights Agreement.

Summary of Risk Factors

An investment in our securities involves a high degree of risk. Any of the factors set forth herein under “Risk Factors” and the risk factors included in our Annual Report on Form 10-K for the fiscal year ended June 30, 2023 and any subsequent Quarterly Report on Form 10-Q may limit our ability to successfully execute our business strategy. You should carefully consider all of the information set forth in this prospectus and in the documents incorporated by reference herein and, in particular, should evaluate the specific factors set forth herein under “Risk Factors” in deciding whether to invest in our securities. These risk factors include, among others:

- We have incurred significant losses since inception and anticipate that we will continue to incur losses for the foreseeable future. If we are unable to achieve or sustain profitability, the market value of our Common Stock will likely decline;
- We have never generated any revenue from product sales and may never be profitable;
- We will need to continue our efforts to raise additional funding, which may not be available on acceptable terms, or at all. Failure to obtain capital when needed may negatively impact our ability to continue as a going concern;
- Sales of a substantial amount of the Common Stock in the public markets, as a result of the exercise of the Warrants or otherwise, may cause the market price of the Common Stock to decline;
- Our largest stockholders may have significant influence on our governance and operations;
- Our product candidates are based on ddRNAi and silence and replace technology. Currently, no product candidates utilizing ddRNAi technology or silence and replace technology have been approved for commercial sale and our approach to the development of ddRNAi technology and silence and replace technology may not result in safe, effective or marketable products;
- We are early in our product development efforts and our current product candidate is in early clinical stage. We may not be able to obtain regulatory approvals for the commercialization of our product candidates;
- Issues that may impact delivery of our therapeutics to the cell could adversely affect or limit our ability to develop and commercialize product candidates;
- We face competition from entities that have developed or may develop product candidates for our target disease indications, including companies developing novel treatments and technology platforms based on modalities and technology similar to ours; and
- If we are unable to obtain or protect sufficient intellectual property rights related to our product candidates, we may not be able to obtain exclusivity for our product candidates or prevent others from developing similar competitive products.

Corporate Information

We were incorporated as a Delaware corporation on November 22, 2019 and completed our reincorporation on April 15, 2020. Our predecessor, Benitec Limited, Inc., was incorporated under the laws of Australia in 1995. Our Common Stock is traded on The Nasdaq Capital Market under the symbol “BNTC.” Our principal executive offices are located at 3940 Trust Way, Hayward, California 94545. Our telephone number is (510) 780-0819, and our Internet website is www.benitec.com. The information on, or that can be accessed through, our website is not part of this prospectus and is not incorporated by reference herein.

Implications of Being a Smaller Reporting Company

We are a “smaller reporting company” and will remain a smaller reporting company while either (i) the market value of our stock held by non-affiliates was less than \$250 million as of the last business day of our most recently completed second fiscal quarter or (ii) our annual revenue was less than \$100 million during our most recently completed fiscal year and the market value of our stock held by non-affiliates was less than \$700 million as of the last business day of our most recently completed second fiscal quarter. We may rely on exemptions from certain disclosure requirements that are available to smaller reporting companies, including many of the same exemptions from disclosure requirements as those that are available to emerging growth companies, such as reduced disclosure obligations regarding executive compensation in our registration statements, prospectus and our periodic reports and proxy statements. For so long as we remain a smaller reporting company, we are permitted and intend to rely on exemptions from certain disclosure and other requirements that are applicable to other public companies that are not smaller reporting companies.

THE OFFERING

Issuer	Benitec Biopharma Inc.
Securities offered by the Selling Stockholders	32,871,200 shares of Common Stock consisting of (i) 7,247,532 shares of Common Stock currently outstanding and (ii) 25,623,668 shares of Common Stock issuable upon exercise of the Warrants. We are registering for resale 12,950,610 shares of Common Stock underlying Pre-Funded Warrants with an exercise price of \$0.0001 per share, 588,235 shares of Common Stock underlying Pre-Funded Warrants with an exercise price of \$0.0017 per share, 1,240,264 shares of Common Stock underlying Common Warrants with an exercise price of \$1.93 per share, and 10,844,559 shares of Common Stock underlying Common Warrants with an exercise price of \$3.86 per share.
Common Stock outstanding prior to this offering	9,367,485 shares as of May 28, 2024
Common Stock to be outstanding immediately following this offering assuming the issuance of the 25,623,668 shares of Common Stock underlying the Warrants that are being registered hereunder	42,238,685 shares
Use of proceeds	We will not receive any of the proceeds from the sale of the shares being offered by the Selling Stockholders. We would, however, receive proceeds upon the exercise of the Warrants by the Selling Stockholders, which, if such Warrants are exercised in full for cash, would be approximately \$44.3 million. Proceeds, if any, received from the exercise of any such Warrants will be used to fund the clinical development and related commercialization of BB-301, including the natural history lead-in study and the Phase 1b/2a BB-301 treatment study, and for general corporate purposes. No assurances can be given that any such Warrants will be exercised.
Plan of distribution	Each Selling Stockholder may sell all or a portion of the Shares of Common Stock beneficially owned by it and offered hereby from time to time directly or through one or more underwriters, broker-dealers or agents. Registration of the Common Stock covered by this prospectus does not mean, however, that such shares necessarily will be offered or sold. See “Plan of Distribution.”
Risk factors	An investment in our securities involves a high degree of risk. You should read the “Risk Factors” section of this prospectus, as well as those risk factors included in our Annual Report on Form 10-K for the fiscal year ended June 30, 2023 and any subsequent Quarterly Report on Form 10-Q, in the documents incorporated by reference herein for a discussion of factors to consider carefully before deciding to invest in our securities.
Nasdaq Capital Market symbol	“BNTC.”

RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the risks and uncertainties described below, as well as those risk factors included in our Annual Report on Form 10-K for the fiscal year ended June 30, 2023 and any subsequent Quarterly Report on Form 10-Q, and in the documents incorporated by reference herein, together with all of the other information contained in this prospectus and incorporated by reference herein, including our consolidated financial statements and the related notes, before deciding to invest in our securities. The risks and uncertainties described below and in the documents incorporated by reference herein are not the only ones we face. Additional risks and uncertainties that we are unaware of, or that we currently believe are not material, may also become important factors that affect us. If any of the following risks actually occurs, our business, financial condition, results of operations and prospects could be materially and adversely affected, the trading price of our Common Stock could decline and you could lose all or part of your investment.

Risks Relating to this Offering and our Common Stock

An active trading market for our Common Stock may not be sustained, which may cause shares of our Common Stock to trade at a discount and make it difficult to sell shares of our Common Stock.

Our Common Stock is listed on the Nasdaq Capital Market under the symbol “BNTC”. However, we cannot assure you that an active trading market for our Common Stock will be sustained. Accordingly, we cannot assure you of the future the liquidity of any trading market for our Common Stock, your ability to sell your shares of our Common Stock when desired or the prices that you may obtain for your securities.

A number of our stockholders hold significant amounts of our Common Stock and unexercised Warrants to acquire Common Stock, and therefore could exert significant influence over us.

While our stockholder base and relative holdings may change over time, a number of institutional investors and similar stockholders currently hold significant ownership positions in our outstanding Common Stock and outstanding Warrants to acquire Common Stock. In addition, in connection with the April 2024 private placement, we entered into the Board Designation Agreement with Suvretta Capital pursuant to which the Company agreed to consider for appointment and appoint Kishen Mehta or an alternative candidate proposed by Suvretta Capital to the Board. If such a candidate is appointed to the Board, Suvretta Capital will be able to exert influence not only as a significant stockholder but also through such appointee.

The interests of these significant shareholders might not always coincide with the interests of other stockholders, and any influence exerted over our business and affairs by these significant stockholders directly or through an appointee to the Board might not always coincide with the wishes of other stockholders. In addition, the control and influence held by these significant stockholders might have the effect of delaying, deferring, or preventing a transaction or change in control of us, which might involve a premium price for shares of our Common Stock, or which otherwise could have been in your best interests as a stockholder.

Certain of the Selling Stockholders purchased, or are able to purchase, shares of Common Stock at prices that are below the current trading price of the Common Stock. As a result, the Selling Stockholders may effect sales of Common Stock at prices below the current market price, which could cause market prices to decline further.

The Selling Stockholders will determine the timing, pricing and rate at which they sell such securities into the public market. Certain of the Selling Stockholders have an incentive to sell their securities because they have purchased or may acquire Common Stock and/or Warrants at prices below the recent trading prices of our securities. Sales by such investors may cause the trading prices of our securities to experience a decline. Given the relatively lower purchase prices that some of the Selling Stockholders paid to acquire Common Stock, the

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Selling Stockholders in some instances would earn a positive rate of return on their investment, which may be a significant positive rate of return, depending on the market price of the Common Stock at the time that such Selling Stockholders choose to sell their Common Stock, at prices where other of our stockholders may not experience a positive rate of return if they were to sell at the same prices. As a result, the Selling Stockholders may effect sales of Common Stock at prices below the current market price, which could cause market prices to decline further.

Sales of a substantial amount of the Common Stock in the public markets may cause the market price of the Common Stock to decline.

The amount of shares of Common Stock being registered hereunder is significantly higher than the amount of shares currently outstanding. Sales of these shares, or the perception in the market that the holders of a large number of shares intend to sell shares, could reduce the market price of our Common Stock. The sale or possibility of sale of these shares could have the effect of increasing the volatility in the price of our Common Stock or the market price of our Common Stock could decline if the holders of currently restricted shares of Common Stock sell them or are perceived by the market as intending to sell them. Moreover, the sale of shares issued in the private placement that closed on April 22, 2024, any announcement or other public disclosure regarding such sales should they occur, the perceived risk of such sales, the dilution that would result from such sales should they occur and the resulting downward pressure on our share price as a result of the foregoing could encourage investors to engage in short sales of our Common Stock. By increasing the number of shares of Common Stock offered for sale as a result of the resale registration statements we are filing and expect to file, material amounts of short selling could further contribute to progressive price declines in our Common Stock.

The exercise of Warrants to purchase our Common Stock would increase the number of shares eligible for future resale in the public market and result in dilution to our stockholders. Such dilution will increase if more of our shares are redeemed.

As of May 10, 2024, we had outstanding (i) Pre-Funded Warrants to purchase an aggregate of 17,791,340 shares of our Common Stock and (ii) Common Warrants to purchase an aggregate of 17,630,134 shares of our Common Stock. The likelihood that those Warrants will be exercised increases if the trading price of shares of our stock exceeds the exercise price of the Warrants (or the purchase price of the Warrants). To the extent the Warrants are exercised, additional shares of Common Stock will be issued, which will result in dilution to the holders of our stock and increase the number of shares eligible for resale in the public market. Sales of substantial numbers of shares of Common Stock issued upon the exercise of Warrants in the public market or the potential that such Warrants may be exercised could also adversely affect the market price of our Common Stock.

Provisions of our outstanding warrants could discourage an acquisition of us by a third party.

Certain provisions of our warrants could make it more difficult or expensive for a third party to acquire us. Such warrants prohibit us from engaging in certain transactions constituting “fundamental transactions” unless, among other things, the surviving entity assumes our obligations under the warrants. Further, the warrants provide that, in the event of certain transactions constituting “fundamental transactions,” with some exception, holders of the warrants will have the right, at their option, to require us to repurchase such warrants at a price described in the warrants. These and other provisions of our outstanding warrants could prevent or deter a third party from acquiring us even where the acquisition could be beneficial to you.

We may not receive any additional funds upon the exercise of the Warrants.

Each Warrant may be exercised by way of a cashless exercise, meaning that the holder may not pay a cash purchase price upon exercise, but instead would receive upon such exercise the net number of shares of our Common Stock determined according to the formula set forth in the Warrant. Accordingly, we may not receive any additional funds upon the exercise of the Warrants. In addition, the Pre-Funded Warrants have an exercise price of either \$0.0001 or \$0.0017 per share of Common Stock, and as a result we will not receive significant additional funds upon their exercise even if not a cashless exercise.

USE OF PROCEEDS

We will receive no proceeds from the sale of the shares of Common Stock by the Selling Stockholders. We would, however, receive proceeds upon the exercise of the Warrants held by the Selling Stockholders which, if such Warrants are exercised in full for cash, would be an aggregate of approximately \$44.3 million. Proceeds, if any, received from the exercise of any such Warrants will be used to fund the clinical development and related commercialization of BB-301, including the natural history lead-in study and the Phase 1b/2a BB-301 treatment study, and for general corporate purposes. No assurances can be given that any such Warrants will be exercised.

The Selling Stockholders will pay any underwriting fees, discounts and commissions attributable to the sale of the shares of Common Stock and any similar expenses it incurs in disposing of the shares of Common Stock. We will bear all other costs, fees and expenses incurred in effecting the registration of the shares of Common Stock covered by this prospectus. These may include, without limitation, all registration and filing fees, printing fees and fees and expenses of our legal counsel and accountants in connection with the registration of the shares of Common Stock covered by this prospectus.

PRINCIPAL STOCKHOLDERS

The following table sets forth certain information regarding the beneficial ownership of the Company’s Common Stock as of May 10, 2024 by (i) each person or group of persons known by us to beneficially own at least five percent of our Common Stock, (ii) each of our named executive officers, (iii) each of our directors and (iv) all of our directors and executive officers as a group.

The following table gives effect to the shares of Common Stock issuable within 60 days of May 10, 2024 upon the exercise of all warrants, options, and other rights beneficially owned by the indicated stockholders on that date. Beneficial ownership is determined in accordance with Rule 13d-3 promulgated under Section 13(d) of the Securities Exchange Act and includes voting and investment power with respect to shares. Percentage of beneficial ownership is based on 9,367,485 shares of Common Stock outstanding at the close of business on May 10, 2024, and, for each individual holder, gives effect to the shares of Common Stock that shareholder could acquire after the exercise of Warrants held by such holder, subject to the limitations on beneficial ownership contained in such Warrants. Except as otherwise noted below, each person or entity named in the following table has sole voting and investment power with respect to all shares of our Common Stock that he, she or it beneficially owns.

Unless otherwise indicated below, the address for each beneficial owner listed is c/o 3940 Trust Way, Hayward, California 94545.

<u>Name of Beneficial Owner</u>	<u>Number of Shares Beneficially Owned</u>	<u>Percentage of Shares Beneficially Owned</u>
5% or Greater Stockholders:		
Entities Affiliated with Franklin Resources Inc. (1)	2,141,389	19.9%
Entities Affiliated with Suvretta Capital Management, LLC (2)	1,917,849	19.9%
Nemean Asset Management, LLC (3)	947,640	9.9%
Adage Capital Partners, LP (4)	946,290	9.9%
HBM Healthcare Investments (Cayman) Ltd. (5)	946,290	9.9%
Entities Affiliated with Nantahala Capital Management, LLC (6)	946,290	9.9%
Entities Affiliated with Special Situations Fund (7)	625,000	6.9%
Directors and Named Executive Officers:		
Jerel A. Banks (8)	37,720	*
Megan Boston (9)	43,290	*
J. Kevin Buchi (10)	54,190	*
Peter Francis (11)	2,390	*
Edward Smith (12)	2,093	*
All Executive Officers and Directors As a Group (5 persons) (13)	139,683	1.5%

- * Represents beneficial ownership of less than one percent of the Company’s outstanding Common Stock.
- (1) Includes 573,221 shares of Common Stock held by Franklin Strategic Series – Franklin Biotechnology Discovery Fund (“FSS”) and 223,350 shares of Common Stock held by Franklin Biotechnology Discovery Fund, a sub-fund of Franklin Templeton Investment Funds (“Franklin Templeton”) and assumes the exercise of Warrants held by FSS and Franklin Templeton for an additional 1,344,818 shares of Common Stock. FSS and Franklin Templeton hold, respectively, (i) Common Warrants exercisable for an aggregate of 412,910 and 175,325 shares of Common Stock at an exercise price of \$1.93 per share, (ii) Pre-Funded Warrants exercisable for an aggregate of 310,881 and 1,243,523 shares of Common Stock at an exercise price of \$0.0001 per share and (iii) Common Warrants exercisable for an aggregate of 310,881 and 1,243,523 shares of Common Stock at an exercise price of \$3.86 per share, subject to the limitations on

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beneficial ownership contained in such Warrants. The address of the principal business office of Franklin Resources Inc., FSS and Franklin Templeton is One Franklin Parkway, San Mateo, CA 94403.

- (2) Based on information included in the Schedule 13D filed by Suvretta Capital Management, LLC (“Suvretta Capital”), Averill Master Fund, Ltd. (“Averill”), Averill Madison Master Fund, Ltd. (“Averill Madison”) and Aaron Cowen on April 29, 2024. Includes 1,470,179 shares of Common Stock held by Averill and 221,111 shares of Common Stock held by Averill Madison, and assumes the exercise of Warrants held by Averill and Averill Madison for an additional 226,559 shares of Common Stock. Averill and Averill Madison hold, respectively (x)(i) Pre-Funded Warrants exercisable for 6,331,203 and 852,700 shares of Common Stock at an exercise price of \$0.0001 per share and (ii) Common Warrants exercisable for 4,605,000 and 576,347 shares of Common Stock at an exercise price of \$3.86, subject to the limitations on beneficial ownership contained in such Warrants. Averill also holds (y) Common Warrants exercisable for 588,236 shares of Common Stock at an exercise price of \$1.93 and (z) Pre-Funded Warrants exercisable for an aggregate of 588,235 shares of Common Stock at an exercise price of \$0.0017 per share, subject to the limitations on beneficial ownership contained in such Warrants. Suvretta Capital is the investment manager of Averill and Averill Madison. Aaron Cowen is a control person of Suvretta Capital and as such may be deemed to beneficially own these shares. The address of the principal business office of Suvretta Capital, Mr. Cowen, Averill and Averill Madison is 540 Madison Avenue, 7th Floor, New York, NY 10022.
- (3) Based on information included in the Schedule 13G filed by Nemean Asset Management, LLC (“Nemean”), IRA financial trust FBO Steven M. Oliveira Roth IRA (the “Oliveira IRA”), and Steven M. Oliveira on April 29, 2024. Includes 764,324 shares of Common Stock held by Nemean and 64,911 shares of Common Stock held by the Oliveira IRA, and assumes the exercise of Warrants held by Nemean and Mr. Oliveira for an additional 118,405 shares of Common Stock. Mr. Oliveira holds Common Warrants exercisable for 63,793 shares of Common Stock at an exercise price of \$1.93 per share. Nemean holds Pre-Funded Warrants exercisable for 625,000 shares of Common Stock at an exercise price of \$0.0001 per share and Common Warrants exercisable for 1,000,000 shares of Common Stock at an exercise price of \$3.86 per share, subject to the limitations on beneficial ownership contained in such Warrants. The address of the principal business office of Nemean, the Oliveira IRA, and Steven M. Oliveira is 207 Commodore Drive, Jupiter, FL 33477.
- (4) Includes 841,395 shares of Common Stock and assumes the exercise of Warrants held by Adage Capital Partners, LP (the “Fund”) for an additional 104,895 shares of Common Stock. The Fund holds Pre-Funded Warrants exercisable for 3,186,751 shares of Common Stock at an exercise price of \$0.0001 per share and Common Warrants exercisable for 3,108,808 shares of Common Stock at an exercise price of \$3.86 per share, subject to the limitations on beneficial ownership contained in such Warrants. Adage Capital Partners, GP, LLC (“ACPGP”) serves as the general partner of the Fund and as such has discretion over the portfolio of securities beneficially owned by the Fund. Adage Capital Advisors, LLC, a Delaware limited liability company (“ACA”), is managing member of ACPGP and directs ACPGP’s operations. Robert Atchinson and Phillip Gross are the managing members of ACPGP and ACA and general partners of the Fund. Robert Atchinson and Phillip Gross disclaim beneficial ownership of the reported securities except to the extent of their pecuniary interest therein. The address of the principal business office of the Fund, ACPGP, ACA, Mr. Atchinson and Mr. Gross is 200 Clarendon St., 52nd Floor, Boston, MA 02116.
- (5) Based on information included in the Schedule 13G filed by HBM Healthcare Investments (Cayman) Ltd.’s (“HBM”) on April 29, 2024. Includes 841,395 shares of Common Stock and assumes the exercise of Pre-Funded Warrants held by HBM for an additional 104,895 shares of Common Stock. HBM holds Pre-Funded Warrants exercisable for 200,276 shares of Common Stock at an exercise price of \$0.0001 per share, subject to the limitations on beneficial ownership contained in such Pre-Funded Warrants. The address of the principal business office of HBM is Governors Square, 23 Lime Tree Bay Avenue, PO Box 30852, Grand Cayman, KY1-1204, Cayman Islands.
- (6) Includes 151,451 shares of Common Stock held by Pinehurst Partners, L.P. (“Pinehurst”), 16,828 shares of Common Stock held by Corbin Sustainability & Engagement Fund, L.P. (“Corbin”), 140,192 shares of Common Stock held by Nantahala Capital Partners Limited Partnership (“NCPLP”), 118,075 shares of Common Stock held by NCP RFM LP (“NCP RFM”), and 414,849 shares of Common Stock held by Blackwell Partners LLC – Series A (“Blackwell”), and assumes the exercise of Warrants held by Pinehurst,

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Corbin, NCPLP, NCP RFM and Blackwell for an additional 104,895 shares of Common Stock. Pinehurst, Corbin, NCPLP, NCP RFM and Blackwell hold, respectively, Pre-Funded Warrants exercisable for 36,050, 4,006, 33,370, 28,105, and 98,745 shares of Common Stock at an exercise price of \$0.0001 per share, subject to the limitations on beneficial ownership contained in such Pre-Funded Warrants. Nantahala is a Registered Investment Adviser and has been delegated the legal power to vote and/or direct the disposition of such securities on behalf of Pinehurst, Corbin, NCPLP, NCP, RFM and Blackwell as a General Partner, Investment Manager, or Sub-Advisor and would be considered the beneficial owner of such securities. The above shall not be deemed to be an admission by the record owners or the selling stockholder that they are themselves beneficial owners of these securities for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, or any other purpose. Wilnot Harkey and Daniel Mack are managing members of Nantahala and may be deemed to have voting and dispositive power over the shares held by the selling stockholder. The Pre-Funded Warrants are subject to a beneficial ownership limitation of 9.99%, which such limitation restricts the selling stockholder from exercising that portion of the pre-funded warrants that would result in the selling stockholder and its affiliates owning, after exercise, a number of shares of common stock in excess of the beneficial ownership limitation. The address of the principal business office of Nantahala is 130 Main St., 2nd Floor, New Canaan, CT 06840.

- (7) Includes 241,918 shares of Common Stock held by Special Situations Fund III QP, L.P., 70,582 shares of Common Stock held by Special Situations Cayman Fund, L.P. and 312,500 shares of Common Stock held by Special Situations Life Sciences Fund, L.P. AWM Investment Company, Inc. (“AWM”) is the investment adviser to each of the Special Situations Funds. David Greenhouse and Adam Stettner are the principal owners of AWM. Through their control of AWM, Messrs. Greenhouse and Stettner share voting and investment control over the portfolio securities of each of the Special Situations Funds. Messrs. Greenhouse and Stettner disclaim any beneficial ownership of the reported shares other than to the extent of any pecuniary interest each of them may have therein. The address of the principal business office of Special Situations Fund is 527 Madison Avenue, Suite 2600, New York, New York 10022.
- (8) Represents stock options to acquire 37,720 shares of Common Stock that have vested or will vest within 60 days of May 10, 2024.
- (9) Includes 20 shares of Common Stock held by Boston Super Invest Pty A/C Boston Family Super and 25,907 shares that are held by Megan Boston that Megan Boston has sole voting power over and stock options to acquire 17,363 shares of Common Stock that have vested or will vest within 60 days of May 10, 2024.
- (10) Includes 52,097 shares of Common Stock held directly by Mr. Buchi and stock options to acquire 2,093 shares of Common Stock that have vested or will vest within 60 days of May 10, 2024.
- (11) Includes 279 shares of Common Stock held by the Francis Family Superannuation Fund, 18 shares of Common Stock held directly by Mr. Francis, and stock options to acquire 2,093 shares of Common Stock that have vested or will vest within 60 days of May 10, 2024.
- (12) Represents stock options to acquire 2,093 shares of Common Stock that have vested or will vest within 60 days of May 10, 2024.
- (13) Includes 78,321 shares of Common Stock and stock options to acquire 61,362 shares of Common Stock that have vested or will vest within 60 days of May 10, 2024.

DESCRIPTION OF SECURITIES

The following description of our securities is intended as a summary only. We refer you to our Annual Report on Form 10-K for the fiscal year ended June 30, 2023, amended and restated certificate of incorporation (the "Certificate of Incorporation") and amended and restated bylaws (the "Bylaws"), which are incorporated by reference into this prospectus, and to the applicable provisions of the Delaware General Corporation Law ("DGCL"). This description may not contain all of the information that is important to you and is subject to, and is qualified in its entirety by reference to, our Annual Report on Form 10-K for the fiscal year ended June 30, 2023, any subsequent Quarterly Reports on Form 10-Q, our Certificate of Incorporation, our Bylaws, the other documents incorporated by reference herein and the applicable provisions of the DGCL. For information on how to obtain copies of our Annual Report on Form 10-K for the fiscal year ended June 30, 2023, our subsequent Quarterly Reports on Form 10-Q, our Certificate of Incorporation and our Bylaws, see "Where You Can Find More Information."

General

Our authorized capital stock consists of 160,000,000 shares of our Common Stock, par value \$0.0001 per share. As of May 10, 2024, there were 9,367,485 shares of Common Stock outstanding.

Common Stock

Dividend Rights. Subject to preferences that may be applicable to any then outstanding preferred stock, holders of the Company's Common Stock are entitled to receive dividends, if any, as may be declared from time to time by the Company's Board out of legally available funds. Dividends may be paid in cash, in property or in shares of Common Stock, subject to the provisions of the Certificate of Incorporation and applicable law. Declaration and payment of any dividend will be subject to the discretion of the Board. The time and amount of dividends will be dependent upon the Company's financial condition, operations, cash requirements and availability, debt repayment obligations, capital expenditure needs, restrictions in the Company's debt instruments, industry trends, the provisions of Delaware law affecting the payment of distributions to stockholders and any other factors the Board may consider relevant.

Voting Rights. Each holder of Common Stock is entitled to one vote for each share on all matters submitted to a vote of the stockholders, including the election of directors. The Company's stockholders do not have cumulative voting rights in the election of directors.

Liquidation Rights. In the event of the Company's liquidation, dissolution or winding up, holders of the Company's Common Stock are entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of the Company's debts and other liabilities and the satisfaction of any liquidation preference granted to the holders of any then outstanding shares of preferred stock.

Rights and Preferences. Holders of the Company's Common Stock have no pre-emptive, conversion, subscription or other rights, and there are no redemption or sinking fund provisions applicable to the Company's Common Stock. The rights, preferences and privileges of the holders of the Company's 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 the Company may designate in the future.

Fully Paid and Nonassessable. All outstanding shares of the Company's Common Stock are fully paid and non-assessable.

Annual Stockholder Meetings. The Certificate of Incorporation and Bylaws provide that annual stockholder meetings will be held at a date, place (if any) and time, as exclusively selected by the Board. To the extent permitted under applicable law, the Company may but is not obligated to conduct meetings by remote communications, including by webcast.

Anti-Takeover Effects of Provisions of the Certificate and Bylaws and DGCL

Some provisions of the DGCL, the Certificate and Bylaws could make the following transactions difficult: (i) acquisition of the Company by means of a tender offer; (ii) acquisition of the Company by means of a proxy contest or otherwise; or (iii) removal of incumbent officers and directors of the Company. It is possible that these provisions could make it more difficult to accomplish or could deter transactions that stockholders may otherwise consider to be in their best interest or in the best interests of the Company, including transactions that might result in a premium over the market price for the Company's Common Stock.

These provisions, summarized below, are expected to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of the Company to first negotiate with the Board.

Delaware Anti-Takeover Statute. The Company is subject to Section 203 of the DGCL, which prohibits persons deemed "interested stockholders" from engaging in a "business combination" with a publicly-held Delaware corporation for three years following the date these persons become interested stockholders unless the business combination is, or the transaction in which the person became an interested stockholder was, approved in a prescribed manner or another prescribed exception applies. Generally, an "interested stockholder" is a person who, together with affiliates and associates, owns, or within three years prior to the determination of interested stockholder status did own, 15% or more of a corporation's voting stock, and a "business combination" includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. The existence of this provision may have an anti-takeover effect with respect to transactions not approved in advance by the Board, such as discouraging takeover attempts that might result in a premium over the market price of the Company's Common Stock.

Special Stockholder Meetings. The Bylaws provide that a special meeting of stockholders may be called by (i) the Chairman of the Board, if any, (ii) the President or Chief Executive Officer, or (iii) the Board pursuant to a resolution adopted by a majority of the total number of directors then in office.

Requirements for Advance Notification of Stockholder Nominations and Proposals. The Bylaws establish advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors.

Composition of the Board of Directors; Election and Removal of Directors; Filling Vacancies

The Company's Board consists of five directors and the Board may, from time to time, fix the authorized number of directors by resolution of the Board. The Board is divided into three classes, designated Class I, Class II and Class III. Directors need not be stockholders of the Company.

Directors shall serve for a term ending on the date of the third annual meeting of stockholders following the annual meeting of stockholders at which such director was elected. The term of each director shall continue until the election and qualification of his or her successor and be subject to his or her earlier death, disqualification, resignation or removal. Except as otherwise provided by the DGCL, the Certificate or the Bylaws, directors shall be elected by a plurality of the votes of the shares present in person, by remote communication, if applicable, or represented by a duly authorized and executed proxy at the meeting and entitled to vote on the election of directors.

Subject to applicable law or by the Certificate, any director of the entire Board of the Company may be removed without cause by the affirmative vote of a majority of the holders of the Company's then-outstanding Common Stock entitled to vote generally at an election of directors. Furthermore, any vacancy on the Company's Board, however occurring, including a vacancy resulting from an increase in the size of the board, may be filled only by a majority vote of the Board then in office, even if less than a quorum, or by the sole remaining director.

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Amendment of the Certificate and Bylaws. The Certificate may be amended in any manner permitted under the DGCL and the Bylaws may be amended by the vote or written consent of holders of a majority of the outstanding shares entitled to vote. The Board may also amend the Bylaws, other than a bylaw or amendment thereof specifying or changing a fixed number of directors or the maximum or minimum number or changing from a fixed to a variable board or vice versa.

Limitations of Liability and Indemnification Matters

Each of the Certificate and Bylaws provide that the Company is required to indemnify its directors and officers to the fullest extent not prohibited by Delaware law. The Bylaws also obligates the Company to advance expenses incurred by a director or officer in advance of the final disposition of any action or proceeding upon delivery to the Company of an undertaking, by or on behalf of such indemnitee, to repay all amounts so advanced if it shall ultimately be determined by final judicial decision, from which there is no further right to appeal, that such indemnitee is not entitled to be indemnified for such expenses.

To the fullest extent permitted by the DGCL, or any other applicable law, the Company, upon approval by the Board, may purchase insurance on behalf of any person required or permitted to be indemnified pursuant to the Bylaws.

Forum for Adjudication of Disputes

The Certificate provides that, unless the Company consents in writing to the selection of an alternative forum, the sole and exclusive forum for (i) derivative actions or proceedings brought on behalf of the Company, (ii) any action asserting a claim of breach of fiduciary duty owed by any director, officer or employee of the Company to the Company or the Company's stockholders, (iii) an action asserting a claim arising pursuant to any provision of the DGCL, or (iv) any action asserting a claim governed by the internal affairs doctrine shall be a state or federal court located within the state of Delaware. The Certificate further provides that the federal district courts of the United States of America shall, to the fullest extent permitted by law, be the exclusive forum for any complaint asserting a cause of action arising under the Securities Act.

Transfer Agent and Registrar

The transfer agent and registrar for the Company's Common Stock is Computershare Trust Company, N.A. The transfer agent and registrar's address is 250 Royall St., Canton, Massachusetts 02021.

Listing. Our Common Stock is listed on the Nasdaq Capital Market under the symbol "BNTC."

SELLING STOCKHOLDERS

The shares of Common Stock being offered by the Selling Stockholders are those previously issued to the Selling Stockholders and those issuable to the Selling Stockholders upon exercise of the Warrants. We are registering the shares of Common Stock in order to permit the Selling Stockholders to offer the shares of Common Stock for resale from time to time. Except as described below, and except for the ownership of the shares of Common Stock and the Warrants, the Selling Stockholders have not had any material relationship with us within the past three years.

The table below lists the Selling Stockholders and other information regarding the beneficial ownership of the shares of Common Stock by each of the Selling Stockholders. The second column lists the number of shares of Common Stock and shares of Common Stock underlying Warrants beneficially owned by each Selling Stockholder, as of May 1, 2024. The third column lists the number of shares of Common Stock and shares of Common Stock underlying Warrants being offered by this prospectus by the Selling Stockholders.

In accordance with the terms of a registration rights agreement with the Selling Stockholders, this prospectus generally covers the resale of the sum of (i) the number of shares of Common Stock issued to the Selling Stockholders and (ii) the maximum number of shares of Common Stock issuable upon exercise of the Warrants issued to the Selling Stockholders, determined as if the outstanding Warrants were exercised in full as of the trading day immediately preceding the date this registration statement was initially filed with the SEC, each as of the trading day immediately preceding the applicable date of determination and all subject to adjustment as provided in the registration right agreement, without regard to any limitations on the exercise of the Warrants. The fourth column assumes the sale of all of the shares offered by the Selling Stockholders pursuant to this prospectus.

Under the terms of the Warrants, a Selling Stockholder may not exercise the Warrants to the extent such exercise would cause such Selling Stockholder, together with its affiliates and attribution parties, to beneficially own a number of shares of Common Stock which would exceed 4.99%, 9.99% or 19.99%, as applicable, of our then outstanding Common Stock following such exercise, excluding for purposes of such determination shares of Common Stock issuable upon exercise of such Warrants which have not been exercised. The number of shares in the following table do not reflect this limitation, and includes all of each Selling Stockholders shares of Common Stock and all of the shares underlying the Warrants held by each Selling Stockholder. The Selling Stockholders may sell all, some or none of their shares in this offering. See “Plan of Distribution.”

Name of Selling Stockholder	Securities Beneficially Owned Prior to this Offering		Securities to be Sold in this Offering		Securities Beneficially Owned after this Offering			
	Shares of Common Stock	Shares of Common Stock Underlying Warrants	Shares of Common Stock	Shares of Common Stock Underlying Warrants	Shares of Common Stock	%	Shares of Common Stock Underlying Warrants	%
Adage Capital Partners, L.P. (1)	841,395	6,295,559	841,395	6,295,559	—	—	—	—
Alyeska Master Fund, LP (2)	208,334	—	208,334	—	—	—	—	—
Entities Affiliated with Franklin Resources Inc. (3)	796,571	3,697,043	796,571	3,697,043	—	—	—	—
HBM Healthcare Investments (Cayman) Ltd. (4)	841,395	200,276	841,395	200,276	—	—	—	—
Entities Affiliated with Nantahala Capital Management, LLC (5)					—	—	—	—
Pinehurst Partners, L.P.	151,451	36,050	151,141	36,050				
Corbin Sustainability & Engagement Fund, L.P.	16,828	4,006	16,828	4,006				
Nantahala Capital Partners Limited Partnership	140,192	33,370	140,192	33,370				
NCP RFM LP	118,075	28,105	118,075	28,105				
Blackwell Partners LLC – Series A	414,849	98,745	414,849	98,745				

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Name of Selling Stockholder	Securities Beneficially Owned Prior to this Offering		Securities to be Sold in this Offering		Securities Beneficially Owned after this Offering			
	Shares of Common Stock	Shares of Underlying Warrants	Shares of Common Stock	Shares of Underlying Warrants	Shares of Common Stock	%	Shares of Underlying Warrants	%
Nemean Asset Management, LLC (6)	829,235	1,688,793	829,235	1,688,793	—	—	—	—
PhiFund, LP (7)	312,500	—	312,500	—	—	—	—	—
Schonfeld Global Master Fund L.P. (8)	260,417	—	260,417	—	—	—	—	—
Entities Affiliated with Special Situations Fund (9)	625,000	—	625,000	—	—	—	—	—
Entities Affiliated with Suvretta Capital Management, LLC (10)	1,691,290	13,541,721	1,691,290	13,541,721	—	—	—	—

- Adage Capital Partners, LP holds Pre-Funded Warrants exercisable for 3,186,751 shares of Common Stock at an exercise price of \$0.0001 per share and Common Warrants exercisable for 3,108,808 shares of Common Stock at an exercise price of \$3.86 per share. Adage Capital Partners, GP, LLC (“ACPGP”) serves as the general partner of the Fund and as such has discretion over the portfolio of securities beneficially owned by the Fund. Adage Capital Advisors, LLC, a Delaware limited liability company (“ACA”), is managing member of ACPGP and directs ACPGP’s operations. Robert Atchinson and Phillip Gross are the managing members of ACPGP and ACA and general partners of the Fund. Robert Atchinson and Phillip Gross disclaim beneficial ownership of the reported securities except to the extent of their pecuniary interest therein. The address of the principal business office of the Fund, ACPGP, ACA, Mr. Atchinson and Mr. Gross is 200 Clarendon St., 52nd Floor, Boston, MA 02116.
- Alyeska Investment Group, L.P., the investment manager of Alyeska Master Fund, L.P. (“Alyeska”), has voting and investment control of the shares held by the Selling Securityholder. Anand Parekh is the Chief Executive Officer of Alyeska Investment Group, L.P. and may be deemed to be the beneficial owner of such shares. Mr. Parekh, however, disclaims any beneficial ownership of the shares held by Alyeska. The registered address of Alyeska is at c/o Maples Corporate Services Limited, P.O. Box 309, Uglan House, South Church Street George Town, Grand Cayman, KY1-1104, Cayman Islands. Alyeska Investment Group, L.P. is located at 77 W. Wacker, Suite 700, Chicago IL 60601.
- Includes 573,221 shares of Common Stock held by Franklin Strategic Series – Franklin Biotechnology Discovery Fund (“FSS”) and 223,350 shares of Common Stock held by Franklin Biotechnology Discovery Fund, a sub-fund of Franklin Templeton Investment Funds (“Franklin Templeton”). FSS and Franklin Templeton hold, respectively, (i) Common Warrants exercisable for an aggregate of 412,910 and 175,325 shares of Common Stock at an exercise price of \$1.93 per share, (ii) Pre-Funded Warrants exercisable for an aggregate of 310,881 and 1,243,523 shares of Common Stock at an exercise price of \$0.0001 per share and (iii) Common Warrants exercisable for an aggregate of 310,881 and 1,243,523 shares of Common Stock at an exercise price of \$3.86 per share, subject to the limitations on beneficial ownership contained in such Warrants. The address of the principal business office of Franklin Resources Inc., FSS and Franklin Templeton is One Franklin Parkway, San Mateo, CA 94403.
- HBM Healthcare Investments (Cayman) Ltd. (“HBM”) holds Pre-Funded Warrants exercisable for 200,276 shares of Common Stock at an exercise price of \$0.0001 per share, subject to the limitations on beneficial ownership contained in such Pre-Funded Warrants. The address of the principal business office of HBM is Governors Square, 23 Lime Tree Bay Avenue, PO Box 30852, Grand Cayman, KY1-1204, Cayman Islands.
- Entities affiliated with Nantahala Capital Management, LLC hold an aggregate of 841,395 Common Stock. This includes 151,451 shares of Common Stock held by Pinehurst Partners, L.P. (“Pinehurst”), 16,828 shares of Common Stock held by Corbin Sustainability & Engagement Fund, L.P. (“Corbin”), 140,192 shares of Common Stock held by Nantahala Capital Partners Limited Partnership (“NCPLP”), 118,075 shares of Common Stock held by NCP RFM LP (“NCP RFM”), and 414,849 shares of Common Stock held by Blackwell Partners LLC – Series A (“Blackwell”). Pinehurst, Corbin, NCPLP, NCP RFM and Blackwell hold, respectively, Pre-Funded Warrants exercisable for 36,050, 4,006, 33,370, 28,105, and 98,745 shares of Common Stock at an exercise price of \$0.0001 per share, subject to the limitations on beneficial ownership contained in such Pre-Funded Warrants. Nantahala is a Registered Investment Adviser and has been delegated the legal power to vote and/or direct the disposition of such securities on behalf of Pinehurst, Corbin, NCPLP, NCP, RFM and Blackwell as a General Partner, Investment Manager, or Sub-Advisor and would be considered the beneficial owner of such securities. The above shall not be deemed to be an admission by the record owners or the selling stockholder that they are themselves beneficial owners of these securities for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, or any other purpose. Wilmot Harkey and Daniel Mack are managing members of Nantahala and may be deemed to have voting and dispositive power over the shares held by the selling stockholder. The Pre-Funded Warrants are subject to a beneficial ownership limitation of 9.99%, which such limitation restricts the selling stockholder from exercising that portion of the pre-funded warrants that would result in the selling stockholder and its affiliates owning, after exercise, a number of shares of common stock in excess of the beneficial ownership limitation. The address of the principal business office of Nantahala is 130 Main St., 2nd Floor, New Canaan, CT 06840.
- Includes 764,324 shares of Common Stock held by Nemean Asset Management, LLC (“Nemean”) and 64,911 shares of Common Stock held by the IRA financial trust FBO Steven M. Oliveira Roth IRA (the “Oliveira IRA”). Mr. Oliveira holds Common Warrants exercisable for 63,793 shares of Common Stock at an exercise price of \$1.93 per share. Nemean holds Pre-Funded Warrants exercisable for 625,000 shares of Common Stock at an exercise price of \$0.0001 per share and Common Warrants exercisable for 1,000,000 shares

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- of Common Stock at an exercise price of \$3.86 per share, subject to the limitations on beneficial ownership contained in such Warrants. The address of the principal business office of Nemean, the Oliveira IRA, and Steven M. Oliveira is 207 Commodore Drive, Jupiter, FL 33477.
- (7) PhiFund, L.P. holds 312,500 of Common Stock. The registered address of the selling securityholder is 4 East 70th Street, 9A, New York, NY 10021.
- (8) These securities are held by Schonfeld Global Master Fund L.P. (“Schonfeld Master”). Schonfeld Strategic Advisors LLC is a Registered Investment Adviser and has been delegated the legal power to vote and/or direct the disposition of such securities on behalf of Schonfeld Master as a general partner or investment manager and would be considered the beneficial owner of such securities. The above shall not be deemed to be an admission by the record owners or Schonfeld Master that they are themselves beneficial owners of these securities for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or any other purpose. The address of Schonfeld Master is 590 Madison Ave, Floor 23, New York, NY 10022.
- (9) Includes 241,918 shares of Common Stock held by Special Situations Fund III QP, L.P., 70,582 shares of Common Stock held by Special Situations Cayman Fund, L.P. and 312,500 shares of Common Stock held by Special Situations Life Sciences Fund, L.P. AWM Investment Company, Inc. (“AWM”) is the investment adviser to each of the Special Situations Funds. David Greenhouse and Adam Stettner are the principal owners of AWM. Through their control of AWM, Messrs. Greenhouse and Stettner share voting and investment control over the portfolio securities of each of the Special Situations Funds. Messrs. Greenhouse and Stettner disclaim any beneficial ownership of the reported shares other than to the extent of any pecuniary interest each of them may have therein. The address of the principal business office of Special Situations Fund is 527 Madison Avenue, Suite 2600, New York, New York 10022.
- (10) Includes 1,470,179 shares of Common Stock held by Averill Master Fund, Ltd. (“Averill”) and 221,111 shares of Common Stock held by Averill Madison Master Fund, Ltd. (“Averill Madison”). Averill and Averill Madison hold, respectively (x)(i) Pre-Funded Warrants exercisable for 6,331,203 and 852,700 shares of Common Stock at an exercise price of \$0.0001 per share and (ii) Common Warrants exercisable for 4,605,000 and 576,347 shares of Common Stock at an exercise price of \$3.86, subject to the limitations on beneficial ownership contained in such Warrants. Averill also holds (y) Common Warrants exercisable for 588,236 shares of Common Stock at an exercise price of \$1.93 and (z) Pre-Funded Warrants exercisable for an aggregate of 588,235 shares of Common Stock at an exercise price of \$0.0017 per share, subject to the limitations on beneficial ownership contained in such Warrants. Suvretta Capital Management, LLC (“Suvretta Capital”) is the investment manager of Averill and Averill Madison. Aaron Cowen is a control person of Suvretta Capital and as such may be deemed to beneficially own these shares. The address of the principal business office of Suvretta Capital, Mr. Cowen, Averill and Averill Madison is 540 Madison Avenue, 7th Floor, New York, NY 10022.

Board Designation Agreement with Suvretta Capital

On April 22, 2024, the Company entered into the Board Designation Agreement with Suvretta Capital Management, LLC (“Suvretta Capital”), pursuant to which Suvretta Capital has the right to designate one member to the Company’s board of directors, subject to certain customary limitations. See “*Summary – Board Designation Letter.*”

PLAN OF DISTRIBUTION

Each Selling Stockholder of the securities and any of their pledgees, assignees and successors-in-interest may, from time to time, sell any or all of their securities covered hereby on the Nasdaq Capital Market or any other stock exchange, market or trading facility on which the securities are traded or in private transactions. These sales may be at fixed or negotiated prices. A Selling Stockholder may use any one or more of the following methods when selling shares of Common Stock:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares of Common Stock as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- settlement of short sales;
- in transactions through broker-dealers that agree with the Selling Stockholders to sell a specified number of such shares of Common Stock at a stipulated price per security;
- distributions to employees, members, partners or stockholders of a Selling Stockholder;
- through trading plans entered into by a Selling Stockholder pursuant to Rule 10b5-1 under the Exchange Act, that are in place at the time of an offering pursuant to this prospectus and any applicable prospectus supplement hereto that provide for periodic sales of their securities on the basis of parameters described in such trading plan;
- to or through underwriters or broker-dealers;
- in options transactions;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- a combination of any such methods of sale; or
- any other method permitted pursuant to applicable law.

To the extent required, this prospectus may be amended or supplemented from time to time to describe a specific plan of distribution. The Selling Stockholders may also sell securities under Rule 144 or any other exemption from registration under the Securities Act, if available, rather than under this prospectus.

Broker-dealers engaged by the Selling Stockholders may arrange for other broker-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the Selling Stockholders (or, if any broker-dealer acts as agent for the purchaser of securities, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this Prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with FINRA Rule 2121; and in the case of a principal transaction a markup or markdown in compliance with FINRA Rule 2121.

In connection with the sale of the shares of Common Stock or interests therein, the Selling Stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the shares of Common Stock in the course of hedging the positions they assume. The Selling Stockholders may also sell shares of Common Stock short and deliver these securities to close out their short positions, or loan or pledge the securities to broker-dealers that in turn may sell these securities. The Selling Stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or

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create one or more derivative securities which require the delivery to such broker-dealer or other financial institution of securities offered by this prospectus, which securities such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The Selling Stockholders and any broker-dealers or agents that are involved in selling the securities may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the securities purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. Each Selling Stockholder has informed the Company that it does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the securities.

The Company is required to pay certain fees and expenses incurred by the Company incident to the registration of the securities. The Company has agreed to indemnify the Selling Stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

We agreed to keep this prospectus effective until the earlier of (i) the date on which the securities may be resold by the Selling Stockholders without registration and without regard to any volume or manner-of-sale limitations by reason of Rule 144, without the requirement for the Company to be in compliance with the current public information under Rule 144 under the Securities Act or any other rule of similar effect or (ii) all of the securities have been sold pursuant to this prospectus or Rule 144 under the Securities Act or any other rule of similar effect. The resale securities will be sold only through registered or licensed brokers or dealers if required under applicable state securities laws. In addition, in certain states, the resale securities covered hereby may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

Under applicable rules and regulations under the Exchange Act, any person engaged in the distribution of the resale securities may not simultaneously engage in market making activities with respect to the Common Stock for the applicable restricted period, as defined in Regulation M, prior to the commencement of the distribution. In addition, the Selling Stockholders will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including Regulation M, which may limit the timing of purchases and sales of the Common Stock by the Selling Stockholders or any other person. We will make copies of this prospectus available to the Selling Stockholders and have informed them of the need to deliver a copy of this prospectus to each purchaser at or prior to the time of the sale (including by compliance with Rule 172 under the Securities Act).

LEGAL MATTERS

The validity of the securities offered in this prospectus will be passed upon for us by Proskauer Rose LLP, Los Angeles, California.

EXPERTS

The consolidated financial statements of Benitec Biopharma Inc. as of June 30, 2023 and 2022 and for each of the years then ended, incorporated by reference in this registration statement, have been audited by Baker Tilly US, LLP, an independent registered public accounting firm, as set forth in their report thereon, and is incorporated by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the securities offered hereby. This prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement or the exhibits and schedules filed therewith. For further information with respect to us and the securities offered hereby, reference is made to the registration statement and the exhibits and schedules filed therewith. Statements contained in this prospectus regarding the contents of any contract or any other document that is filed as an exhibit to the registration statement are not necessarily complete, and as such we refer you to the full text of such contract or other document filed as an exhibit to the registration statement. A copy of the registration statement and the exhibits and schedules filed therewith may be inspected without charge at the public reference room maintained by the SEC, located at 100 F Street N.E., Washington, D.C. 20549, and copies of all or any part of the registration statement may be obtained from such offices upon the payment of the fees prescribed by the SEC. Please call the SEC at 1-800-SEC-0330 for further information about the public reference room. The SEC also maintains a website that contains reports, proxy and information statements and other information regarding registrants that file electronically with the SEC. The Internet address is www.sec.gov.

We are subject to the information and periodic reporting requirements of the Exchange Act, and we file periodic reports, proxy statements and other information with the SEC. These periodic reports, proxy statements and other information are available for inspection and copying at the public reference room and website of the SEC referred to above. We maintain a website at <https://benitec.com>. You may access our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act with the SEC free of charge at our website as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC. The information contained in, or that can be accessed through, our website is not incorporated by reference in, and is not part of, this prospectus, and any references to such website or any other website are inactive textual references only. You may also request a copy of these filings, at no cost, by writing us at 3940 Trust Way, Hayward, California 94545 or info@benitec.com or telephoning us at (510) 780-0819.

INCORPORATION OF DOCUMENTS BY REFERENCE

The SEC permits us to “incorporate by reference” the information contained in documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents rather than by including them in this prospectus. Information that is incorporated by reference is considered to be part of this prospectus and you should read it with the same care that you read this prospectus. Information that we file later with the SEC will automatically update and supersede the information that is either contained, or incorporated by reference, in this prospectus, and will be considered to be a part of this prospectus from the date those documents are filed.

We incorporate by reference the following documents listed below (excluding any document or portion thereof to the extent such disclosure is furnished and not filed):

- Our Annual Report on [Form 10-K](#) for the fiscal year ended June 30, 2023, filed with the SEC on September 21, 2023;
- Our Quarterly Reports on Form 10-Q for the fiscal quarter ended September 30, 2023, filed with the SEC on [November 13, 2023](#), for the fiscal quarter ended December 31, 2023, filed with the SEC on [February 13, 2024](#), and for the fiscal quarter ended March 31, 2024, filed with the SEC on [May 13, 2024](#); and
- Our Current Reports on Form 8-K filed with the SEC on [July 25, 2023](#), [August 10, 2023](#), [August 11, 2023](#), [September 18, 2023](#), [September 28, 2023](#), [October 16, 2023](#), [December 7, 2023](#), [March 8, 2024](#) and [April 19, 2024](#).

We also incorporate by reference all documents that we file with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act that are made after the initial filing date of the registration statement of which this prospectus is a part until this offering has been completed. All filings from the date of the initial registration statement and prior to effectiveness of the registration statement shall be deemed to be incorporated by reference into the prospectus. We are not, however, incorporating, in each case, any documents or information that we are deemed to furnish and not file in accordance with SEC rules.

You may request and obtain a copy of any of the filings incorporated herein by reference, at no cost, by writing or telephoning us at the following address or phone number:

Benitec Biopharma Inc.
3940 Trust Way
Hayward, California 94545
(510) 780-0819
info@benitec.com

32,871,200 Shares of Common Stock



PROSPECTUS

May 28, 2024
