



April 28, 2023

Dear Stockholder:

You are cordially invited to attend the 2023 Annual Meeting of Stockholders (the "Annual Meeting") of bluebird bio, Inc. The Annual Meeting will be held on June 16, 2023 at 8.30 a.m. EDT at the offices of the Company, at 455 Grand Union Boulevard, Somerville, Massachusetts. As always, we encourage you to vote your shares prior to the Annual Meeting.

Details regarding admission to the Annual Meeting and the business to be conducted are more fully described in the accompanying Notice of Annual Meeting and Proxy Statement.

At this Annual Meeting, the agenda includes the election of two Class I directors for three-year terms ("Proposal 1"), the approval of named executive officer compensation by a non-binding advisory vote ("Proposal 2"), the approval of an amendment to our Amended and Restated Certificate of Incorporation to increase the number of authorized shares of our common stock ("Proposal 3"), the approval of our 2023 Incentive Award Plan ("Proposal 4"), the ratification of the appointment of Ernst & Young LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2023 ("Proposal 5"), and the approval of an adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes at the time of the Annual Meeting to approve Proposal 3 or Proposal 4 ("Proposal 6").

Under Securities and Exchange Commission rules, we are providing access to the proxy materials for the Annual Meeting to stockholders via the Internet. Accordingly, you can access the proxy materials and vote at www.proxyvote.com. Instructions for accessing the proxy materials and voting are described below and in the Notice of Internet Availability of Proxy Materials that you received in the mail. Your vote is very important. Whether or not you plan to attend the Annual Meeting, please carefully review the enclosed proxy statement and then cast your vote, regardless of the number of shares you hold. If you are a stockholder of record, you may vote over the Internet, by telephone, or, if you request to receive a printed set of the proxy materials, by completing, signing, dating and mailing the accompanying proxy card in the return envelope. Submitting your vote via the Internet or by telephone or proxy card will not affect your right to vote at the Annual Meeting if you decide to attend the Annual Meeting. If your shares are held in street name (held for your account by a broker or other nominee), you will receive instructions from your broker or other nominee explaining how to vote your shares, and you will have the option to cast your vote by telephone or over the Internet if your voting instruction form from your broker or nominee includes instructions and a toll-free telephone number or Internet website to do so. In any event, to be sure that your vote will be received in time, please cast your vote by your choice of available means at your earliest convenience.

We hope that you will join us on June 16, 2023. Your continuing interest in bluebird is very much appreciated.

Sincerely,

A handwritten signature in black ink that reads "Andrew Obenshain".

Andrew Obenshain
President & Chief Executive Officer



NOTICE OF 2023 ANNUAL MEETING OF STOCKHOLDERS

- Date** June 16, 2023
- Time** 8:30 a.m. Eastern Time
- Place** 455 Grand Union Boulevard, Somerville, Massachusetts 02145
- Record Date** April 24, 2023. Only stockholders of record at the close of business on the record date are entitled to receive notice of, and to vote at, the Annual Meeting. A complete list of such stockholders will be open to the examination of any stockholder for a period of ten days prior to the Annual Meeting for a purpose germane to the meeting by sending an email to investor@bluebirdbio.com, stating the purpose of the request and providing proof of ownership of Company stock.
- Purpose**
- To elect Charlotte Jones-Burton and Mark Vachon as Class I members of the Board of Directors, to serve until the Company's 2026 Annual Meeting of Stockholders and until their successors are duly elected and qualified ("Proposal 1");
 - To approve, on a non-binding, advisory basis, the compensation paid to the Company's named executive officers ("Proposal 2");
 - To approve an amendment to the Company's Amended and Restated Certificate of Incorporation to increase the number of authorized shares of the Company's common stock ("Proposal 3");
 - To approve the Company's 2023 Incentive Award Plan ("Proposal 4");
 - To ratify the selection of Ernst & Young LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2023 ("Proposal 5");
 - To approve an adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes at the time of the Annual Meeting to approve Proposal 3 or Proposal 4 ("Proposal 6"); and
 - To transact any other business that may properly come before the meeting or any adjournment thereof.
- Meeting Admission** All stockholders as of the record date, or their duly appointed proxies, may attend the Annual Meeting. If you attend, you will be asked to present valid picture identification such as a driver's license or passport. If your bluebird stock is held in a brokerage account or by a bank or other nominee, you are considered the beneficial owner of shares held in street name, and this proxy statement is being forwarded to you by your broker or nominee. As a result, your name does not appear on our list of stockholders. If your stock is held in street name, in addition to picture identification, you should bring with you a letter or account statement showing that you were the beneficial owner of the stock on the record date, in order to be admitted to the Annual Meeting.
- Proxy Voting** If you are a stockholder of record, please vote via the Internet or, for shares held in street name, please submit the voting instruction form you receive from your broker or nominee, as soon as possible so your shares can be voted at the Annual Meeting. You may submit your voting instruction form by mail. If you are a stockholder of record, you may also vote by telephone or by submitting a proxy card by mail. If your shares are held in street name, you will receive instructions from your broker or other nominee explaining how to vote your shares, and you may also have the choice of instructing the record holder as to the voting of your shares over the Internet or by telephone. Follow the instructions on the voting instruction form you received from your broker or nominee.
- Corporate Headquarters** 455 Grand Union Boulevard, Somerville, Massachusetts 02145

By order of the Board of Directors,

Joseph Vittiglio
Chief Legal and Business Officer and Secretary

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**BLUEBIRD BIO, INC.
455 GRAND UNION BOULEVARD
SOMERVILLE, MASSACHUSETTS 02145**

**PROXY STATEMENT
FOR THE 2023 ANNUAL MEETING OF STOCKHOLDERS
TO BE HELD ON JUNE 16, 2023
AT 8:30 AM EDT**

GENERAL INFORMATION

When are this proxy statement and the accompanying materials scheduled to be sent to stockholders?

We have elected to provide access to our proxy materials to our stockholders via the Internet. Accordingly, on or about April 28, 2023, we will begin mailing a Notice of Internet Availability of Proxy Materials and the proxy materials, including the Notice of 2023 Annual Meeting of Stockholders, this proxy statement and accompanying proxy card or, for shares held in street name (held for your account by a broker or other nominee), voting instruction form, and the Annual Report on Form 10-K for the year ended December 31, 2022 will be made available to stockholders on the Internet on the same date.

Why did I receive a Notice of Internet Availability of Proxy Materials instead of a full set of proxy materials?

Pursuant to rules adopted by the Securities and Exchange Commission (SEC), we are providing access to our proxy materials over the Internet rather than printing and mailing the proxy materials. We believe electronic delivery will expedite the receipt of materials and will help lower our costs and reduce the environmental impact of our annual meeting materials. Therefore, a Notice of Internet Availability will be mailed to holders of record and beneficial owners of our common stock starting on or around April 28, 2023. The Notice of Internet Availability will provide instructions as to how stockholders may access and review the proxy materials, including the Notice of Annual Meeting, proxy statement, proxy card and Annual Report on Form 10-K, on the website referred to in the Notice of Internet Availability or, alternatively, how to request that a copy of the proxy materials, including a proxy card, be sent to them by mail. The Notice of Internet Availability will also provide voting instructions. In addition, stockholders of record may request to receive the proxy materials in printed form by mail or electronically by e-mail on an ongoing basis for future stockholder meetings. Please note that, while our proxy materials are available at the website referenced in the Notice of Internet Availability, and our Notice of Annual Meeting, proxy statement and Annual Report on Form 10-K are available on our website, no other information contained on either website is incorporated by reference in or considered to be a part of this document.

Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting to Be Held on June 16, 2023

The Notice of 2023 Annual Meeting of Stockholders, Proxy Statement and our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, are available at investor.bluebirdbio.com.

Who is soliciting my vote?

The Board of Directors of bluebird bio, Inc. is soliciting your vote for the 2023 Annual Meeting of Stockholders (the "Annual Meeting").

When is the record date for the Annual Meeting?

The Board has fixed the record date for the Annual Meeting as of the close of business on April 24, 2023.

How many votes can be cast by all stockholders?

A total of 106,383,498 shares of our common stock were outstanding on April 24, 2023, and entitled to be voted at the meeting. Each share of common stock is entitled to one vote on each matter.

How do I vote?

If you are a stockholder of record and your shares are registered directly in your name, you may vote:

- **By Internet.** Access the website of our tabulator, Broadridge, at: www.proxyvote.com, using the voter control number printed on the furnished proxy card. Your shares will be voted in accordance with your instructions. You must specify how you want your shares voted or your Internet vote cannot be completed and you will receive an error message. If you vote on the Internet, you may also request electronic delivery of future proxy materials.
- **By Telephone.** Call 1-800-690-6903 toll-free from the U.S., U.S. territories and Canada, and follow the instructions on the enclosed proxy card. Your shares will be voted in accordance with your instructions. You must specify how you want your shares voted or your telephone vote cannot be completed.
- **By Mail.** Complete and mail a proxy card in the enclosed postage prepaid envelope to Broadridge. Your proxy will be voted in accordance with your instructions. If you sign and return the enclosed proxy but do not specify how you want your shares voted, they will be voted **FOR** the director nominees named herein to our Board, **FOR** the non-binding advisory resolution approving the compensation of the named executive officers, **FOR** the approval of the amendment to the Amended and Restated Certificate of Incorporation to increase the number of authorized shares of our common stock, **FOR** the approval of the 2023 Incentive Award Plan, **FOR** the ratification of Ernst & Young LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2023, and **FOR** the approval of an adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes at the time of the Annual Meeting to approve Proposal 3 or Proposal 4 and will be voted according to the discretion of the proxy holder upon any other business that may properly be brought before the meeting and at all adjournments and postponements thereof. If you are mailed or otherwise receive or obtain a proxy card or voting instruction form, and you choose to vote by telephone or by Internet, you do not have to return your proxy card or voting instruction form.
- **In Person.** If you are a stockholder of record, you may vote in person at the Annual Meeting.

Whether or not you plan to attend the meeting, we urge you to vote by proxy.

If your shares of common stock are held in street name (held for your account by a broker or other nominee), you will receive instructions on how to vote from your broker or other nominee. You must follow their instructions in order for your shares to be voted. Internet and telephone voting also may be offered to stockholders owning shares through certain banks and brokers. As a beneficial owner, you are invited to attend the Annual Meeting. However, since you are not a stockholder of record, you may not vote your shares in person at the Annual Meeting unless you request and obtain a legal proxy from the organization that holds your shares.

What are the Board's recommendations on how to vote my shares?

Our Board recommends a vote:

Proposal 1: **FOR** election of Charlotte Jones-Burton and Mark Vachon as Class I directors (page 6)

Proposal 2: **FOR** the approval, on a non-binding, advisory basis, of the compensation of our named executive officers (page 20)

Proposal 3: **FOR** the approval of the amendment to our Amended and Restated Certificate of Incorporation to increase the number of authorized shares of our common stock (page 40)

Proposal 4: **FOR** the approval of our 2023 Incentive Award Plan (page 42)

Proposal 5: **FOR** ratification of the selection of Ernst & Young LLP as our independent registered public accounting firm (page 52)

Proposal 6: **FOR** the approval of an adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes at the time of the Annual Meeting to approve Proposal 3 or Proposal 4 (page 53)

Who pays the cost for soliciting proxies?

We will pay the cost for the solicitation of proxies by the Board. The solicitation of proxies will be made primarily by mail and through Internet access to materials. Proxies may also be solicited personally, by telephone, fax or e-mail by employees of bluebird without any remuneration to such individuals other than their regular compensation. We will also reimburse brokers, banks, custodians, other nominees and fiduciaries for forwarding these materials to their principals to obtain the authorization for the execution of proxies. We have engaged Innisfree M&A Incorporated to assist in the solicitation of proxies and provide related advice and informational support, for a services fee, plus customary expense disbursements, which are not expected to exceed \$30,000 in total.

Will my shares be voted if I do not return my proxy?

If your shares are registered directly in your name, your shares will not be voted if you do not vote over the Internet, by telephone, by returning your proxy or by ballot at the Annual Meeting. If your shares are held in street name, your bank, broker or other nominee may under certain circumstances vote your shares if you do not timely return your proxy. Banks, brokers and other nominees can vote customers' unvoted shares on routine matters, but cannot vote such shares on non-routine matters. If you do not timely return a proxy to your bank, broker or other nominee to vote your shares, your bank, broker or other nominee may, on routine matters, either vote your shares or leave your shares unvoted. Your bank, broker or other nominee cannot vote your shares on any non-routine matter. The election of directors (Proposal 1), the non-binding advisory vote to approve named executive officer compensation (Proposal 2), the approval of the 2023 Incentive Award Plan (Proposal 4), and the approval of an adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes at the time of the Annual Meeting to approve Proposal 3 or Proposal 4 (Proposal 6) are non-routine matters. The approval of the amendment to our Amended and Restated Certification of Incorporation to increase the number of authorized shares of our common stock (Proposal 3) and the ratification of the appointment of our independent registered public accounting firm (Proposal 5) are routine matters. We encourage you to provide voting instructions to your bank, broker or other nominee by giving your proxy to them. This ensures that your shares will be voted at the Annual Meeting according to your instructions. You should receive directions from your bank, broker or other nominee about how to submit your proxy to them at the time you receive this proxy statement.

Can I change my vote?

You may revoke your proxy at any time before it is voted by notifying the Secretary in writing, by returning a signed proxy with a later date, by transmitting a subsequent vote over the Internet or by telephone prior to the close of the Internet voting facility or the telephone voting facility, or by attending the Annual Meeting and voting in person. If your stock is held in street name, you must contact your broker or nominee for instructions as to how to change your vote.

How is a quorum reached?

The presence, in person or by proxy, of holders of at least a majority of the total number of outstanding shares entitled to vote is necessary to constitute a quorum for the transaction of business at the Annual Meeting. Shares held of record by stockholders or brokers, bankers or other nominees who do not return a signed and dated proxy or attend the Annual Meeting in person will not be considered present or represented at the Annual Meeting and will not be counted in determining the presence of a quorum. Abstentions and broker non-votes, if any, will be counted for purposes of determining whether a quorum is present for the transaction of business at the meeting.

What vote is required to approve each item and how are votes counted?

Votes cast by proxy or in person at the Annual Meeting will be counted by the persons appointed by bluebird to act as tabulators for the meeting. Abstentions and broker non-votes are not counted as votes cast and, therefore, will not affect the outcome of the vote on any matter before the meeting. A broker non-vote occurs when a nominee holding shares for a beneficial owner does not vote on a particular proposal because the nominee does not have discretionary voting power with respect to that item and has not received instructions from the beneficial owner.

Proposal 1 – Election of two Class I director nominees

For the election of the two Class I director nominees, each director nominee presented must be elected by a majority of the votes cast in person or by proxy at the Annual Meeting. Director nominees are elected by a majority vote for non-contested director elections. Because the number of director nominees properly nominated for the Annual Meeting does not exceed the number of positions on the Board to be filled by election at the Annual Meeting, this election of directors is non-

contested. To elect a director nominee to the Board, the votes cast FOR the director nominee must exceed the votes cast AGAINST. Only FOR and AGAINST votes will affect the outcome. Abstentions will have no effect on the outcome of the vote on Proposal 1. **Proposal 1 is a non-routine matter.** Therefore, if your shares are held by your bank, broker or other nominee in street name and you do not vote your shares, your bank, broker or other nominee cannot vote your shares on Proposal 1. Shares held in street name by banks, brokers or nominees who indicate on their proxies that they do not have authority to vote the shares on Proposal 1 will not be counted as votes FOR or AGAINST any director nominee and will be treated as broker non-votes. As a result, broker non-votes will have no effect on the outcome of the vote on Proposal 1.

Proposal 2 – Non-binding advisory vote on named executive officer compensation

For the non-binding advisory vote on named executive officer compensation, the votes cast FOR must exceed the votes cast AGAINST to approve, on a non-binding advisory basis, the compensation of our named executive officers. Only FOR and AGAINST votes will affect the outcome. Abstentions will have no effect on the outcome of the vote on Proposal 2. **Proposal 2 is a non-routine matter.** Therefore, if your shares are held by your bank, broker or other nominee in street name and you do not vote your shares, your bank, broker or other nominee cannot vote your shares on Proposal 2. Shares held in street name by banks, brokers or nominees who indicate on their proxies that they do not have authority to vote the shares on Proposal 2 will not be counted as votes FOR or AGAINST the proposal and will be treated as broker non-votes. As a result, broker non-votes will have no effect on the outcome of the vote on Proposal 2.

Proposal 3 – Approval of the amendment to our Amended and Restated Certificate of Incorporation to increase the number of authorized shares of our common stock

For the approval of the amendment to our Amended and Restated Certificate of Incorporation to increase the number of authorized shares of our common stock, this Proposal 3 must receive votes cast FOR from the holders of at least a majority of the outstanding shares of our common stock entitled to vote. **Proposal 3 is a routine matter.** Therefore, if your shares are held by your bank, broker or other nominee in street name and you do not vote your shares, your bank, broker or other nominee may vote your shares on Proposal 3. Therefore, we do not expect any broker non-votes with respect to this proposal. Abstentions will have the same effect as an **AGAINST** vote on this Proposal 3.

Proposal 4 – Approval of the 2023 Incentive Award Plan

For the approval of the 2023 Incentive Award Plan, the votes cast FOR must exceed the votes cast AGAINST. Only FOR and AGAINST votes will affect the outcome. Abstentions will have no effect on the outcome of the vote on Proposal 4. **Proposal 4 is a non-routine matter.** Therefore, if your shares are held by your bank, broker or other nominee in street name and you do not vote your shares, your bank, broker or other nominee cannot vote your shares on Proposal 4. Shares held in street name by banks, brokers or nominees who indicate on their proxies that they do not have authority to vote the shares on Proposal 4 will not be counted as votes FOR or AGAINST the proposal and will be treated as broker non-votes. As a result, broker non-votes will have no effect on the outcome of the vote on Proposal 4.

Proposal 5 – Ratification of selection of Ernst & Young LLP as our independent registered public accounting firm

For the ratification of the selection of Ernst & Young LLP as our independent registered public accounting firm for our 2023 fiscal year, the votes cast FOR must exceed the votes cast AGAINST. Only FOR and AGAINST votes will affect the outcome. Abstentions will have no effect on the voting of Proposal 5. **Proposal 5 is a routine matter.** Therefore, if your shares are held by your bank, broker or other nominee in street name and you do not vote your shares, your bank, broker or other nominee may vote your shares on Proposal 5. Therefore, we do not expect any broker non-votes with respect to this proposal.

If the Annual Meeting is adjourned or postponed for any purpose, at any subsequent reconvening of the meeting, your proxy will be voted in the same manner as it would have been voted at the original convening of the Annual Meeting unless you withdraw or revoke your proxy. Your proxy may be voted in this manner even though it may have been voted on the same or on any other matter at a previous session of the Annual Meeting.

Proposal 6 – Approval of an adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes at the time of the Annual Meeting to approve Proposal 3 or Proposal 4

For the approval of an adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes at the time of the Annual Meeting to approve Proposal 3 or Proposal 4, the votes cast FOR must exceed the votes cast AGAINST. Only FOR and AGAINST votes will affect the outcome. Abstentions will have no effect on the voting of

Proposal 6. **Proposal 6 is a non-routine matter.** Therefore, if your shares are held by your bank, broker or other nominee in street name and you do not vote your shares, your bank, broker or other nominee cannot vote your shares on Proposal 6. Shares held in street name by banks, brokers or nominees who indicate on their proxies that they do not have authority to vote the shares on Proposal 6 will not be counted as votes FOR or AGAINST the proposal and will be treated as broker non-votes. As a result, broker non-votes will have no effect on the outcome of the vote on Proposal 6.

Could other matters be decided at the Annual Meeting?

bluebird does not know of any other matters that may be presented for action at the Annual Meeting. Should any other business come before the meeting, the persons named on the enclosed proxy will have discretionary authority to vote the shares represented by such proxies in accordance with their best judgment. If you hold shares through a broker, bank or other nominee as described above, they will not be able to vote your shares on any other business that comes before the Annual Meeting unless they receive instructions from you with respect to such matter.

What happens if the meeting is postponed or adjourned?

Your proxy may be voted at the postponed or adjourned meeting. You will still be able to change your proxy until it is voted.

How can I find out the results of the voting at the Annual Meeting?

Preliminary voting results will be announced at the Annual Meeting. Final voting results will be published in a Current Report on Form 8-K that we expect to file with the SEC within four business days after the Annual Meeting. If final voting results are not available to us in time to file a Form 8-K within four business days after the Annual Meeting, we intend to file a Form 8-K to publish preliminary results and, within four business days after the final results are known to us, file an amended Form 8-K to publish the final results.

What does it mean if I receive more than one proxy card or voting instruction form?

It means that you have multiple accounts at the transfer agent or with brokers. Please complete and return all proxy cards or voting instruction forms to ensure that all of your shares are voted.

Who should I call if I have any additional questions?

If you hold your shares directly, please call Joseph Vittiglio, Secretary of the Company, at (339) 499-9300. If your shares are held in street name, please contact the telephone number provided on your voting instruction form or contact your broker or nominee holder directly.

**PROPOSAL 1
ELECTION OF DIRECTORS**

In accordance with Delaware law and our certificate of incorporation and By-laws, our Board is divided into three classes of approximately equal size. The members of each class are elected to serve a three-year term with the term of office of each class ending in successive years. Charlotte Jones-Burton and Mark Vachon are the Class I directors whose terms expire at this Annual Meeting. Each of Charlotte Jones-Burton and Mark Vachon has been nominated for and has agreed to stand for re-election to the Board to serve as a Class I director of the Company until the 2026 Annual Meeting and until his or her successor is duly elected and qualified.

Our By-laws provide for a majority voting standard for the election of directors in uncontested elections, which provides that to be elected, a director nominee must receive a greater number of votes FOR his or her election than votes AGAINST such election. The number of votes cast with respect to that director's election excludes abstentions and broker non-votes with respect to that director's election. In contested elections where the number of director nominees exceeds the number of directors to be elected, the voting standard will be a plurality of the shares present in person or by proxy and entitled to vote. In an uncontested election, if a director nominee who already serves as a director is not elected and no successor is elected, the resignation policy in our Corporate Governance Guidelines provides that such director will offer to tender his or her resignation to the Board. Our Nominating and Corporate Governance Committee will make a recommendation to the Board on whether to accept or reject the resignation, or whether to take some other action. The Board will act on the Nominating and Corporate Governance Committee's recommendation and publicly disclose its decision within 90 days from the date of the certification of the election results.

It is intended that, unless you give contrary instructions, shares represented by proxies solicited by the Board will be voted for the election of the two director nominees listed below. We have no reason to believe that any director nominee will be unable to serve, or for good cause will not serve, if elected at the Annual Meeting. In the event that one or more director nominees is unexpectedly unable to serve, or for good cause will not serve, proxies may be voted for another person designated as a substitute nominee by the Board, or the Board may reduce its size. Information relating to each director nominee and for each continuing director, including his or her period of service as a director of bluebird, principal occupation and other biographical material is shown below. Pursuant to the By-laws, the Board has fixed the number of directors at nine as of the date of the Annual Meeting, and we have one vacancy. Vacancies on the Board are filled exclusively by the affirmative vote of a majority of the remaining directors, even if less than a quorum is present, and not by the stockholders. Your proxy cannot be voted for a greater number of persons than the number of director nominees named in this proxy statement.

**THE BOARD UNANIMOUSLY RECOMMENDS THAT YOU VOTE
FOR
EACH OF THE FOLLOWING DIRECTOR NOMINEES FOR CLASS I DIRECTOR:
CHARLOTTE JONES-BURTON
MARK VACHON
(PROPOSAL 1 ON YOUR PROXY CARD)**

CORPORATE GOVERNANCE

Board Composition

We currently have eight directors and the terms of office of the directors are divided into three classes:

Class I	Current term expiring 2023, if elected, subsequent term expiring 2026
Class II	Term expiring 2024
Class III	Term expiring 2025

At each Annual Meeting, the successors to directors whose terms will then expire shall serve from the time of election and qualification until the third Annual Meeting following election and until their successors are duly elected and qualified. A resolution of the Board may change the authorized number of directors. Any additional directorships resulting from an increase in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the directors. This classification of the Board may have the effect of delaying or preventing changes in control or management of our company.

Our directors as of April 28, 2023 are as set forth below.

CLASS I DIRECTOR NOMINEES:

Charlotte Jones-Burton, M.D., M.S.

Other Current Board Experience:

None

Previous Board Experience within the Last Five Years:

None

Professional Highlights:

Since January 2022, Dr. Jones-Burton has served as Senior Vice President, Product Development and Strategy at Chinook Therapeutics, a clinical-stage biotechnology company discovering, developing and commercializing precision medicines for rare, severe kidney diseases. Immediately prior to her current role at Chinook Therapeutics she was VP, Global Clinical Development Head, Nephrology at Otsuka Pharmaceutical Development & Commercialization, Inc. from September 2019 to December 2021. From October 2016 until September 2019, Dr. Jones-Burton held various positions at Bristol-Myers Squibb Company with increasing responsibilities, most recently as Executive Director, Full Development Team Leader of Cardiovascular, Anti-Thrombosis. Prior to that, Dr. Jones-Burton was with Merck & Co. from 2007 to May 2011. With more than 20 years of experience as a clinical development leader, internal medicine and nephrology physician and academician, Dr. Jones-Burton is dedicated to creating healthier communities through drug development, patient advocacy and people engagement. Dr. Jones-Burton is also active in numerous professional associations and organizations and founded Women of Color in Pharma (WOCIP), a non-profit professional society focused women of color in the pharmaceutical industry. Dr. Jones-Burton earned a medical degree and Master of Science degree in Epidemiology and Preventive Medicine, with a concentration in Clinical Research, from the University of Maryland School of Medicine. Dr. Jones-Burton's postgraduate training included an internal medicine residency and a nephrology fellowship at the University of Maryland Medical Systems.

Key Qualifications and Expertise:

Dr. Jones-Burton has extensive experience as an executive in the pharmaceutical industry in drug development, physician and patient engagement and advocacy. The insights she has developed in her work, together with her involvement in professional service organizations, also provide her with important perspectives on the issues facing our company in the development and potential commercialization of our therapies, as well as matters of diversity, equity and inclusion.

Mark Vachon (Chair of the Board)

Other Current Board Experience:

Beacon Mobility (private)
Klöckner Pentaplast Group (private)
Panoramic Health (private)
Clergy Trust of Boston (private)

Previous Board Experience within the Last Five Years:

Charitable Health and Retirement Trust (private)
Numotion (private)

Professional Highlights:

Mr. Vachon served as President and Executive Vice President at Change Healthcare Holdings, Inc. from November 2016 to April 2018. For over 30 years, Mr. Vachon held a variety of leadership positions across the General Electric organization, and was a company officer beginning in 1999 and a member of GE's Corporate Executive Council. Mr. Vachon was President and CEO of GE Healthcare Americas from 2009 to 2010, and prior to that he was President and CEO of Global Diagnostics Imaging, GE Healthcare, between 2006 and 2009. Between 2003 and 2006, Mr. Vachon was Executive Vice President and CFO of GE Healthcare. Mr. Vachon holds a B.S. in Finance from Northeastern University and an M.A. from Boston College.

Key Qualifications and Expertise:

Mr. Vachon's corporate leadership experience and financial expertise make him a valuable contributor to our Board. In addition, Mr. Vachon has extensive experience in executive operating roles and in the healthcare field on a global basis. He is an "audit committee financial expert" with particular experience in matters faced by the audit committee of a life sciences company.

CONTINUING DIRECTORS:

John O. Agwunobi, M.D.

Other Current Board Experience:

Ensign Group Inc. (ENSG)
U.S. African Development Foundation (private)

Previous Board Experience within the Last Five Years:

Herbalife Nutrition Inc. (HLF)
Magellan Health Inc. (MGLN)

Professional Highlights:

Dr. Agwunobi was Chief Executive Officer and Chairman of the Board of Herbalife Nutrition Inc. from 2020 to 2022. Previously, Dr. Agwunobi served as Co-President of Herbalife from May 2018 to 2020. He also served as Chief Health and Nutrition Officer at Herbalife, responsible for training, education, science strategy and product development from 2016 to 2018. Prior to joining Herbalife, Dr. Agwunobi was an independent consultant, advising a number of privately-held health-related companies, including serving as an advisory board member of Shopko Stores Operating Co., LLC on behalf of the private equity firm Sun Capital Partners. From September 2007 to April 2014, Dr. Agwunobi served as Senior Vice President and President of Health and Wellness for Wal-Mart (NYSE: WMT) in the United States where he grew the business and provided insight and advice on the company's health reform position. From December 2005 to September 2007, he served as the Assistant Secretary of Health for the U.S. Department of Health and Human Services, where he was responsible for disease prevention and health promotion. His responsibilities included the oversight of the Centers for Disease Control, National Institute of Health, the U.S. Food and Drug Administration, the Office of the U.S. Surgeon General, and numerous other public health offices and programs.

Key Qualifications and Expertise:

Dr. Agwunobi has significant experience as a senior executive and board member in the health and wellness field. In addition, he has deep expertise in public health programs and governmental agencies relevant to the healthcare industry, from his prior service and experience with the public sector. The insights he has developed from these roles provides our Board with important perspectives on the issues facing our company.

Elisabeth Leiderman, M.D.

Other Current Board Experience:

None

Previous Board Experience within the Last Five Years:

None

Professional Highlights:

Since November 2022, Dr. Leiderman has served as Chief Financial Officer and Chief Business Officer at Atsena Therapeutics, a clinical-stage gene therapy company. Before joining Atsena, from September 2020 to October 2022, Dr. Leiderman was Chief Financial Officer and Head of Corporate Development at Decibel Therapeutics, a clinical stage biotechnology company developing novel gene therapeutics for restoration of hearing loss and balance disorders. From January 2020 to August 2020, Dr. Leiderman served as Chief Business Officer for Complexa, Inc., a clinical stage biopharmaceutical company focused on life-threatening fibrosis and inflammatory diseases. Prior to Complexa, Dr. Leiderman was Senior Vice President, Head of Corporate Development at Fortress Biotech from November 2016 to November 2019. Earlier in her career from 2007 to 2016, Dr. Leiderman developed her transaction and capital markets expertise in the healthcare investment banking groups at Nomura, Credit Suisse, Jefferies and UBS. Dr. Leiderman began her career in medical affairs at AstraZeneca, where she analyzed product and industry trends related to the central nervous system. Dr. Leiderman earned an M.D. from the Sackler School of Medicine at Tel Aviv University, an M.B.A. from The Wharton School at the University of Pennsylvania and a B.A. from The University of Pennsylvania.

Key Qualifications and Expertise:

Dr. Leiderman has over 20 years of experience in finance, strategy and business development in the life sciences industry. She is an "audit committee financial expert" with particular experience in matters faced by the audit committee of a life sciences company.

Nick Leschly

Other Current Board Experience:

Synlogic, Inc. (SYBX)

2seventy bio, Inc. (TSVT)

Previous Board Experience within the Last Five Years:

Proclara Biosciences, Inc. (private)

Professional Highlights:

Since November 2021, Mr. Leschly has served as Chief Kairos Officer of 2seventy bio, Inc., a cell and gene therapy company. Mr. Leschly previously served as bluebird's President and Chief Executive Officer from October 2010 to November 2021. Formerly a partner of Third Rock Ventures, L.P. since its founding in 2007 until 2010, Mr. Leschly played an integral role in the overall formation, development and business strategy of several of Third Rock's portfolio companies, including Agios Pharmaceuticals, Inc. and Edimer Pharmaceuticals, Inc. Prior to joining Third Rock, he worked at Millennium Pharmaceuticals, Inc. (now a subsidiary of Takeda), leading several early-stage drug development programs and served as the product and alliance leader for VELCADE. Mr. Leschly also founded and served as Chief Executive Officer of MedXtend Corporation. He received his B.S. in molecular biology from Princeton University and his M.B.A. from The Wharton School of the University of Pennsylvania.

Key Qualifications and Expertise:

Mr. Leschly has deep operating and historical experience with our Company gained from serving as our President, Chief Executive Officer and member of the Board. In addition, Mr. Leschly also has significant experience in the venture capital industry and drug research and development.

Andrew Obenshain

Other Current Board Experience:

Biotechnology Innovation Organization (BIO) (private) None

Previous Board Experience within the Last Five Years:**Professional Highlights:**

Since November 2021, Mr. Obenshain has served as bluebird's President and Chief Executive Officer. Mr. Obenshain previously served as bluebird's President, Severe Genetic Diseases from August 2020 to November 2021, and as bluebird's Senior Vice President, Head of Europe from 2016 to August 2020. Prior to that, from September 2015 to September 2016, Mr. Obenshain was the general manager of France and Benelux at Shire Pharmaceuticals, Inc. and from 2007 to 2013, he held roles of increasing responsibility at Genzyme. Mr. Obenshain received his M.B.A. from Northwestern University's Kellogg School of Management, and his B.A. in genetics, cell and developmental biology from Dartmouth College.

Key Qualifications and Expertise:

Mr. Obenshain has deep operating and historical experience with our Company gained from serving as our President, Chief Executive Officer and in other roles. Mr. Obenshain also has significant management experience in the biotechnology and pharmaceutical fields.

Richard Paulson

Other Current Board Experience:

Karyopharm Therapeutics, Inc. (KPTI)

Previous Board Experience within the Last Five Years:

None

Professional Highlights:

Since 2021, Mr. Paulson has been President, Chief Executive Officer and Director at Karyopharm Therapeutics, a commercial-stage pharmaceutical company. Previously, Mr. Paulson was Executive Vice President of Ipsen Pharmaceuticals and Chief Executive Officer of Ipsen North America from 2018 to 2021 where he focused on innovative therapies and specialty care for oncology, neuroscience and rare diseases. Before joining Ipsen, Mr. Paulson work at Amgen for 10 years holding various leadership positions across Europe and North America. Mr. Paulson received his M.B.A. from the University of Saskatchewan and his B.Com in marketing and finance from the University of Toronto.

Key Qualifications and Expertise:

Mr. Paulson has deep operating experience gained from serving as President, Chief Executive Officer and Director at Karyopharm and leadership roles at Ipsen and Amgen. Mr. Paulson also has significant experience in sales, marketing, and market access in the biotechnology and pharmaceutical fields.

Najoh Tita-Reid

Other Current Board Experience:

None

Previous Board Experience within the Last Five Years:

None

Professional Highlights:

Since April 2021, Ms. Tita-Reid has served as Global Chief Marketing Officer at Logitech, consumer electronics company, where she leads the transformation of the global marketing function and spearheads a strategic, digital-first, and data-driven consumer and customer omnichannel experience. Prior to this role, Ms. Tita-Reid served as Global Commercial Marketing Head from June 2020 to March 2021 and on the Global Marketing Reinvention team from February 2020 to May 2020 at Logitech. Previously, Ms. Tita-Reid served as Global Chief Marketing Officer and Executive Board Member for Hero-AG, a family-run healthy food company, from August 2017 to January 2020. In this role, she developed the organization's marketing function and brand strategy and built the first global innovation pipeline while overseeing the R&D, innovation, sustainability and quality functions. Prior to Hero-AG, Ms. Tita-Reid held leadership positions at Bayer PLC, where she served as Vice President-Country Division Head for Consumer Care in the UK and Ireland from 2014 to 2017 and Merck & Co, Inc., where she served in various roles from 2011 to 2014, including General Manager for Western Europe from 2013 to 2014. Earlier in her career, Ms. Tita-Reid spent 19 years at Procter & Gamble, where she managed a number of consumer brands in the baby and feminine care categories, spearheaded multi-cultural marketing strategy across 15 billion-dollar brands, and led the multi-brand business unit for Hispanic and African American consumers. During her tenure, Ms. Tita-Reid trained and developed the P&G marketing function on ethnic marketing, and created breakthrough marketing strategies. Ms. Tita-Reid graduated with a Bachelor of Arts from Spelman College and holds an M.B.A. from Fuqua School of Business at Duke University.

Key Qualifications and Expertise:

Ms. Tita-Reid has extensive experience as a multi-faceted executive with global marketing expertise, she has a record of strategic and operational ingenuity and transformation across complex organizations and a breadth of experience across the US and Europe.

Identifying and Evaluating Director Nominees

Our Board is responsible for selecting its own members. The Board delegates the selection and nomination process to the Nominating and Corporate Governance Committee, with the expectation that other members of the Board, and of management, will be requested to take part in the process as appropriate.

Generally, our Nominating and Corporate Governance Committee identifies candidates for director nominees in consultation with management, through the use of search firms or other advisors, and through the recommendations submitted by stockholders or through such other methods as the Nominating and Corporate Governance Committee deems to be helpful in identifying candidates. Once candidates have been identified, our Nominating and Corporate Governance Committee confirms that the candidates meet all of the minimum qualifications for director nominees established by the Nominating and Corporate Governance Committee. The Nominating and Corporate Governance Committee may gather information about the candidates through interviews, detailed questionnaires, background checks or any other means that the Nominating and Corporate Governance Committee deems to be appropriate in the evaluation process. The Nominating and Corporate Governance Committee then meets as a group to discuss and evaluate the qualities and skills of each candidate, both on an individual basis and taking into account the overall composition and needs of our Board. Based on the results of the evaluation process, the Nominating and Corporate Governance Committee recommends candidates for the Board's approval as director nominees for election to the Board. Charlotte Jones-Burton, one of our Class I director nominees, was recommended by a prior director of bluebird and a third-party search firm.

Director Qualifications and Diversity

Our Nominating and Corporate Governance Committee will consider, among other things, the following qualifications, skills and attributes when recommending candidates for the Board's selection as director nominees for the Board and as candidates for appointment to the Board's committees: a director nominee shall have the highest personal and professional integrity, shall have demonstrated exceptional ability and judgment, and shall be effective, in conjunction with the other director nominees to the Board, in collectively serving the long-term interests of the stockholders.

In evaluating proposed director candidates, our Nominating and Corporate Governance Committee may consider, in addition to the minimum qualifications and other criteria for board membership approved by the Board from time to time, all facts and circumstances that it deems appropriate or advisable, including, among other things, diversity considerations, the skills of the proposed director candidate, his or her depth and breadth of professional experience or other background

characteristics, his or her independence, and the needs of the Board. While we do not have a formal policy with respect to diversity, our Nominating and Corporate Governance Committee believes that it is essential that the members of the Board represent diverse viewpoints. Our Nominating and Corporate Governance Committee believes that the backgrounds and qualifications of our directors, considered as a group, should provide a composite mix of experience, knowledge and abilities that will allow our Board to promote our strategic objectives and fulfill its responsibilities to our stockholders, and considers diversity of gender, race, national origin, education, professional experience, and differences in viewpoints and skills when evaluating proposed director candidates.

Our Nominating and Corporate Governance Committee's priority in selecting directors is identification of persons who will further the interests of our Company through his or her established record of professional accomplishment, the ability to contribute positively to the collaborative culture among directors, and professional and personal experiences and expertise relevant to our growth strategy. The Nominating and Corporate Governance Committee will consider candidates recommended by stockholders. The policy adopted by the Nominating and Corporate Governance Committee provides that candidates recommended by stockholders are given appropriate consideration in the same manner as other candidates.

The expertise and experience, characteristics and committee assignments for each of our directors are summarized in the table below:

	Director Nominees		Continuing Directors					
	Jones-Burton	Vachon	Agwunobi	Leiderman	Leschly	Obenshain	Paulson	Tita-Reid
Expertise & Experience								
General Management Experience		✓	✓	✓	✓	✓	✓	✓
Financial Experience		✓		✓			✓	
Audit Committee Financial Expertise		✓	✓	✓				
Business Development, Corporate Development, and Mergers & Acquisitions Experience		✓	✓	✓	✓	✓	✓	✓
Drug Development Experience	✓				✓	✓	✓	
Commercial Experience		✓	✓		✓	✓	✓	✓
International Business Experience			✓			✓	✓	✓
Public Policy Experience		✓	✓					
Operations Experience		✓	✓			✓	✓	✓
Other Public Company Board Service			✓		✓		✓	
Director Characteristics								
Independence	✓	✓	✓	✓			✓	✓
Term expiring	2023	2023	2024	2024	2025	2024	2025	2025
Age	49	64	58	46	50	49	51	50
Director Since	2022	2014	2017	2021	2010	2021	2023	2021
Gender	F	M	M	F	M	M	M	F
Ethnic or Racial Diversity	✓		✓					✓
Committee Composition								
Audit Committee		✓	✓	Chair				
Compensation Committee		Chair		✓				✓
Nominating & Corporate Governance Committee	✓		Chair					✓

The following Board Diversity Matrix presents our Board diversity statistics in accordance with Nasdaq Rule 5606, as self-disclosed by our directors.

Board Diversity Matrix as of April 28, 2023				
Part I: Gender Identity	Female	Male	Non-Binary	Did Not Disclose Gender
Directors (8 total)	3	5	-	-
Part II: Demographic Background	Female	Male	Non-Binary	Did Not Disclose Gender
African American or Black	2	1	-	-
Alaskan Native or Native American	-	-	-	-
Asian	-	-	-	-
Hispanic or Latinx	-	-	-	-
Native Hawaiian or Pacific Islander	-	-	-	-
White	1	4	-	-
Two or More Races or Ethnicities	-	-	-	-
LGBTQ+			-	
Did Not Disclose Demographic Background			-	

Board Independence

Our Board has determined, upon the recommendation of our Nominating and Corporate Governance Committee, that each of our directors, other than Andrew Obenshain who serves as our President and Chief Executive Officer, and Nick Leschly, who served as our President and Chief Executive Officer from October 2010 to November 2021, has no relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director and is independent within the meaning of the director independence standards of the Nasdaq Stock Market rules. At least annually, our Board evaluates all relationships between us and each director in light of relevant facts and circumstances for the purposes of determining whether a relationship exists that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. Based on this evaluation, our Board makes an annual determination of whether each director is independent within the meaning of Nasdaq, and the SEC independence standards.

Board Meetings and Attendance

Our Board held eight meetings during the fiscal year ended December 31, 2022. In the fiscal year ended December 31, 2022, each of our directors attended at least 75% of the meetings of the Board and the committees of the Board, in the period for which he or she served.

We encourage our directors to attend the Annual Meeting of Stockholders. Of the seven members of our Board at the time of last year's Annual Meeting, six attended the meeting.

Board Committees

Our Board has established three standing committees: the Audit Committee, the Compensation Committee and the Nominating and Corporate Governance Committee, each of which is comprised solely of independent directors, and is described more fully below. Each of the Audit Committee, Compensation Committee and Nominating and Corporate Governance Committee operates pursuant to a written charter and each committee reviews and assesses the adequacy of its charter and submits its charter to the Board for approval on an annual basis. The charters for the Audit Committee, Compensation Committee and Nominating and Corporate Governance Committee are all available on our website www.bluebirdbio.com in the *Investors & Media—Corporate Governance* section. Our Board establishes additional committees from time to time.

Audit Committee

Our Audit Committee is currently composed of Dr. Agwunobi, Dr. Leiderman and Mr. Vachon, with Dr. Leiderman serving as chair of the committee. Our Board has determined that each member of the Audit Committee meets the independence requirements of Rule 10A-3 under the Securities Exchange Act of 1934, as amended, and the applicable listing standards of Nasdaq. Our Board has determined that Dr. Leiderman and Mr. Vachon are “audit committee financial experts” within the meaning of the SEC regulations and applicable listing standards of Nasdaq. During the fiscal year ended December 31, 2022, the Audit Committee met five times. The report of the Audit Committee is included in this Proxy Statement under *Report of the Audit Committee*. The Audit Committee’s responsibilities include:

- appointing, approving the compensation of, and assessing the independence of our independent registered public accounting firm;
- approving audit and permissible non-audit services, and the terms of such services, to be provided by our independent registered public accounting firm;
- reviewing the audit plan (both internal and external) with the independent registered public accounting firm and members of management responsible for performing our internal audit and preparing our financial statements;
- reviewing and discussing with management and the independent registered public accounting firm our annual and quarterly financial statements and related disclosures, including critical audit matters as well as critical accounting policies and practices used by us;
- reviewing the adequacy of our internal control over financial reporting;
- overseeing the qualifications, independence and performance of our internal audit function;
- establishing policies and procedures for the receipt and retention of accounting-related complaints and concerns;

- recommending, based upon the Audit Committee’s review and discussions with management and the independent registered public accounting firm, whether our audited financial statements shall be included in our Annual Report on Form 10-K;
- monitoring the integrity of our financial statements and our compliance with legal and regulatory requirements as they relate to our financial statements and accounting matters;
- preparing the Audit Committee report required by the rules of the SEC to be included in our annual proxy statement;
- reviewing all related party transactions for potential conflict of interest situations and approving all such transactions;
- monitoring compliance with our investment policy;
- monitoring information security matters;
- overseeing our enterprise risk assessment program; and
- reviewing quarterly earnings releases.

Compensation Committee

Our Compensation Committee is currently composed of Dr. Leiderman, Ms. Tita-Reid and Mr. Vachon, with Mr. Vachon serving as chair of the committee. Our Board has determined each member of the Compensation Committee is “independent” as defined under the applicable listing standards of Nasdaq. In addition, each member qualifies as a non-employee director, as defined in Rule 16b-3 of the Securities Exchange Act. During the fiscal year ended December 31, 2022, the Compensation Committee met six times. The Compensation Committee’s responsibilities include, as applicable:

- reviewing and approving corporate goals and objectives relevant to the compensation of our Chief Executive Officer;
- evaluating the performance of our Chief Executive Officer in light of such corporate goals and objectives and determining the compensation of our Chief Executive Officer;
- reviewing and approving the compensation of our other executive officers and certain other members of senior management;
- appointing, compensating and overseeing the work of any compensation consultant, legal counsel or other advisor retained by the Compensation Committee;
- conducting the independence assessment outlined in Nasdaq rules with respect to any compensation consultant, legal counsel or other advisor retained by the Compensation Committee;
- annually reviewing and reassessing the adequacy of the committee charter in its compliance with the listing requirements of Nasdaq;
- reviewing and establishing our overall management compensation, philosophy and policy, including practices regarding competitive pay opportunity and program design;
- overseeing and administering our compensation and similar plans;
- reviewing and approving our policies and procedures for the grant of equity-based awards;
- reviewing and making recommendations to the Board with respect to director compensation;
- reviewing and discussing with management the compensation discussion and analysis to be included in our annual proxy statement or Annual Report on Form 10-K;
- reviewing and discussing with the Board corporate succession plans for our Chief Executive Officer and other key executives;
- overseeing the application of our policies for clawback or recoupment of incentive compensation;
- overseeing our strategies, policies and practices with respect to human capital management, diversity, equity, inclusion; and
- overseeing the management of risks relating to our compensation policies and programs.

Historically, our Compensation Committee has made most of the significant adjustments to annual compensation, determined cash incentive and equity awards and established new performance objectives at one or more meetings held during the first and last quarters of the year. However, our Compensation Committee also considers matters related to individual compensation, such as compensation for new executive hires, as well as high-level strategic issues, such as the efficacy of our compensation strategy, potential modifications to that strategy and new trends, plans or approaches to compensation, at various meetings throughout the year. Generally, the Compensation Committee's process consists of two related elements: the determination of compensation levels and the establishment of performance objectives for the current year. For executives other than our Chief Executive Officer, our Compensation Committee solicits and considers evaluations and recommendations submitted to the Compensation Committee by our Chief Executive Officer. In the case of our Chief Executive Officer, the evaluation of his performance is conducted by the Compensation Committee, which determines any adjustments to his compensation as well as awards to be granted. For all executives and directors as part of its deliberations, the Compensation Committee may review and consider, as appropriate, materials such as financial reports and projections, operational data, tax and accounting information, tally sheets that set forth the total compensation that may become payable to executives in various hypothetical scenarios, executive and director stock ownership information, company stock performance data, analyses of historical executive compensation levels and current Company-wide compensation levels and recommendations of our People & Culture management team. In addition, in 2022, the Compensation Committee engaged the Human Capital Solutions practice of Aon Consulting, Inc., the Compensation Committee's independent compensation consultant ("Aon") to assist in making decisions regarding the amount and types of compensation to provide our executive officers and non-employee directors. For more information, see *Executive Officer and Director Compensation - Role of Our Independent Compensation Consultant* below. Aon reports directly to the Compensation Committee. The Compensation Committee has considered the adviser independence factors required SEC rules as they relate to Aon and has determined that Aon's work does not raise a conflict of interest. The Compensation Committee may delegate its authority to grant certain equity awards to certain individuals to our Chief Executive Officer and in 2022, delegated such authority to Mr. Obenshain.

Nominating and Corporate Governance Committee

Our Nominating and Corporate Governance Committee is composed of Dr. Agwunobi, Dr. Jones-Burton, and Ms. Tita-Reid, with Dr. Agwunobi serving as chair of the committee. Our Board has determined that each member of the Nominating and Corporate Governance Committee is "independent" as defined under the applicable listing standards of Nasdaq. During the fiscal year ended December 31, 2022, the Nominating and Corporate Governance Committee met three times. The Nominating and Corporate Governance Committee's responsibilities include:

- developing and recommending to the Board for its approval criteria for membership of the Board and its committees;
- establishing procedures for identifying and evaluating Board candidates, including candidates recommended by stockholders;
- identifying individuals qualified to become members of the Board;
- recommending to the Board the persons to be nominated for election as directors and to each of the committees of the Board;
- developing and recommending to the Board a set of corporate governance guidelines; and
- overseeing the evaluation of the Board.

The Nominating and Corporate Governance Committee oversees an annual self-evaluation process of the Board and its committees with the assistance of an external advisor specializing in strategic planning and organizational development. The results of the self-evaluation are presented to the Nominating and Corporate Governance Committee, which determines what actions, if any, to present to the Board and the other committees to further enhance the performance and effectiveness of the Board and its committees.

Independent Director Meetings

In addition to the meetings of the committees of the Board described above, in connection with the Board meetings, the independent directors met four times in executive session during the fiscal year ended December 31, 2022. The Chair of the Board presides at these executive sessions. The Audit Committee and the Board have established a procedure whereby interested parties may make their concerns known to independent directors, which is described on our website.

Leadership Structure and Risk Oversight

Our Corporate Governance Guidelines provide that the Board shall fill the Chair of the Board and Chief Executive Officer positions based on the Board's view of what is in the Company's best interest. The Roles of Chair of the Board and Chief Executive Officer are currently separate, with Mr. Vachon serving as Chair and Mr. Obenshain serving as Chief Executive Officer. Our Board believes that separation of the positions of Chair and Chief Executive Officer reinforces the independence of the Board from management, creates an environment that encourages objective oversight of management's performance and enhances the effectiveness of the Board as a whole. The Board retains the flexibility to change its leadership structure from time to time as appropriate based on its view of the best interests of the Company.

We face a number of risks in our business, including risks related to clinical research and development of our programs in severe genetic disease and oncology; manufacturing and supply chain; regulatory reviews and approvals; commercial operations and our ability to obtain reimbursement for our approved products; growth and capability expansion in the United States; intellectual property filings, prosecution, maintenance and challenges; the establishment and maintenance of strategic alliances; competition; litigation and government investigations; and the ability to access additional funding for our business; among other risks. Our management is responsible for the day-to-day management of the risks that we face, while our Board, as a whole and through its committees, has responsibility for the oversight of risk management.

Our Board performs its oversight role by using several different levels of review. Our Chair meets regularly with our Chief Executive Officer and other executive officers to discuss our strategy and material risks. Members of senior management attend the quarterly Board meetings, present on strategic matters involving our business, and are available to address any questions or concerns raised by the Board on risk management-related issues and any other matters. Our Board reviews the risks, including any environmental, social or governance risks, associated with our business strategies periodically throughout the year as part of its consideration of undertaking any such business strategies. Moreover, our Audit Committee oversees enterprise risk management and discusses guidelines and policies that govern the process by which the Company's exposure to risk is assessed and managed by management.

Each of the committees of our Board also oversees the management of our risk that falls within the committee's areas of responsibility. In performing this function, each committee has full access to management, as well as the ability to engage advisors. The Audit Committee oversees our enterprise risk management program as it relates to our operations by identifying the primary risks associated with our operations and corporate functions, receiving periodic updates on activities to manage such risks, and providing reports to the Board regarding such activities. In carrying out its responsibilities for the oversight of operational risk management, members of the Audit Committee regularly discuss with management our risk exposures in the areas of financial reporting, internal controls, information security, and our legal and regulatory compliance programs, and the steps we take to manage them. Our Chief Financial Officer, our Chief Legal & Business Officer, and our Chief Compliance Officer all periodically provide reports to the Audit Committee and are responsible for identifying, evaluating and implementing risk management controls and methodologies to address any identified risks. Our Audit Committee also meets privately with representatives from our independent registered public accounting firm as part of its oversight of our risk management. The Compensation Committee assists the Board in fulfilling its oversight responsibilities with respect to the management of risks arising from our compensation policies and programs and succession planning for our executive officers, and evaluates potential risks associated with independent director compensation for consideration by the full Board. The Nominating and Corporate Governance Committee assists the Board in fulfilling its oversight responsibilities with respect to the management of risks associated with Board organization, membership and structure, succession planning for our directors, and corporate governance.

Compensation Committee Interlocks and Insider Participation

Mr. Vachon, Dr. Leiderman and Ms. Tita-Reid served as members of our Compensation Committee during the year ended December 31, 2022. None of the members of our Compensation Committee have at any time been one of our officers or employees. None of our executive officers currently serves, or in the past fiscal year has served, as a member of the board of directors or on a compensation committee of any entity that has one or more executive officers serving on our Board or Compensation Committee. For a description of transactions between us and members of our Compensation Committee and affiliates of such members, please see *Certain Relationships and Related Party Transactions*.

Code of Business Conduct and Ethics and Corporate Governance Guidelines

We have adopted a Code of Business Conduct and Ethics for our directors, officers and employees, including our President and Chief Executive Officer, Principal Financial Officer, Principal Accounting Officer, and Controller (or persons performing an equivalent function). We provide mandatory online training for our employees with respect to the Code of Business Conduct and Ethics on an annual basis to ensure understanding and the importance of adhering to such guidelines. A copy of our Code of Business Conduct and Ethics may be accessed free of charge by visiting the Company's website at

www.bluebirdbio.com and going to the *Investors & Media—Corporate Governance* section or by requesting a copy in writing from Joseph Vittiglio, Secretary, at our Somerville, Massachusetts office. We intend to post on our website any amendment to, or waiver under, a provision of the Code of Business Conduct and Ethics that applies to our President and Chief Executive Officer, Principal Financial Officer, Principal Accounting Officer, or Controller (or persons performing an equivalent function) within four business days following the date of such amendment or waiver.

A copy of the Corporate Governance Guidelines may also be accessed free of charge by visiting the website at www.bluebirdbio.com and going to the *Investors & Media—Corporate Governance* section or by requesting a copy from Joseph Vittiglio, Secretary, at our Somerville, Massachusetts office.

Our Social Responsibility Efforts

For patients and society to benefit from the therapies we develop, we believe they must be available to those who will benefit from them. To enable access to our approved and potential future products following commercial launch, we are continuing to engage in discussions with stakeholders across the healthcare system, including public and private payers, patient advocates and organizations, professional societies, and healthcare providers. These discussions are part of a broader ongoing dialogue exploring pathways for bringing our product and potential future products to patients at a sustainable cost.

In addition, as a leading gene therapy company, the way we operate, the work we do, and the support we provide to our local communities is tied to our desire to extend and improve the lives of our patients. We are committed to patient advocacy and community endeavors that promote and improve the understanding of severe genetic disease. Our company participates in charitable activities relevant to our business and linked to our mission, vision and values.

We view our employees as our most valuable asset and we believe that by creating a positive culture together we can drive positive business and patient impact. We demonstrate this by providing a comprehensive benefits package. In addition, we believe in helping our employees to continue to grow at bluebird through leadership development, and Employee Resource Groups that provide a strong focus on diversity, equity and inclusion. We also provide equity compensation to all of our employees and offer an employee stock purchase plan to promote employee ownership of our shares and to allow employees to share in our success. Our employees are highly engaged which is due, in part, to the creation of an environment where our team thrives through professional development, total rewards, a robust diversity, equity, inclusion and belonging strategy and a successful ESG strategy and approach.

EXECUTIVE OFFICERS

The following table sets forth information regarding our executive officers as of April 28, 2023:

<u>Name</u>	<u>Age</u>	<u>Position(s)</u>
Executive Officers:		
Andrew Obenshain (1)	49	President, Chief Executive Officer and Director (Principal Executive Officer)
Christopher Krawtschuk	49	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)
Richard A. Colvin, M.D., Ph.D.	57	Chief Medical Officer
Thomas J. Klima	51	Chief Commercial Officer and Chief Operating Officer
Joseph Vittiglio	52	Chief Legal and Business Officer

(1) Andrew Obenshain is also a director and his biographical information appears on page 10.

Christopher Krawtschuk – Mr. Krawtschuk has served as our Chief Financial Officer since November 2022. Previously, Mr. Krawtschuk served as Chief Financial Officer of Jubilant Pharma from February 2021 to October 2022, where he established the US-based finance and business operations team. Prior to Jubilant Pharma, from December 2018 to January 2021, Mr. Krawtschuk served as U.S. Chief Financial Officer and Treasurer of Morphosys. In 2018, Mr. Krawtschuk served as North American Controller at Unilever. Mr. Krawtschuk served as vice president, lead divisional controller for Pfizer from 2016 to 2018 where he was responsible for accounting advisory and financial reporting support to all global businesses and support functions. Mr. Krawtschuk began his financial career at PricewaterhouseCoopers where he held several positions of increasing responsibility from 2001 to 2016. Mr. Krawtschuk received his B.S. in Accounting from William Paterson University and is licensed as a CPA.

Richard A. Colvin, M.D., Ph.D. – Dr. Colvin has served as our Chief Medical Officer since October 2022. Previously, Dr. Colvin was our interim Chief Medical Officer from March 2021 through September 2022 and our Vice President and head of severe genetic diseases clinical research and development from January 2020 to March 2021. Dr. Colvin joined us in 2018 as Vice President, Medical Lead Thalassemia Program, for the successful European submission and approval of the Company's beti-cel gene therapy for the treatment of patients with beta-thalassemia. Dr. Colvin is on faculty at Harvard Medical School and also sees patients as a Clinical Associate in Medicine, Infectious Diseases Clinic, at Massachusetts General Hospital Chelsea Health Care Center. Prior to joining bluebird, Dr. Colvin was an executive director in translational medicine at Novartis, where he led anti-infective drug development programs for the treatment of patients with certain infections from 2014 to 2018. Previously, Dr. Colvin completed his clinical and research fellowships in the Mass General Brigham Infectious Diseases Program and completed his internship and residency at the Brigham and Women's Hospital. Dr. Colvin received his M.D. and Ph.D. from Duke University School of Medicine and his B.S. in Biology from Cornell University.

Thomas J. Klima – Mr. Klima has served as our Chief Operating Officer since September 2022 and our Chief Commercial Officer since May 2021. Prior to joining bluebird, Mr. Klima served as Chief Commercial Officer at Gamida Cell Ltd. from January 2019 to December 2020, where he led the strategic vision and commercial growth transforming its R&D organization to a commercially ready company. In 2018, Mr. Klima served as senior vice president of global commercial planning and operations at Atara Biotherapeutics. From 2015 to 2017, Mr. Klima served as senior vice president and chief commercial officer at Navidea Biopharmaceuticals Ltd. (acquired by Cardinal Health). Before that, Mr. Klima served as head of sales and commercial operations at Algeta U.S. (acquired by Bayer Healthcare) from 2012 to 2015. Before Algeta, he held various commercial leadership positions at Dendreon from 2009 to 2012. Mr. Klima began his pharmaceutical career at Eli Lilly where he held several positions of increasing responsibility from 2000 to 2009. Mr. Klima received a B.A. in Business Administration and Marketing from Western State College.

Joseph Vittiglio, Esq. – Mr. Vittiglio has served as our Chief Legal and Business Officer since January 2023. Prior to joining bluebird, Mr. Vittiglio served as Chief Business and Legal Officer at Finch Therapeutics from December 2020 to December 2022 where he guided its initial public offering in 2021. Prior to joining Finch, Mr. Vittiglio was the General Counsel and Chief Business Officer for AMAG Pharmaceuticals from August 2015 to November 2020 where he led its legal and business initiatives, including its successful sale to private equity investors and multiple out-licensing and partnership collaborations. Prior to AMAG, Mr. Vittiglio held leadership roles at Flexion Therapeutics, AVEO Pharmaceuticals, and Oscient Pharmaceuticals. Mr. Vittiglio began his career as a corporate and securities attorney at Mintz, Levin, Cohn, Ferris, Glosky and Popeo, P.C. Mr. Vittiglio received a B.A. in International Relations from Tufts University and a J.D. from Northeastern University School of Law.

PROPOSAL 2
NON-BINDING ADVISORY VOTE ON NAMED EXECUTIVE OFFICER COMPENSATION

Our Board is committed to excellence in governance. As part of that commitment, and as required by Section 14A(a)(1) of the Securities Exchange Act, our Board is providing our stockholders with an opportunity to approve, on a non-binding advisory basis, the compensation of our named executive officers. At the Company's 2021 annual meeting of stockholders, the stockholders approved a frequency of "once every year" for the non-binding, advisory vote to approve the compensation of our named executive officers. Therefore, the next such advisory vote will be held at the Company's annual meeting of stockholders in 2024.

As described below under *Executive Officer and Director Compensation*, we have developed a compensation policy that is designed to attract and retain key executives responsible for our success and motivate management to enhance long-term stockholder value. We believe our compensation policy strikes an appropriate balance between the implementation of responsible, measured compensation practices and the effective provision of incentives for our named executive officers to exert their best efforts for our success.

For the reasons discussed above, the Board unanimously recommends that our stockholders vote in favor of the following resolution:

"RESOLVED, that the Company's stockholders hereby approve, on a non-binding advisory basis, the compensation of the named executive officers, as disclosed in the Company's proxy statement for the 2023 Annual Meeting of Stockholders pursuant to the compensation disclosure rules of the Securities and Exchange Commission, including the Summary Compensation Table and the other compensation related tables and disclosure."

The resolution will be approved, on a non-binding advisory basis, if the votes cast FOR exceed the votes cast AGAINST the proposal. Abstentions and broker non-votes will have no effect on the outcome of the vote on this proposal. As this vote is advisory, it will not be binding upon the Board or the Compensation Committee and neither our Board nor the Compensation Committee will be required to take any action as a result of the outcome of this vote. However, our Board and the Compensation Committee value the opinions of our stockholders, and the Compensation Committee will carefully consider the outcome of this vote when considering future executive compensation policies.

THE BOARD UNANIMOUSLY RECOMMENDS THAT YOU VOTE

FOR

THE NON-BINDING ADVISORY RESOLUTION APPROVING THE COMPENSATION OF OUR NAMED EXECUTIVE OFFICERS
(PROPOSAL 2 ON YOUR PROXY CARD)

EXECUTIVE OFFICER AND DIRECTOR COMPENSATION

Overview of Executive Officer Compensation

Our Compensation Committee is responsible for overseeing the total compensation of our senior management team, which consists of our executive officers and certain other senior managers. In this capacity, our Compensation Committee designs, implements, reviews and approves all compensation for our Chief Executive Officer and our other executive officers. This section discusses the principles underlying our policies and decisions with respect to the compensation of our named executive officers, and all material factors relevant to an analysis of these policies and decisions. Our named executive officers for the fiscal year ended December 31, 2022 and relevant positions, were:

- Andrew Obenshain, our Chief Executive Officer and Principal Executive Officer;
- Thomas J. Klima, our Chief Commercial and Operating Officer;
- Richard A. Colvin, M.D., Ph.D., our Chief Medical Officer; and
- Jason F. Cole, our former Chief Strategy and Financial Officer, Principal Financial Officer, Principal Accounting Officer and Treasurer.

Effective August 4, 2022, Mr. Klima was promoted from Chief Commercial Officer to Chief Commercial and Operating Officer. Effective in October 2022, Dr. Colvin was promoted from interim Chief Medical Officer to Chief Medical Officer. Mr. Cole's employment with us terminated effective October 14, 2022, following which he agreed to provide consulting services for us for a period of time following the termination of his employment in order to aid with the transition of his duties, including the completion of certain specified transactions and projects. Please see the section below under "Employment Arrangements with our Named Executive Officers."

Compensation Philosophy

Our Compensation Committee believes a well-designed compensation program should align executive interests with the drivers of growth and stockholder returns by supporting the Company's achievement of its primary business goals, and our ability to attract and retain employees whose talents, expertise, leadership, and contributions are expected to sustain growth and drive long-term stockholder value. Consequently, we maintain an ongoing commitment to corporate governance principles and strong performance orientation in our compensation program. Our Compensation Committee regularly reviews our compensation policies and program design overall, to ensure that they are aligned with the interests of our stockholders and our business goals, and that the total compensation paid to our employees is fair, reasonable and competitive. The market for qualified and talented executives in the biopharmaceutical industry is highly competitive and we compete for talent with many companies that have greater resources than we do. Furthermore, as the biopharmaceutical industry is characterized by a very long product development cycle, including a lengthy research and development period and a rigorous approval phase involving clinical studies and governmental regulatory approval, many of the traditional benchmarking metrics, such as product sales, revenues and profits are inappropriate for a late-stage development or early-commercial stage biopharmaceutical company such as bluebird.

Overview of Our Compensation Programs

Key elements of our executive compensation programs include the following:

Compensation Element	Purpose	Features		
Base salary	To attract and retain highly skilled executives	Fixed component of pay to provide financial stability, based on responsibilities, experience, individual contributions		
Annual incentive program	To promote and reward the achievement of our key short-term strategic and business goals; to motivate and attract executives	Variable component of pay based on annual quantitative and qualitative company performance goals and, for our executives other than our Chief Executive Officer, individual performance goals	Short Term Incentive	
Long-term equity incentive compensation	To encourage executives to focus on long-term performance; to promote retention; to reward outstanding company and individual performance	Typically subject to multi-year vesting based on continued service and are primarily in the form of stock options and restricted stock units, the value of which depends on the performance of our common stock price, in order to align employee interests with those of our stockholders over the longer-term. We also introduced performance-vesting restricted stock unit grants for our Chief Executive Officer in 2021 to further tie executive compensation to stock price performance.	Long Term Incentive	At-Risk Compensation

Role of Compensation Committee

Each year, as part of its oversight of broader human capital management, our Compensation Committee reviews and establishes the levels of each element of total compensation for our employees, including our senior executives. As part of this process, our Compensation Committee reviews the mix of compensation elements to ensure our performance-based compensation is an appropriate proportion of overall compensation and is aligned with our business goals and strategy. The specific performance factors our Compensation Committee considers when determining the compensation of our named executive officers include:

- key research and development achievements, including advances in our gene addition platform in the fields of severe genetic diseases ;
- initiation and progress of clinical studies for our product candidates;
- expansion of our manufacturing and operational capabilities, including our commercial readiness, on a global basis;
- achievement of regulatory milestones, including regulatory filings for marketing approval;
- achievement of commercialization milestones, including pricing and reimbursement approval, engagement of qualified treatment centers, and number of patients treated in the commercial context;
- establishment and maintenance of key strategic relationships and new business initiatives, including financings; and
- development of organizational capabilities, success in hiring and growth management initiatives.

Our senior executives, including our named executive officers, are also evaluated based on factors such as individual, strategic, and leadership achievements. These performance factors are considered by our Compensation Committee in connection with our annual performance reviews described below and are a critical component in the determination of annual incentive awards for our executives.

Our Compensation Committee, with input from the Board, evaluates our Chief Executive Officer's individual performance and determines whether to change his base salary, grant him an annual equity award and/or change his target percentage cash award under our annual incentive program.

Role of Our Compensation Consultants

For 2022, our Compensation Committee engaged Aon, as its independent compensation consultant to advise on executive and Board compensation matters including: overall compensation program design, peer group development and updates, and collection of market data to inform our compensation programs for our executives and directors. We develop our compensation programs after reviewing publicly available compensation data and we also subscribe to Aon's various global annual and specialized life sciences and general industry surveys on an ongoing basis. Aon advised the Compensation Committee on all of the principal aspects of executive compensation, including executive new hire compensation arrangements. Aon consultants attend meetings of the Compensation Committee when requested to do so. Aon reports directly to our Compensation Committee and not to management, although it meets with management for purposes of gathering information for its analyses and recommendations. Our Compensation Committee has assessed the independence of Aon consistent with SEC regulations and NASDAQ listing standards and has concluded that the engagement of Aon does not raise any conflict of interest.

Elements of Compensation

Base Salary

We provide base salaries to our named executive officers to compensate them with a fair and competitive base level of compensation for services rendered during the year. Our Compensation Committee typically determines the base salary for each executive based on the executive's responsibilities, experience and, if applicable, the base salary level of the executive prior to joining bluebird. In addition, our Compensation Committee reviews and considers the level of base salary paid by companies in our peer group for similar positions. Our Compensation Committee's assessment of our named executive officers' base salary takes into account our compensation objectives and philosophy to retain highly qualified executives, to motivate them to achieve our business goals, and to reward them for superior short- and long-term performance.

At the beginning of 2022, our Compensation Committee reviewed the compensation for our Chief Executive Officer and each of our other named executive officers. With respect to Mr. Obenshain, our Compensation Committee reviewed his overall compensation and determined to increase his annual base salary from \$625,000 to \$643,750. This determination was based on his critical role at the Company, market conditions, company performance throughout 2021 in meeting key

milestones and objectives, as well in consideration of the critical upcoming execution and risk inflection points throughout 2022. The Compensation Committee also approved merit increases in base salary for each of our other named executive officers serving at that time based on several factors including the Company's performance against the 2021 company goals, and each named executive officer's achievement of individual goals in 2021, as well as a consideration of the market conditions and a comparison of the executives' base salaries to similarly situated executives in our peer group. The table below sets forth the adjustments to the base salary, in dollars and as a percentage, for each of our named executive officers, as approved in January 2022 and as adjusted thereafter:

Name	2021 Base Salary (\$)	January 2022 Base Salary (\$)	Additional Adjusted Base Salary in 2022	Aggregate Increase (%)
Andrew Obenshain	\$625,000	\$643,750	N/A	3.0%
Thomas J. Klima	\$400,000	\$422,000	\$460,000 ⁽¹⁾	15.0%
Richard A. Colvin	\$450,000	\$465,750	\$480,000 ⁽²⁾	6.7%
Jason Cole	\$472,000	\$488,600	\$525,000 ⁽³⁾	11.2%

- (1) In August 2022, Mr. Klima's role was expanded from Chief Commercial Officer to Chief Commercial and Operating Officer. Effective as of the expansion of his role, Mr. Klima received an additional base salary increase in light of his expanded scope of responsibilities and exceptional performance from \$422,000 to \$460,000.
- (2) In October 2022, Dr. Colvin was promoted from Interim Chief Medical Officer to Chief Medical Officer. Effective as of the expansion of his role, Dr. Colvin received an additional base salary increase in light of his expanded scope of responsibilities and exceptional performance from \$465,750 to \$480,000.
- (3) In April 2022, Mr. Cole's role expanded from Chief Business Officer to Chief Strategy and Financial Officer. Effective as of the expansion of his role, Mr. Cole received an additional base salary increase in light of his expanded role and exceptional performance from \$488,600 to \$525,000.

In December 2022, our Compensation Committee reviewed the base salaries of our named executive officers, including our Chief Executive Officer. Taking into account the Company's performance in 2022 and the need to provide a competitive base level of salary balanced against financial discipline, the Compensation Committee determined that each named executive officer, including our Chief Executive Officer, would receive increases to their base salaries of between 2% - 6%, as set forth in the table below, effective January 2, 2023.

Name	2022 Base Salary (\$)	2023 Base Salary (\$)	Increase (%)
Andrew Obenshain	\$643,750	\$682,400	6%
Thomas J. Klima	\$460,000	\$480,000	4%
Richard Colvin	\$480,000	\$490,000	2%

Annual Incentive Program

At the beginning of 2022, our Compensation Committee approved the annual incentive program for 2022. At the time of such approval, consistent with past practice, the 2022 annual incentive program consisted of the opportunity for eligible participants to earn cash incentive awards calculated as a percentage of pre-established bonus targets based on the Company's performance against pre-established company goals and, other than for the Chief Executive Officer, individual performance throughout 2022 against pre-established individual goals.

Under our annual incentive plan our Chief Executive Officer's incentive award is based entirely on the Company's performance relative to these pre-established company goals, and the incentive award for each of our other named executive officers is based 80% on the Company's performance relative to the pre-established company goals, and 20% on individual performance. Our Compensation Committee however, reserves the discretion to adjust upward or downward any cash incentive award as it deems appropriate, provided that neither company performance nor individual performance may exceed 150% and, accordingly, bonuses are capped at 150% of target amounts.

In the first fiscal quarter of 2022, the Compensation Committee approved the annual incentive program for 2022. The terms of the 2022 annual incentive program are substantially the same as the 2021 annual incentive program. The tables below summarize the pre-established 2022 company goals, their relative weighting, and level of achievement for each Company goal as approved by the Compensation Committee and the Board in December 2022. In determining the level of achievement for each Company goal, the Compensation Committee recognized the achievements the Company received via unanimous FDA Advisory Committee approvals and FDA approval of both beti-cel and eli-cel, and maintaining efforts to keep the lovo-cel BLA on target, all while executing a restructuring in April 2022 that reduced the Company's cash burn from over \$400M to less than \$300M a year. In light of the completion of the restructuring, the Compensation Committee also

recognized that certain company goals were no longer applicable for 2022. Accordingly, after review of the Company's achievement of the applicable company goals, in particular the attainment of the "Eye on Execution" goal described below, the Compensation Committee determined aggregate company achievement under the 2022 annual incentive program to be 100%.

2022 Company goals	Weighting	2022 Company performance assessment
Eye on Execution	30%	130% (39%)
– Receive FDA approval for beti-cel and eli-cel; lovo-cel BLA ready for submission by target filing date		The Compensation Committee recognized the historic achievement of receiving FDA approval for both beti-cel and eli-cel in Q3 2022, as well as continued progress for the lovo-cel BLA submission to be ready for submission on plan.
Deliver for Patients	30%	50% (15%)
– Initial activation of Qualified Treatment Centers (QTCs) and initial patient starts		The Compensation Committee acknowledged the challenges of activating QTCs following the Company's April 2022 reduction in force and focus on the beti-cel and eli-cel approval processes. Despite these challenges, the Company made significant progress in activating its first QTCs before end-of-year. Lovo-cel clinical study activities were resumed and BLA submission timeline continued to progress as planned.
People & Business	20%	130% (26%)
– Meet targets for cash runway, employee engagement, and employee diversity		The Company completed the execution of a restructuring to reduce cash burn while preserving its three core therapeutic programs as well as completed efforts in the consummation of \$190M non-dilutive capital infusion through the sale of two priority review vouchers; it is anticipated that these efforts will extend the Company's cash runway beyond the critical milestone of lovo-cel approval. Additionally, the Compensation Committee recognized that the company ended the year with positive employee engagement, up 9% from the previous year as evidenced by a comprehensive employee engagement survey.
Improve Our Therapies	10%	100% (10%)
– Achieve milestones in product lifecycle and manufacturing		The Compensation Committee acknowledged that, while certain milestones were not achieved due to lingering COVID supply chain issues and resource limitations due to the restructuring in April 2022, others accomplishments associated with product and manufacturing initiatives were taken into account, with the respect to the FDA approvals of both beti-cel and eli-cel.
Create Our Future	10%	100% (10%)
– Enhance LVV technology and deepen academic partnerships		The Compensation Committee acknowledged that, while certain milestones were not achieved due to a clinical hold and resource limitations due to the restructuring in April 2022, others accomplishments associated with technology initiatives were taken into account, including with respect to the FDA approvals of both beti-cel and eli-cel.
Total	100%	100%

The pre-established individual goals and individual performance against those goals in 2022 applicable to our named executive officers other than our Chief Executive Officer were as follows:

Name	2022 individual performance assessment	2022 individual goals
Thomas J. Klima	100%	Leadership in preparing the organization for commercial launches in the United States and ongoing operational efficiency
Richard A. Colvin	100%	Leadership in guiding the organization through late-stage development programs in severe genetic disease and associated regulatory interactions as well as overseeing the continued efforts towards the anticipated filing of the lovo-cel BLA
Jason Cole	N/A (1)	N/A

(1) In October 2022, Mr. Cole's employment with us terminated and as a result, he was not entitled to a 2022 cash incentive award.

The table below shows each named executive officer's target incentive award under the 2022 annual incentive program as a percentage of the named executive officer's annual base salary in 2022, the target incentive award opportunity in dollars for 2022 and the actual incentive awards to our named executive officers for 2022 performance, which were paid in February 2022.

Name	2022 Target Incentive Award (% of 2022 Base Salary)	2022 Target Incentive Award Opportunity (\$)	Actual Total 2022 Incentive Award Amount (\$)
Andrew Obenshain	60% ⁽¹⁾	\$386,280	\$386,280
Thomas J. Klima	45% ⁽¹⁾	\$207,000	\$207,000
Richard A. Colvin	45% ⁽¹⁾	\$216,000	\$216,000
Jason Cole ⁽²⁾	50%	\$262,000	N/A

(1) Target incentive awards did not change year over year.

(2) In connection with his promotion to Chief Strategy and Financial Officer, Mr. Cole's target incentive award opportunity was increased to 50% of his base salary. However, Mr. Cole was not eligible to receive a 2022 Target Incentive Award because of his departure from the Company before incentive payouts were made.

Long-Term Incentive Awards

Our long-term incentive equity awards are generally in the form of stock options and restricted stock units, which deliver equivalent value while using fewer authorized shares. Beginning in 2021, we granted performance-based restricted stock units based on relative total shareholder return to our Chief Executive Officer, to further tie executive compensation to stock price performance and in response to stockholder feedback. We typically make equity award grants to each of our executive officers upon commencement of employment, and annually in conjunction with our review of their individual performance. Additional equity award grants may be made in connection with a promotion, or as a special incentive. Our executives benefit from stock options only if our stock price increases through the creation of stockholder value, and the value of restricted stock units increase as our stock price increases. Accordingly, we believe stock options and restricted stock units provide meaningful incentives to our executives to achieve increases in the value of our stock over time. In addition, the vesting feature of our long-term incentive grants contributes to executive retention by providing an incentive to our executives to remain employed by us during the vesting period.

All equity awards to our executive officers are approved by our Compensation Committee. The size of equity awards varies among our executive officers based on their positions, competitive market data, and annual performance assessments. All stock options granted by bluebird have exercise prices equal to the fair market value of our common stock on the date of grant, so that the recipient will not realize any value from his or her options unless our share price increases above the stock price on the date of grant. Accordingly, this portion of our executive officers' compensation is at risk and is directly aligned with stockholder value creation.

As part of the ongoing review of our compensation strategy and practices, the Compensation Committee determines the appropriate mix of the type of equity awards, based in part on recommendations from Aon, its independent compensation consultant. Because of the volatility of our stock price in relation to when equity grants are made, our equity compensation guidelines set forth aggregate grant targets reflecting stock options plus restricted stock units based on number of shares (rather than value of the equity grants), and these guidelines are developed based on and in reference to our equity grant data for our peer companies. The target mix for annual long-term incentive equity grants to our executive officers is generally split approximately one-half in stock options and one-half in restricted stock units based on option equivalents (including with respect to our Chief Executive Officer, performance-based restricted stock units). The Compensation Committee believes that this deliberate mix of equity ensures that compensation remains tied to stock performance and promotes retention. The Compensation Committee may adjust the mix of award types or approve different award types as part of the overall compensation strategy. Awards made in connection with a new, extended or expanded employment relationship may involve a different mix of equity awards, depending on the Compensation Committee's assessment of the total compensation package being offered.

In addition, long-term equity incentive grants of stock options and restricted stock units to our executive officers typically vest over four years, which we believe provides an incentive to our executives to add value to the Company over the long-term and to remain with bluebird. Typically, the stock options we grant to our executives have a ten-year term and vest as to 25% of the shares on the first anniversary of their hire date (in the case of initial equity grants) or on or about the first anniversary of the first business day of the year of grant (in the case of annual grants) and then the remaining shares vest in equal monthly installments thereafter until the fourth anniversary of such date. Vesting of option grants to employees ceases upon termination of employment and exercise rights typically cease three months following termination of employment, except in the case of death or disability. Prior to the exercise of an option, the stock option holder does not have any rights as a stockholder with respect to the shares subject to such option, including voting rights or the right to receive dividends or dividend equivalents. Annual restricted stock units granted to our executives generally vest in equal annual installments beginning on or about the first anniversary of the first business day of the year of grant, until the fourth anniversary of such date.

In 2022, we granted our Chief Executive Officer a performance-based restricted stock unit award, to further align our Chief Executive Officer's compensation with stockholder experience (the "2022 Performance-Based RSU Award"). This 2022 Performance-Based RSU Award is earned based on total shareholder return compared to an industry peer group of select companies in the Standard & Poor Biotechnology Select Industry Index. The multiplier used to determine the number of earned restricted stock units could range between 0% and 200%, with a threshold achievement level at -25th percentile (as compared to the peer median) required to earn any restricted stock units, and a ceiling achievement level at the +50th percentile (as compared to the peer median). The 2022 Performance-Based RSU Award, to the extent earned, vest in full on the third anniversary of the grant date, subject to Mr. Obenshain's continued service. For 2022, the target number of shares subject to this 2022 Performance-Based RSU Award is 27,000 shares. Under the terms of this award, the number of performance-based restricted stock units earned is calculated by multiplying the target number of performance-based restricted stock units by a performance multiplier.

In its design of the performance-based restricted stock units, the Compensation Committee considered various design elements and alternative approaches including milestone-based approaches. Given the stage of the Company, including two commercial programs and one program in late-stage development, the Compensation Committee felt that an overall relative stock performance metric best captures the value inflections that would potentially be unlocked through exceptional company performance, and is fully aligned with stockholder interests. Furthermore, a three-year measurement period provides an incentive for the Chief Executive Officer to take a long-term view with respect to company performance.

In connection with the annual review of our named executive officers' performance during 2021 and consistent with our compensation philosophy, in February 2022, our Compensation Committee approved the annual long-term equity incentive awards granted to our named executive officers serving at that time as set forth in the table below:

Name	2022 Option Award		2022 RSU Award		2022 Performance-Based RSU Award	
	# Shares	Grant date fair value	# Shares	Grant date fair value	Target # Shares	Grant Date Fair value
Andrew Obenshain	90,000	\$421,830	18,000	\$140,400	27,000	\$210,600
Thomas J. Klima	50,000	\$234,350	25,000	\$195,000	—	
Richard A. Colvin	26,400	\$123,737	13,300	\$103,740	—	
Jason Cole	50,000	\$234,350	25,000	\$195,000	—	

In connection with the annual review of our named executive officers' performance during 2022 and consistent with our compensation philosophy to motivate our named executive officers to achieve our business goals and to reward for superior short- and long-term performance, in March 2023, upon approval by the Compensation Committee, the Company issued the annual long-term equity incentive awards to our named executive officer serving at that time as set forth in the table below:

Name	2023 Option Award	2023 RSU Award Time-Based Vesting	2023 RSU Award Performance-Based Vesting
	# Shares	# Shares	Target # Shares
Andrew Obenshain	338,000	67,600	101,400 ⁽¹⁾
Thomas J. Klima	110,000	55,000	—
Richard A. Colvin	110,000	55,000	—

(1) Similar to the 2022 Performance-Based RSU Award, the performance-based restricted stock award granted to Mr. Obenshain in 2023 is earned based on relative total shareholder return compared to a peer group of companies in the Standard & Poor Biotechnology Index. The multiplier used to determine the number of earned performance-based restricted stock units could range between 0% and 200%, with a threshold achievement level at the 25th percentile (as compared to the peer median). These performance-based restricted stock units, to the extent earned, will vest in full on the third anniversary of the grant date, subject to Mr. Obenshain's continued service.

The equity awards granted to our named executive officers during 2022 and 2023, and the grant date fair values of those awards presented above and shown in the *Summary Compensation Table* below were determined in accordance with Financial Accounting Standards Board (FASB), Accounting Standards Codification (ASC), Topic 718.

Benefits and Other Compensation

Other compensation to our executives consists primarily of the broad-based benefits we provide to all full-time employees in the United States, including medical, dental and vision insurance, group life and disability insurance, an employee stock purchase plan and a 401(k) plan. Pursuant to our employee stock purchase plan, employees, including our

named executive officers, have an opportunity to purchase our common stock at a discount on a tax-qualified basis through payroll deductions. The employee stock purchase plan is designed to qualify as an “employee stock purchase plan” under Section 423 of the Internal Revenue Code. The purpose of the employee stock purchase plan is to encourage our employees, including our named executive officers, to become our stockholders and better align their interests with those of our other stockholders. Pursuant to our 401(k) plan, employees, including our named executive officers, may elect to defer a portion of their current compensation up to the statutorily prescribed annual limit (which was \$20,500 in 2022), with additional salary deferrals not to exceed \$27,000 available to those employees 50 years of age or older, and to have the amount of this deferral contributed to our 401(k) plan. We make discretionary matching contributions and other employer contributions on behalf of eligible employees under our 401(k) plan. For fiscal year 2022, we matched a portion of eligible employee contributions equal to 100% of the first 4% of eligible contributions pursuant to our 401(k) plan’s matching formula.

Currently, we do not view perquisites or other personal benefits as a significant component of our executive compensation program. Accordingly, we do not provide perquisites to our named executive officers, except in situations where we believe it is appropriate to assist an individual in the performance of his or her duties, to make him or her more efficient and effective, and for recruitment and retention purposes. All future practices with respect to perquisites or other personal benefits will be approved and subject to periodic review by our Compensation Committee.

Certain executives, including our named executive officers, may be entitled to certain severance and/or change in control protections pursuant to their employment agreements, which are described below under *Executive Officer and Director Compensation—Employment Arrangements with Our Named Executive Officers*. Our goal in providing severance and change in control benefits is to offer sufficient cash continuity protection such that our executives will focus their full time and attention on the requirements of the business rather than the potential implications for their respective position. We prefer to have certainty regarding the potential severance amounts payable to the named executive officers, rather than negotiating severance at the time that a named executive officer’s employment terminates.

Anti-Hedging and Anti-Pledging Policies; Insider Trading Policy

Our insider trading policy expressly prohibits short sales and derivative transactions of our stock by our named executive officers, directors and specified other employees, including short sales of our securities, including short sales “against the box”; purchases or sales of puts, calls or other derivative securities of the Company or any derivative securities that provide the economic equivalent of ownership of any of our securities or an opportunity, direct or indirect, to profit from any change in the value of our securities; or other hedging or monetization transactions accomplished through the use of prepaid variable forwards, equity swaps, collars and exchange funds. In addition, our insider trading policy expressly prohibits our named executive officers, directors and specified other employees from purchasing our securities on margin, borrowing against Company securities held in a margin account, or pledging our securities as collateral for a loan.

Clawback Policy

In 2017, our Compensation Committee and Board adopted a clawback policy that covers incentive compensation paid to our executive officers, including our Chief Executive Officer, Principal Financial Officer and our Principal Accounting Officer. The policy provides that if we are required to prepare an accounting restatement due to our material non-compliance with any financial reporting requirement and/or intentional misconduct by a covered executive, our Compensation Committee may require the covered executive to repay to us any excess compensation received by the covered executive during the covered period. For purposes of this policy, excess compensation means annual cash bonus and long-term equity incentive compensation that is in excess of the amount such covered executive would have received, if the annual cash bonus and/or long term equity incentive compensation had been determined based on the financial results reported in the restated financial statement. We expect to evaluate our clawback policy in light of the new rules covering the recoupment of incentive compensation issued by the SEC.

Share Ownership Guidelines

In 2017, our Compensation Committee and Board adopted share ownership guidelines applicable to our non-employee directors and our senior executive officers, including our Chief Executive Officer, to further align the interests of the leadership of the Company with those of our stockholders. The equity ownership guidelines are as set forth on the table below:

Covered Individuals	Applicable Stock Ownership Guideline
Chief Executive Officer	3x base salary
Other Senior Executive Officer	1x base salary
Non-Employee Director	3x annual cash retainer for service on the Board

Covered individuals and newly appointed or elected persons have five years to achieve the guideline. The following forms of equity will count toward the ownership guidelines: shares owned outright, vested but unexercised “in-the-money” stock options, and fifty percent of unvested restricted stock units. All senior executive officers and directors are currently meeting or are working to achieve these guidelines within the five-year time period.

Executive Compensation

Summary Compensation Table

The following table sets forth the total compensation awarded to, earned by and paid during the fiscal years ended December 31, 2022 and December 31, 2021 for each of our named executive officers.

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Option awards (\$)(1)	Stock awards (\$)(1)	Non-equity incentive plan compensation (\$)(2)	All other compensation (\$)(3)	Total (\$)
Andrew Obenshain.....	2022	643,390	—	421,830	351,000	386,280	12,200	1,814,700
<i>Chief Executive Officer</i>	2021	485,615	—	5,426,581	2,988,568	345,313	11,925	9,258,001
Thomas J. Klima.....	2022	435,769	—	325,232	267,050	207,000	12,200	1,247,251
<i>Chief Commercial and Operating Officer</i>	2021	253,846 ⁽⁴⁾	—	1,133,706	777,976	105,600 ⁽⁴⁾	8,607	2,279,794
Richard A. Colvin	2022	467,639	—	374,297	294,240	216,000	12,600	1,364,776
<i>Chief Medical Officer</i>								
Jason Cole ⁽⁵⁾	2022	413,919	—	234,350	195,000	—	606,201 ⁽⁶⁾	1,449,470
<i>Chief Strategy & Financial Officer (former)</i>	2021	440,123	200,000 ⁽⁷⁾	637,900	2,044,363	187,000	11,850	3,521,236

- (1) The amounts reported in the *Option awards* and *Stock awards* columns above represent the aggregate grant date fair value of the stock options and restricted stock units granted to such named executive officers during 2021 and 2022 as computed in accordance with FASB ASC 718, not including any estimates of forfeitures related to service-based vesting conditions. See note 15 of *Notes to Consolidated Financial Statements* in our Annual Report on Form 10-K filed with the SEC for the year ended December 31, 2022 for a discussion of assumptions made by the Company in determining the aggregate grant date fair value of our stock option and restricted stock unit awards. Note that the amounts reported in these columns reflect the accounting cost for these stock options and restricted stock units, and do not correspond to the actual economic value that may be received by the named executive officers from the stock options and restricted stock units. We also granted performance-based restricted stock unit awards to (i) Mr. Obenshain in 2021 and 2022, and (ii) Mr. Cole in 2021. The grant date fair value computed in accordance with FASB ASC 718 of these awards based on probable outcome as of the grant date is equal to their maximum grant date fair values.
- (2) Amounts represent cash payment under our annual cash incentive program earned in respect of 2022, based on achievement of performance goals. As Mr. Cole's employment terminated effective as of October 14, 2022, he was not eligible to receive a cash incentive payment under our annual program for 2022.
- (3) Amounts represent employer matching contributions to the executive's 401(k) plan account and certain other employee fringe benefits.
- (4) Mr. Klima's employment commenced May 10, 2021. The amounts reported in the Salary column and the Non-equity incentive plan compensation column for 2021 are prorated to reflect his start date.
- (5) Mr. Cole's employment with us terminated effective October 14, 2022, following which he continued to provide services as a consultant to aid with the transition of his duties and completion of certain specified transactions and projects.
- (6) Amount reflects consulting pay of \$7,067, severance payment of \$525,000, COBRA premiums of \$35,774, and vacation time payout of \$37,860, in addition to an internal group recognition award of \$200 and wellness reimbursement of \$300.
- (7) Amount reflects a special one-time bonus paid to Mr. Cole in recognition of his extraordinary efforts in connection with the 2021 separation of our severe genetic disease and oncology programs into two independent, publicly traded companies.

Outstanding Equity Awards at Fiscal Year End

The following table sets forth information concerning the outstanding equity awards held by each of the named executive officers as of December 31, 2022.

Name	Option Awards				Stock Awards			
	Number of securities underlying unexercised options (#) exercisable	Number of securities underlying unexercised options (#) unexercisable	Option exercise price (\$/share)	Option expiration date	Number of shares or units of stock that have not vested (#)	Market value of shares or units of stock that have not vested (\$) ⁽¹⁾	Equity incentive plan awards: number of unearned shares, units or other rights that have not vested (#)	Equity incentive plan awards: market or payout value of unearned shares, units or other rights that have not vested (\$) ⁽¹⁾
Andrew Obenshain	17,721	—	34.20	12/1/2026	—	—		
	9,353	—	102.24	2/1/2028	—	—		
	7,626	201 ⁽²⁾	67.06	2/1/2029	—	—		
	4,988	1,903 ⁽³⁾	36.78	3/2/2030	—	—		
	10,758	9,916 ⁽⁴⁾	26.45	11/2/2030	—	—		
	28,851	31,379 ⁽⁵⁾	14.17	2/16/2031	—	—		
	140,287	261,256 ⁽⁶⁾	12.76	8/2/2031	—	—		
	—	90,000 ⁽⁷⁾	7.80	2/1/2032	—	—		
					489 ⁽⁸⁾	3,384		
					1,723 ⁽⁹⁾	11,923		
					5,169 ⁽¹⁰⁾	35,769		
				22,587 ⁽¹¹⁾	156,302			
				18,000 ⁽¹²⁾	124,560			
						150,579 ⁽¹³⁾	1,042,007	
						27,000 ⁽¹⁴⁾	186,840	
Thomas J. Klima	39,728	60,657 ⁽¹⁵⁾	15.50	6/1/2031				
	—	50,000 ⁽⁷⁾	7.80	2/1/2032				
	—	22,000 ⁽¹⁶⁾	6.55	9/1/2032				
					37,644 ⁽¹⁷⁾	260,496		
					25,000 ⁽¹²⁾	173,000		
				11,000 ⁽¹⁸⁾	76,120			
Richard A. Colvin	11,134	—	64.83	11/1/2028				
	3,213	1,216 ⁽³⁾	36.78	3/2/2030				
	3,831	4,197 ⁽⁵⁾	14.17	2/16/2031				
	17,553	22,600 ⁽¹⁹⁾	14.99	3/1/2031				
	—	26,400 ⁽⁷⁾	7.80	2/1/2032				
	—	60,000 ⁽²⁰⁾	6.35	11/1/2032				
					1,108 ⁽⁹⁾	7,667		
					3,012 ⁽¹¹⁾	20,843		
				15,058 ⁽²¹⁾	104,201			
				13,300 ⁽¹²⁾	92,036			
				30,000 ⁽²²⁾	207,600			
Jason Cole	34,458	—	48.52	3/2/2025				
	8,799	—	25.16	3/1/2026				
	28,059	—	37.66	2/1/2027				

Name	Option Awards				Stock Awards			
	Number of securities underlying unexercised options (#) exercisable	Number of securities underlying unexercised options (#) unexercisable	Option exercise price (\$/share)	Option expiration date	Number of shares or units of stock that have not vested (#)	Market value of shares or units of stock that have not vested (\$) ⁽¹⁾	Equity incentive plan awards: number of unearned shares, units or other rights that have not vested (#)	Equity incentive plan awards: market or payout value of unearned shares, units or other rights that have not vested (\$) ⁽¹⁾
	24,613	—	102.24	2/1/2028				
	24,071	542 ⁽²⁾	67.06	2/1/2029				
	12,917	4,804 ⁽³⁾	36.78	3/2/2030				
	26,431	28,780 ⁽⁵⁾	14.17	2/16/2031				
	—	50,000 ⁽⁷⁾	7.80	2/1/2032				
					1,540 ⁽⁸⁾	10,657		
					4,430 ⁽⁹⁾	30,656		
					20,706 ⁽¹¹⁾	143,286		
					38,870 ⁽²³⁾	268,980		
					25,000 ⁽¹²⁾	173,000		
							38,868 ⁽²⁴⁾	268,967

- (1) All unvested stock options and restricted stock awards were granted under either our 2013 Stock Option and Incentive Plan or our Inducement Plan. The market value of the restricted stock unit award is based on the closing price of \$6.92 per share for our common stock on December 31, 2022, as reported on the NASDAQ Global Select Market.
- (2) Represents options to purchase shares of our common stock granted on February 1, 2019. The shares underlying these options vest as follows: 25% vested on January 4, 2020, with the remainder of the shares vesting in equal monthly installments over the following three years through January 4, 2023, subject to continued service with us through each applicable vesting date.
- (3) Represents options to purchase shares of our common stock granted on March 2, 2020. The shares underlying these options vest as follows: 25% vested on January 4, 2021, with the remainder of the shares vesting in equal monthly installments over the following three years through January 4, 2024, subject to continued service with us through each applicable vesting date.
- (4) Represents options to purchase shares of our common stock granted on November 2, 2020. The shares underlying these options vest as follows: 25% vested on November 2, 2021, with the remainder of the shares vesting in equal monthly installments over the following three years through November 2, 2024, subject to continued service with us through each applicable vesting date.
- (5) Represents options to purchase shares of our common stock granted on February 16, 2021. The shares underlying these options vest as follows: 25% vested on January 4, 2022, with the remainder of the shares vesting in equal monthly installments over the following three years through January 4, 2025, subject to continued service with us through each applicable vesting date.
- (6) Represents options to purchase shares of our common stock granted on August 2, 2021. The shares underlying these options vest as follows: 25% will vest on August 2, 2022, with the remainder of the shares vesting in equal monthly installments over the following three years through August 2, 2025, subject to continued service with us through each applicable vesting date.
- (7) Represents options to purchase shares of our common stock granted on February 1, 2022. The shares underlying these options vest as follows: 25% vested on February 1, 2023, with the remainder of the shares vesting in equal monthly installments over the following three years through February 1, 2026, subject to continued service with us through each applicable vesting date.
- (8) Restricted stock unit award final vest occurred on January 4, 2023, subject to continued service with us through each applicable vesting date.
- (9) Restricted stock unit award vests in two remaining equal annual installments through January 4, 2024, subject to continued service with us through each applicable vesting date.
- (10) Restricted stock unit award vests in two remaining equal annual installments through November 2, 2024, subject to continued service with us through each applicable vesting date.
- (11) Restricted stock unit award vests in three remaining equal annual installments through January 4, 2025, subject to continued service with us through each applicable vesting date.
- (12) Restricted stock unit award vests in four equal annual installments through February 1, 2026, subject to continued service with us through each applicable vesting date.
- (13) Performance-based restricted stock award is earned based on relative total shareholder return compared to a peer group of companies in the Standard & Poor Biotechnology Index; these performance-based restricted stock units, to the extent earned, will vest in full on February 1, 2025, subject to continued service.

- (14) Performance-based restricted stock award is earned based on relative total shareholder return compared to a peer group of companies in the Standard & Poor Biotechnology Index; these performance-based restricted stock units, to the extent earned, will vest in full on March 1, 2026, subject to continued service.
- (15) Represents options to purchase shares of our common stock granted on June 1, 2021. The shares underlying these options vest as follows: 25% will vest on May 10, 2022, with the remainder of the shares vesting in equal monthly installments over the following three years through May 10, 2025, subject to continued service with us through each applicable vesting date.
- (16) Represents options to purchase shares of our common stock granted on September 1, 2022. The shares underlying these options vest as follows: 25% will vest on September 1, 2023, with the remainder of the shares vesting in equal monthly installments over the following three years through September 1, 2026, subject to continued service with us through each applicable vesting date.
- (17) Restricted stock unit award vests in three remaining equal annual installments on June 1, 2023, June 1, 2024, and June 1, 2025, subject to continued service with us through each applicable vesting date.
- (18) Restricted stock unit award vests in four equal annual installments on September 1, 2023, September 1, 2024, September 1, 2025, and September 1, 2026, subject to continued service with us through each applicable vesting date.
- (19) Represents options to purchase shares of our common stock granted on March 1, 2021. The shares underlying these options vest as follows: 25% will vest on March 1, 2022, with the remainder of the shares vesting in equal monthly installments over the following three years through March 1, 2025, subject to continued service with us through each applicable vesting date.
- (20) Represents options to purchase shares of our common stock granted on November 1, 2022. The shares underlying these options vest as follows: 25% will vest on November 1, 2023, with the remainder of the shares vesting in equal monthly installments over the following three years through November 1, 2026, subject to continued service with us through each applicable vesting date.
- (21) Restricted stock unit award vests in three remaining equal annual installments on March 1, 2023, March 1, 2024, and March 1, 2025, subject to continued service with us through each applicable vesting date.
- (22) Restricted stock unit award vests in four equal annual installments November 1, 2023, November 1, 2024, November 1, 2025, and November 1, 2026, subject to continued service with us through each applicable vesting date.
- (23) Restricted stock unit award vests in one remaining annual installment on August 1, 2023, subject to continued service with us through each applicable vesting date.
- (24) Restricted stock unit award will vest upon the acceptance by the U.S. Food and Drug Administration of the Biologics Licensing Application for Iovo-cel for the treatment of patients with sickle cell disease subject to continued service.

Employment Arrangements with our Named Executive Officers

Andrew Obenshain. We have entered into an employment agreement, effective as of January 7, 2021, with Mr. Obenshain providing for his employment as the Company's President, Severe Genetic Disease. Mr. Obenshain currently serves as our Chief Executive Officer and Principal Executive Officer. Under his agreement Mr. Obenshain was initially entitled to receive a base salary of \$435,000 (which has been subsequently increased as described above), subject to adjustment at the discretion of the Compensation Committee. Mr. Obenshain is also currently eligible for an annual cash incentive award targeted at 60% of his annual base salary. Mr. Obenshain is eligible to participate in our employee benefit plans, subject to the terms of those plans.

Jason Cole. We previously entered into an employment agreement, effective as of February 3, 2014, as subsequently amended March 7, 2016 and November 3, 2016, with Mr. Cole providing for his employment as the Company's Chief Legal Officer.

Mr. Cole terminated from employment with us effective October 14, 2022. Pursuant to the terms of his employment agreement, including a separation agreement with Mr. Cole, in consideration for his execution of a release of claims as well as his agreement to provide consulting services for us for a period of time following the termination of his employment in order to aid with the transition of his duties and completion of certain transactions and projects, we agreed to pay Mr. Cole (a) his regular salary for fifty-two weeks, and (b) his COBRA premiums for medical, dental and vision insurance coverage through (A) the later of October 31, 2023 or the termination date of the Cole Consulting Agreement (defined below), or until (B) such earlier time as he would (i) obtain alternate medical, dental, and vision insurance or (ii) become ineligible for COBRA benefits. Under the Consulting Agreement (the "Cole Consulting Agreement") entered into with Mr. Cole, we agreed to pay him at a rate of \$252.40 per hour during the term of the Cole Consulting Agreement. The Cole Consulting Agreement is expected to expire on April 30, 2023.

Thomas J. Klima. We have entered into an employment agreement, effective as of April 20, 2021, with Mr. Klima providing for his employment as the Company's Chief Commercial Officer. Mr. Klima currently serves as our Chief Commercial and Operating Officer. Under his agreement Mr. Klima is entitled to receive a base salary of \$400,000 (which has been subsequently increased as described above), subject to adjustment at the discretion of the Compensation Committee. Mr. Klima is also eligible for an annual cash incentive award targeted at 45% of his annual base salary. Mr. Klima is eligible to participate in our employee benefit plans, subject to the terms of those plans.

Richard A. Colvin. We have entered into an employment agreement, effective as of October 31, 2022, with Dr. Colvin providing for his employment as the Company's Chief Medical Officer. Under his agreement Dr. Colvin is entitled to receive a base salary of \$480,000 (which has been subsequently increased as described above), subject to adjustment at the discretion of the Compensation Committee. Dr. Colvin is also eligible for an annual cash incentive award targeted at 45% of his annual base salary. Dr. Colvin is eligible to participate in our employee benefit plans, subject to the terms of those plans.

These employment agreements also contain provisions that provide for certain payments and benefits in the event of an involuntary termination of employment. In addition, the named executive officers may be entitled to accelerated vesting of their outstanding and unvested awards in certain circumstances as described below.

Involuntary termination of employment

Pursuant to their employment agreements, each named executive officer is (or in the case of Mr. Cole was) eligible to receive certain payments and benefits in the event his employment is terminated by us without "cause" (as defined in the employment agreements) or in the event he terminates his employment with "good reason" (as defined in the employment agreements). Upon the timely execution of a severance agreement, including a general release of claims, each named executive officer is eligible to receive the following payments and benefits:

- 12 months of base salary continuation; and
- if he elects to continue his or her group healthcare benefits, to the extent authorized by and consistent with COBRA, we will pay the named executive officer a monthly cash payment equal to the monthly employer contribution we would have made to provide him health insurance if he had remained employed by us until the earlier of (1) 12 months following the date of termination, or (2) the end of the named executive officer's COBRA health continuation period.

Sale event

In addition, in the event that any of our named executive officers terminates his or her employment with us for good reason or his or her employment with us is terminated by us without cause, in either case within 12 months following a "sale event" (as defined in the 2013 Stock Option and Incentive Plan), he or she will be entitled to receive the following payments and benefits (in lieu of the payments and benefits described above) upon the timely execution of a severance agreement, including a general release of claims:

- a lump sum cash payment equal to one times the sum of (1) the named executive officer's then-current base salary (or base salary in effect immediately prior to the sale event, if higher) and (2) the named executive officer's target annual cash incentive compensation; and
- if he or she elects to continue his or her group healthcare benefits, to the extent authorized by and consistent with COBRA, we will pay the named executive officer a monthly cash payment equal to the monthly employer contribution we would have made to provide him or her health insurance if he or she had remained employed by us until the earlier of (1) 12 months following the date of termination or (2) the end of the named executive officer's COBRA health continuation period; and
- all stock options and other stock-based awards granted to the named executive officer after the date of his or her employment agreement will become fully exercisable and non-forfeitable as of the date of the named executive officer's termination.

Pay vs. Performance

In accordance with rules adopted by the Securities and Exchange Commission pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, we provide the following disclosure regarding executive compensation for our principal executive officers ("PEOs") and Non-PEO Executive Officers ("Non-PEO NEOs") and certain measures of Company performance for the fiscal years listed below. The Compensation Committee did not consider the pay versus performance disclosure below in making its pay decisions for any of the years shown.

Year	Summary Compensation Table Total for Andrew Obenshain ¹ (\$)	Summary Compensation Table Total for Nick Leschly ¹ (\$)	Compensation Actually Paid to Andrew Obenshain ^{1,2,3} (\$)	Compensation Actually Paid to Nick Leschly ^{1,2,3} (\$)	Average Summary Compensation Table Total for Non-PEO NEOs ¹ (\$)	Average Compensation Actually Paid to Non-PEO NEOs ^{1,2,3} (\$)	Value of Initial Fixed \$100 Investment based on: ⁴	Net Income (\$ Thousands)
							TSR (\$)	
2022	1,814,700	-	(136,947)	-	1,353,832	850,656	26.80	(266,578)
2021	9,258,001	7,332,683	5,104,693	1,650,578	3,075,681	1,462,375	38.70	(819,378)

(1) Nick Leschly was our PEO until November 3, 2021. Andrew Obenshain has been our PEO starting November 4, 2021. The individuals comprising the Non-PEO NEOs for each year presented are listed below.

2021	2022
Gina Consylman	Thomas J. Klima
Jason Cole	Richard A. Colvin
Thomas J. Klima	Jason Cole
William D. Baird, III	
Philip Gregory	

- (2) The amounts shown for Compensation Actually Paid have been calculated in accordance with Item 402(v) of Regulation S-K and do not reflect compensation actually earned, realized, or received by the Company's NEOs. These amounts reflect the Summary Compensation Table Total with certain adjustments as described in footnote 3 below. On November 4, 2021, the Company completed the spin-off of 2seventy bio, Inc. All equity awards granted before January 1, 2021 were bifurcated into awards based in both Company stock and 2seventy bio, Inc. stock. The impact of this conversion has been incorporated into the calculation of Compensation Actually Paid in accordance with the methodologies disclosed in the Company's 2022 Form 10-K.
- (3) Compensation Actually Paid reflects the exclusions and inclusions of certain amounts for the PEOs and the Non-PEO NEOs as set forth below. Equity values are calculated in accordance with FASB ASC Topic 718. Amounts in the Exclusion of Stock Awards and Option Awards column are the totals from the Stock Awards and Option Awards columns set forth in the Summary Compensation Table. The fair values of RSUs, PSUs, and stock options included in the Compensation Actually Paid to our PEOs and the Average Compensation Actually Paid to our Non-PEO NEOs are calculated at the required measurement dates, consistent with the approach used to value the awards at the grant date as described in our Annual Report on Form 10-K for the year ended December 31, 2022. Any changes to the RSU and PSU fair values are based on our updated stock price at the respective measurement dates and updated performance metric projections (for PSUs). Changes to the stock option fair values are based on the updated stock price at the respective measurement dates, in addition to updated expected option life, volatility, dividend yield and risk-free rate assumptions. For all years presented, the meaningful increases or decreases in the year-end stock option fair value from the fair value on the grant date were primarily driven by changes in the stock price.

Year	Summary Compensation Table Total for Andrew Obenshain (\$)	Exclusion of Stock Awards and Option Awards for Andrew Obenshain (\$)	Inclusion of Equity Values for Andrew Obenshain (\$)	Compensation Actually Paid to Andrew Obenshain (\$)
2022	1,814,700	(772,830)	(1,178,817)	(136,947)
2021	9,258,001	(8,415,149)	4,261,841	5,104,693

Year	Summary Compensation Table Total for Nick Leschly (\$)	Exclusion of Stock Awards and Option Awards for Nick Leschly (\$)	Inclusion of Equity Values for Nick Leschly (\$)	Compensation Actually Paid to Nick Leschly (\$)
2021	7,332,683	(6,936,336)	1,254,231	1,650,578

Year	Average Summary Compensation Table Total for Non-PEO NEOs (\$)	Average Exclusion of Stock Awards and Option Awards for Non-PEO NEOs (\$)	Average Inclusion of Equity Values for Non-PEO NEOs (\$)	Average Compensation Actually Paid to Non-PEO NEOs (\$)
2022	1,353,832	(563,390)	60,214	850,656
2021	3,075,681	(2,599,455)	986,149	1,462,375

The amounts in the Inclusion of Equity Values in the tables above are derived from the amounts set forth in the following tables:

Year	Year-End Fair Value of Equity Awards Granted During Year That Remained Unvested as of Last Day of Year for Andrew Obenshain (\$)	Change in Fair Value from Last Day of Prior Year to Last Day of Year of Unvested Equity Awards for Andrew Obenshain (\$)	Vesting-Date Fair Value of Equity Awards Granted During Year that Vested During Year for Andrew Obenshain (\$)	Change in Fair Value from Last Day of Prior Year to Vesting Date of Unvested Equity Awards that Vested During Year for Andrew Obenshain (\$)	Fair Value at Last Day of Prior Year of Equity Awards Forfeited During Year for Andrew Obenshain (\$)	Total - Inclusion of Equity Values for Andrew Obenshain (\$)
2022	834,856	(1,211,481)	-	(802,192)	-	(1,178,817)
2021	5,019,932	(628,055)	58,729	(188,765)	-	4,261,841

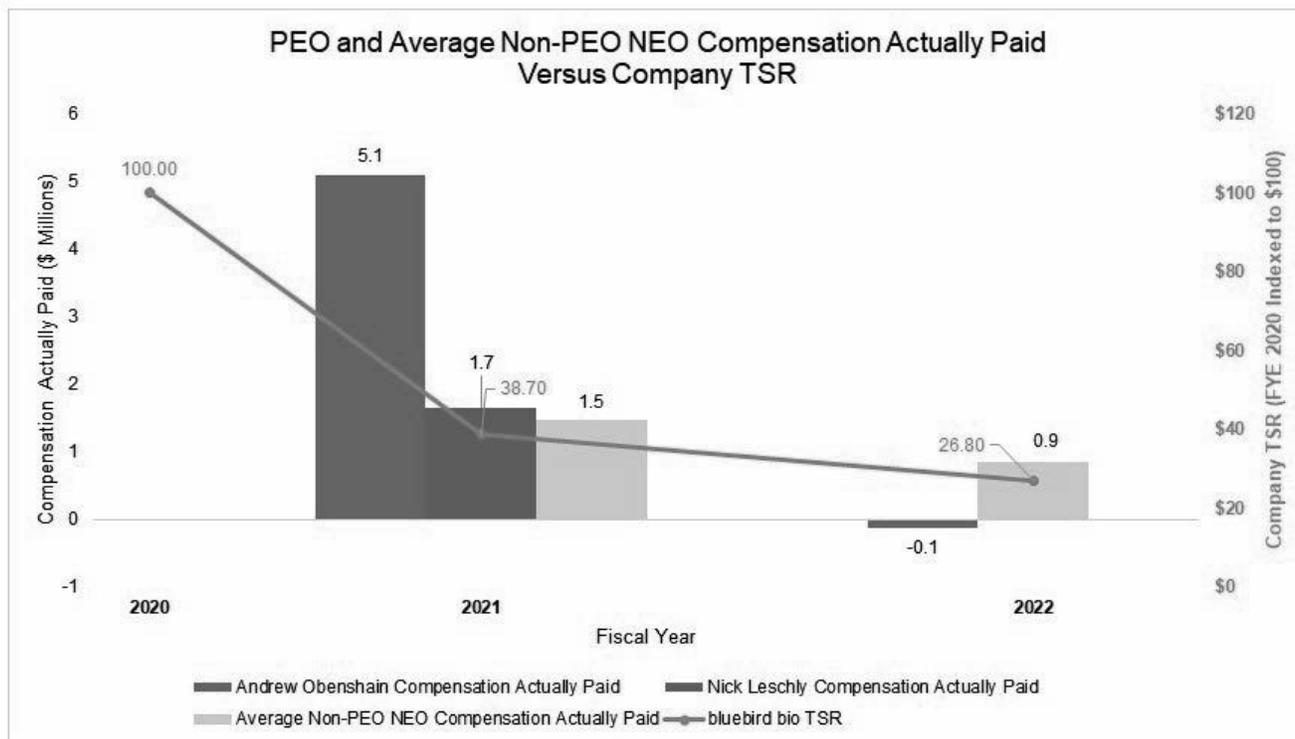
Year	Year-End Fair Value of Equity Awards Granted During Year That Remained Unvested as of Last Day of Year for Nick Leschly (\$)	Change in Fair Value from Last Day of Prior Year to Last Day of Year of Unvested Equity Awards for Nick Leschly (\$)	Vesting-Date Fair Value of Equity Awards Granted During Year that Vested During Year for Nick Leschly (\$)	Change in Fair Value from Last Day of Prior Year to Vesting Date of Unvested Equity Awards that Vested During Year for Nick Leschly (\$)	Fair Value at Last Day of Prior Year of Equity Awards Forfeited During Year for Nick Leschly (\$)	Total - Inclusion of Equity Values for Nick Leschly (\$)
2021	3,758,683	(1,990,694)	-	(513,758)	-	1,254,231

Year	Average Year-End Fair Value of Equity Awards Granted During Year That Remained Unvested as of Last Day of Year for Non-PEO NEOs (\$)	Average Change in Fair Value from Last Day of Prior Year to Last Day of Year of Unvested Equity Awards for Non-PEO NEOs (\$)	Average Vesting-Date Fair Value of Equity Awards Granted During Year that Vested During Year for Non-PEO NEOs (\$)	Average Change in Fair Value from Last Day of Prior Year to Vesting Date of Unvested Equity Awards that Vested During Year for Non-PEO NEOs (\$)	Average Fair Value at Last Day of Prior Year of Equity Awards Forfeited During Year for Non-PEO NEOs (\$)	Total - Average Inclusion of Equity Values for Non-PEO NEOs (\$)
2022	548,246	(276,150)	-	(220,882)	-	60,214
2021	1,630,641	(570,205)	36,790	(111,077)	-	986,149

(4) Assumes \$100 was invested in the Company for the period starting December 31, 2020, through the end of the listed year. Historical stock performance is not necessarily indicative of future stock performance.

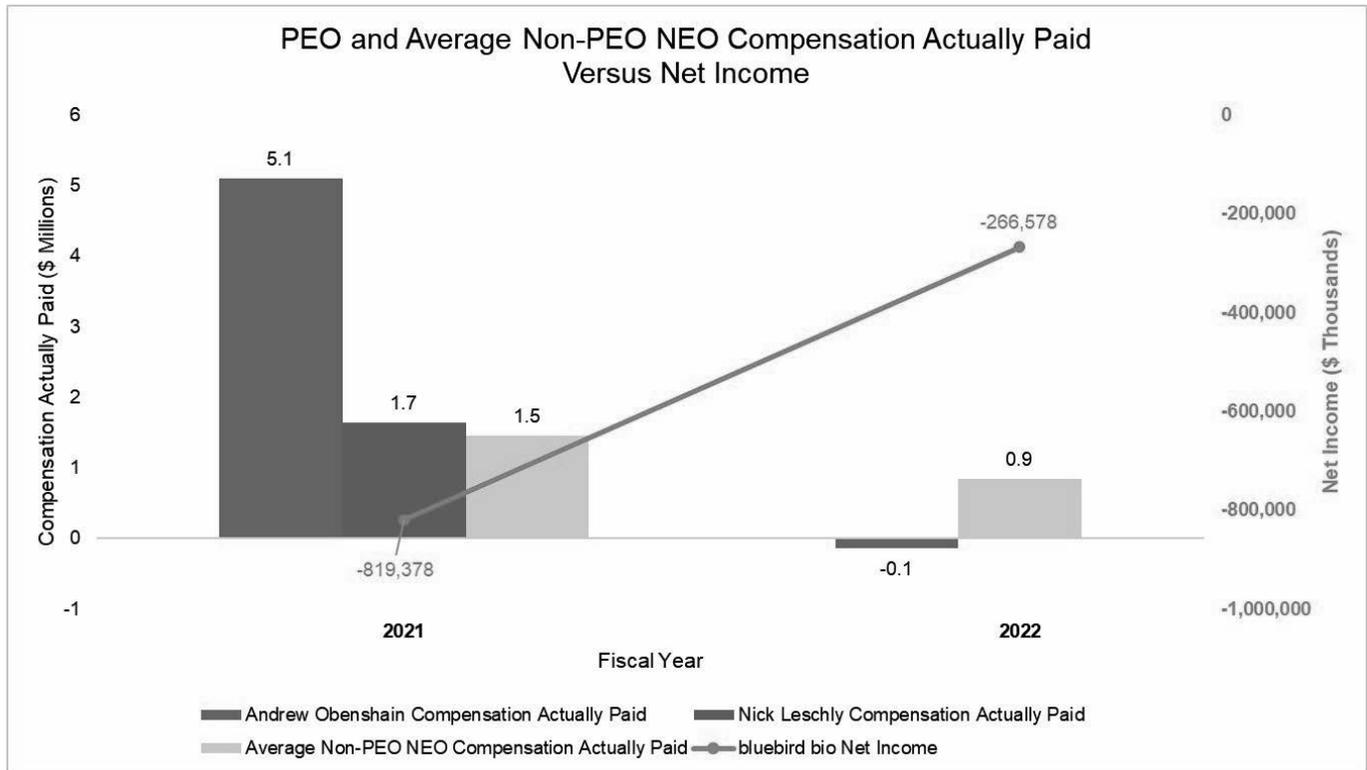
Description of Relationship Between PEOs and Non-PEO NEO Compensation Actually Paid and Company Total Shareholder Return (“TSR”)

The following chart sets forth the relationship between Compensation Actually Paid to our PEOs, the average of Compensation Actually Paid to our Non-PEO NEOs, and the Company’s cumulative TSR over the two most recently completed fiscal years.



Description of Relationship Between PEOs and Non-PEO NEO Compensation Actually Paid and Net Income

The following chart sets forth the relationship between Compensation Actually Paid to our PEOs, the average of Compensation Actually Paid to our Non-PEO NEOs, and our Net Income during the two most recently completed fiscal years.



Director Compensation

The Compensation Committee of our Board is responsible for making recommendations to our Board on appropriate compensation levels and arrangements for our non-employee directors, ensuring they are consistent with our compensation policy and remain competitive with our peer companies. The Compensation Committee reviews our non-employee director compensation on an annual basis. In making recommendations, the Compensation Committee takes various factors into consideration, including:

- Non-employee directors’ responsibilities and the form and amount of compensation paid to directors at our peer companies;
- Ability to retain and attract the most qualified and experienced non-employee directors to oversee the management of our business operations; and
- Advice of an independent compensation consultant to review our non-employee director compensation program and promote alignment with market practice and stockholder interests.

Our goal is to appropriately compensate non-employee directors for their leadership and expertise while aligning non-employee director interests with those of our stockholders. In line with this goal, our non-employee director compensation policy is underpinned by the same philosophy and principles that govern our executive compensation program. The Compensation Committee generally targeted non-employee director compensation near the 50th percentile of compensation paid non-employee directors with the companies in our peer group.

Our non-employee director compensation program is designed to:

- ✓ Align non-employee director and stockholder interests through grants of non-statutory stock option awards and restricted stock units;
- ✓ Encourage a vested interest in our long-term business performance through stock ownership requirements;
- ✓ Align non-employee director compensation with our peer companies of comparable stage of development, market capitalization and size;

- ✓ Ensure a robust non-employee director compensation governance framework is in place; and
- ✓ Help us attract and retain talent for Board service to support the long-term value of the Company.

Based on these considerations, our Board has adopted a non-employee director compensation policy, which provides for annual cash retainers. The non-executive chair of our Board and the chair of each of our committees is entitled to greater compensation for his or her services than other members of our Board, which we believe is commensurate with the additional time commitment and additional responsibility required by the position held and is consistent with the compensation practices of our peer group companies. The table below sets forth the cash retainer applicable to our directors in 2022.

Annual cash retainers under the Non-Employee Director Compensation Policy	2022 Cash Retainer (\$)
Board:	
All non-employee members of the Board	\$ 45,000
Additional retainer for non-executive chair of the Board	\$ 35,000
Audit Committee:	
Additional retainer for chair of the Audit Committee	\$ 18,000
Additional retainer for other members of the Audit Committee	\$ 9,000
Compensation Committee:	
Additional retainer for chair of the Compensation Committee	\$ 15,000
Additional retainer for other members of the Compensation Committee	\$ 7,500
Nominating and Corporate Governance Committee:	
Additional retainer for chair of the Nominating and Corporate Governance Committee	\$ 10,000
Additional retainer for other members of the Nominating and Corporate Governance Committee	\$ 5,000

In addition, under our non-employee director compensation policy, new members of our Board are eligible for an initial equity grant under our stock option plan. The initial equity grant takes the form of a grant of stock options and restricted stock units that vest in equal annual installments over a three-year period. In addition, on the date of the annual meeting of stockholders, each continuing non-employee director who has served on the Board for a minimum of six months will be eligible to receive an annual equity grant in the form stock options and restricted stock units. These annual equity grants will vest in full upon the earlier of the first anniversary of the date of grant or the date of the following annual meeting of stockholders. The number of shares subject to the initial equity grants and the annual equity grants are summarized in the table below. The non-executive chair of our Board is eligible to receive an additional equity grant with a value that is greater than those of the other members of the Board, which we believe is commensurate with the additional time commitment and additional responsibility that the chair of our Board takes on. In the case of each initial equity grant and annual equity grant, the Board or Compensation Committee may exercise their discretion to provide for a different number of shares subject to equity awards in the event they determine a variation from the stated amount is warranted. All of the foregoing options are granted with an exercise price equal to the fair market value of our common stock on the date of grant. The equity grant policy applicable to our directors in 2022 is summarized below.

Equity grants under the Non-Employee Director Compensation Policy	Stock options (# of shares)	Restricted Stock Units (# of shares)
Initial equity grant	7,500	4,663
Annual equity grant	5,000	3,109
Additional initial equity grant for non-executive chair of the Board	2,000	1,244
Additional annual equity grant for non-executive chair of the Board	2,000	1,244

In April 2023, the Board, upon recommendation from the Compensation Committee and to further align certain director compensation to be within the 50th percentile of director compensation of the Company's peer group, approved the following changes to both director cash and equity compensation:

- Increased the compensation paid to the Audit Committee chair by \$2,000 and for members serving on the Audit Committee by \$1,000.
- Adjusted initial equity grants for new Board members to 32,400 stock options and 16,185 restricted stock units, and for annual equity grants to 21,600 stock options and 10,790 restricted stock units.

The following table sets forth the compensation we paid to our non-employee directors during the year ended December 31, 2022. Other than as set forth in the table we did not pay any compensation, reimburse any expense of (other than reasonable out-of-pocket expenses to attend meetings of the Board or any committee), make any equity awards or non-

equity awards to, or pay any other compensation to any of the other non-employee members of our Board in the year ended December 31, 2022. Mr. Obenshain, our current Chief Executive Officer, received no compensation for his service as a director, and, consequently, is not included in this table. The compensation received by Mr. Obenshain as an employee during the year ended December 31, 2022 is presented in the *Summary Compensation Table* above.

Name(1)	Fees earned or paid in cash\$(2)	Option awards\$(2)	Stock awards\$(2)	Total(\$)
John O. Agwunobi, M.D.	64,000	13,440	13,866	91,306
Mark Vachon	104,000	18,816	19,414	142,230
Elisabeth Leiderman, M.D.	70,500	13,440	13,866	97,806
Najoh Tita-Reid	57,500	13,440	13,866	84,806
Charlotte Jones-Burton, M.D., M.S. (3)	40,871	33,384	34,616	108,871
Nick Leschly	— (4)	13,440	13,866	27,306

- (1) The aggregate number of shares of our common stock underlying stock options outstanding as of December 31, 2022 for the non-employee directors were: Dr. Agwunobi: 36,401, Mr. Vachon: 39,189, Dr. Leiderman: 20,057, Ms. Tita-Reid: 20,057, Dr. Jones-Burton: 12,500, and Mr. Leschly: 807,403. The aggregate number of restricted stock units outstanding as of December 31, 2022 for the non-employee directors was: Dr. Agwunobi: 3,109, Mr. Vachon: 4,353, Dr. Leiderman: 9,351, Ms. Tita-Reid: 9,351, Dr. Jones-Burton: 7,772, and Mr. Leschly: 25,261. Mr. Leschly's stock option and restricted stock unit amounts include equity awards granted to him from his time as the former CEO of bluebird.
- (2) The amounts reported represent the aggregate grant date fair value of the stock options and restricted stock units granted to our non-employee directors during 2022 as computed in accordance with FASB ASC Topic 718, not including any estimates of forfeitures. See note 15 of *Notes to Consolidated Financial Statements* in our Annual Report on Form 10-K filed with the SEC on March 29, 2023 for a discussion of assumptions made by the Company in determining the aggregate grant date fair value of our stock option and restricted stock unit awards for the fiscal year ended December 31, 2022. Note that the amounts reported in this column reflect the accounting cost for these grants, and do not correspond to the actual economic value that may be received by the non-employee directors from the exercise of the options or vesting of the restricted stock units.
- (3) Dr. Jones-Burton joined our Board in March 2022.
- (4) Mr. Leschly elected to not receive the cash portion of his compensation.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The following table sets forth the amount of common stock of bluebird beneficially owned, directly or indirectly, as of April 11, 2023, by (i) each current director of bluebird, (ii) each named executive officer of bluebird, (iii) all directors and executive officers of bluebird as a group, and (iv) each person who is known to bluebird to beneficially own more than five percent (5%) of the outstanding shares of common stock of bluebird, as determined through SEC filings, and the percentage of the common stock outstanding represented by each such amount. All shares of common stock shown in the table reflect sole voting and investment power except as otherwise noted.

Beneficial ownership is determined by the rules of the SEC and includes voting or investment power of the securities. As of April 11, 2023, bluebird had 106,383,498 shares of common stock outstanding. Shares of common stock subject to options to purchase, which are now exercisable or are exercisable within 60 days after April 11, 2023, or restricted stock units vesting within 60 days after April 11, 2023 are to be considered outstanding for purposes of computing the percentage ownership of the persons holding these options or other rights but are not to be considered outstanding for the purpose of computing the percentage ownership of any other person. Unless otherwise indicated, the address for each person listed below is c/o bluebird bio, Inc., 455 Grand Union Boulevard, Somerville, Massachusetts 02145.

Name and Address of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned
5% Stockholders		
State Street Corporation (1)	11,683,114	10.9%
BlackRock, Inc. (2)	7,367,181	6.9%
PFM Health Sciences, LP (3)	6,021,843	5.7%
Directors and Named Executive Officers		
Nick Leschly (4)	1,233,910	1.2%
John Agwunobi, M.D. (5)	47,075	*
Charlotte Jones-Burton, M.D., M.S. (6)	7,163	*
Elisabeth Leiderman, M.D. (7)	10,243	*
Richard Paulson	—	—
Najoh Tita-Reid (8)	11,247	*
Mark Vachon (9)	46,440	*
Jason Cole (10)	191,905	*
Richard A. Colvin (11)	160,129	*
Thomas J. Klima (12)	162,267	*
Andrew Obenshain (13)	535,647	*
All executive officers and directors as a group (12 persons) (14)	2,214,121	2.1%

* Represents holdings of less than 1%.

- (1) Based solely on a Schedule 13G/A reporting beneficial ownership as of February 28, 2023, filed with the SEC on March 10, 2023, State Street Corporation has shared voting power with respect to 11,579,272 shares and shared dispositive power with respect to 11,683,114 shares, and SSGA Funds Management, Inc. has shared voting power with respect to 9,995,131 shares and shared dispositive power with respect to 10,009,531 shares. The address of each of these entities is State Street Financial Center, 1 Lincoln Street, Boston, Massachusetts 02111.
- (2) Based solely on a Schedule 13G/A reporting beneficial ownership as of December 31, 2022, filed with the SEC on January 25, 2023, BlackRock, Inc. has sole voting power with respect to 7,110,236 shares and sole dispositive power with respect to 7,367,181 shares. The address of BlackRock, Inc. is 55 East 52nd Street, New York, New York 10055.
- (3) Based solely on a Schedule 13G reporting beneficial ownership as of April 11, 2023, filed with the SEC on April 21, 2023, PFM Health Sciences, LP ("PFM"), PFM Health Sciences GP, LLC ("PFM-GP"), Partner Asset Management, LLC ("PAM"), and Brian D. Grossman ("Mr. Grossman" and, collectively with PFM, PFM-GP, and PAM, the "PFM Reporting Persons") share voting and dispositive power with respect to 6,021,843 shares of common stock held by PFM Healthcare Master Fund, L.P. ("HCM") and PFM Biotech Opportunities LP ("BO" and, collectively with HCM, the "Funds"). PFM is the investment advisor for the Funds. PAM is the general partner of the Funds. PFM-GP is the general partner of PFM and the manager of PAM. Mr. Grossman is the sole member of PFM-GP. The address of the principal business office of each of the PFM Reporting Persons is c/o PFM Health Sciences, LP, 475 Sansome Street, Suite 1720, San Francisco, California 94111.
- (4) Consists of 437,739 shares of common stock and 796,171 shares of common stock underlying options exercisable within 60 days of April 11, 2023. Such shares include 45,699 shares of common stock held in the Nick Leschly 2001 Trust for which Mr. Leschly is co-trustee with his spouse, and with whom he

shares voting and dispositive power, and 123,000 shares of common stock held in the Nick Leschly Irrevocable GST Trust of 2019 for which Mr. Leschly is co-trustee with his spouse, and with whom he shares voting and dispositive power.

- (5) Consists of 12,565 shares of common stock and 34,510 shares of common stock underlying options exercisable and restricted stock units vesting within 60 days of April 11, 2023.
- (6) Consists of 1,554 shares of common stock and 5,609 shares of common stock underlying options exercisable and restricted stock units vesting within 60 days of April 11, 2023.
- (7) Consists of 2,115 shares of common stock and 8,128 shares of common stock underlying options exercisable and restricted stock units vesting within 60 days of April 11, 2023.
- (8) Consists of 3,119 shares of common stock and 8,128 shares of common stock underlying options exercisable and restricted stock units vesting within 60 days of April 11, 2023.
- (9) Consists of 9,898 shares of common stock and 36,542 shares of common stock underlying options exercisable and restricted stock units vesting within 60 days of April 11, 2023.
- (10) Consists of 6,250 shares of common stock and 185,655 shares of common stock underlying options exercisable and restricted stock units vesting within 60 days of April 11, 2023.
- (11) Consists of 24,044 shares of common stock and 136,085 shares of common stock underlying options exercisable and restricted stock units vesting within 60 days of April 11, 2023.
- (12) Consists of 14,785 shares of common stock and 147,482 shares of common stock underlying options exercisable and restricted stock units vesting within 60 days of April 11, 2023.
- (13) Consists of 55,722 shares of common stock and 479,925 shares of common stock underlying options exercisable and restricted stock units vesting within 60 days of April 11, 2023.
- (14) Consists of 561,541 shares of common stock and 1,652,580 shares of common stock underlying options exercisable and restricted stock units vesting within 60 days of April 11, 2023.

Equity compensation plan information

The following table presents aggregate summary information as of December 31, 2022, regarding our existing equity compensation plans.

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options, Restricted Stock Units and Other Rights (a)	Weighted Average Exercise Price of Outstanding Options (b)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (excluding securities reflected in the column (a)) (c)
Equity Compensation Plans Approved by Stockholders (1)	6,953,174 (2)	\$ 24.38 (3)	6,970,493 (4)(5)
Equity Compensation Plans Not Approved by Stockholders (6)	421,617	\$ 11.49	828,383
Total	<u>7,374,791</u>	<u>\$ 35.87</u>	<u>7,798,876</u>

- (1) Consists of the 2013 Stock Option and Incentive Plan and the 2013 Employee Stock Purchase Plan (the "ESPP").
- (2) Includes 2,524,377 shares subject to restricted stock units and 3,586,091 shares to be issued upon the exercise of outstanding stock options.
- (3) The calculation does not take into account the 2,524,377 shares of common stock subject to outstanding restricted stock units. Such shares will be issued at the time the restricted stock units vest, without any cash consideration payable for those shares.
- (4) Consists of shares available for future issuance under the ESPP and the 2013 Stock Option and Incentive Plan. As of December 31, 2022, 1,279,312 shares of common stock were available for issuance under the ESPP, and 5,738,820 shares of common stock were available for issuance under the 2013 Stock Option and Incentive Plan. The ESPP purchase period in effect as of December 31, 2022 ended on that date. The outstanding rights to purchase shares under the ESPP were exercised as of December 31, 2022 and resulted in a reduction in the shares available for issuance under the ESPP.
- (5) Our 2013 Stock Option and Incentive Plan contains an "evergreen" provision, which allowed for an annual increase in the number of shares of stock available for issuance under the plan on the first day of each year during the term of the plan. The number of shares increased by four percent of the number of shares of common stock issued and outstanding on the immediately preceding December 31, or such lesser number of shares determined by our Board or Compensation Committee. Our 2013 Stock Option and Incentive Plan will expire in June 2023.
- (6) We established an Inducement Plan in May 2021 (the "Inducement Plan") to be used exclusively for the grant of equity awards to prospective officers and employees who were not previously an employee or non-employee director as an inducement material to each such individual entering into employment with us. The Inducement Plan initially reserved 600,000 shares, which was later increased to an aggregate of 1,250,000 shares in January, 2022, for the issuance of awards to such individuals of non-qualified stock options, stock appreciation rights, restricted stock units, restricted stock awards, stock awards and/or dividend equivalent rights in the discretion of the plan administrator and in accordance with Nasdaq rules. Our Compensation Committee currently administers the Inducement Plan.

PROPOSAL 3
APPROVAL OF AN AMENDMENT TO THE AMENDED AND RESTATED CERTIFICATE OF INCORPORATION TO INCREASE THE NUMBER OF AUTHORIZED SHARES OF COMMON STOCK

Our Amended and Restated Certificate of Incorporation (the "Certificate of Incorporation") currently authorizes the issuance of 125,000,000 shares of common stock, par value \$0.01 per share (the "Common Stock"). On March 24, 2023, our Board adopted a resolution to amend the Certificate of Incorporation, subject to stockholder approval, by increasing the number of authorized shares of our Common Stock to 250,000,000 shares (the "Share Increase Amendment"). The additional 125,000,000 shares of Common Stock authorized for issuance pursuant to the proposed Share Increase Amendment would be part of the existing class of Common Stock and, if and when issued, would have the same rights and privileges as the shares of Common Stock presently issued and outstanding. The holders of Common Stock are not entitled to preemptive rights or cumulative voting.

The Share Increase Amendment will not affect the number of authorized shares of preferred stock of the Company, par value \$0.01 per share (the "Preferred Stock"), which is 5,000,000 shares. Currently, there are no shares of Preferred Stock issued and outstanding.

The following table illustrates the effect the proposed Share Increase Amendment would have on the number of shares of Common Stock available for issuance, if approved by our stockholders:

	As of April 11, 2023	Upon Effectiveness of Amendment
TOTAL AUTHORIZED SHARES OF COMMON STOCK	125,000,000	250,000,000
Outstanding shares of Common Stock	106,383,498	106,383,498
Shares of Common Stock authorized for future issuance under the Company's incentive plans ⁽¹⁾	1,558,793	1,558,793
Shares of Common Stock authorized for future issuance under the Company's employee stock purchase plan	1,216,673	1,216,673
Shares of Common Stock authorized for future issuance under the Company's inducement plan	828,383	828,383
Shares of Common Stock subject to outstanding equity awards under the Company's incentive plans	10,692,751	10,692,751
Shares of Common Stock subject to outstanding options under the Company's employee stock purchase plan	—	—
Shares of Common Stock subject to outstanding equity awards under the Company's inducement plan	421,617	421,617
Shares of Common Stock subject to outstanding warrants	2,272,727	2,272,727
TOTAL OUTSTANDING SHARES OF COMMON STOCK, SHARES OF COMMON STOCK SUBJECT TO OUTSTANDING EQUITY AWARDS AND OPTIONS, SHARES OF COMMON STOCK AUTHORIZED FOR FUTURE ISSUANCE UNDER THE COMPANY'S INCENTIVE, EMPLOYEE STOCK PURCHASE AND INDUCEMENT PLANS, AND SHARES OF COMMON STOCK SUBJECT TO OUTSTANDING WARRANTS	123,374,442	123,374,442
SHARES OF COMMON STOCK AVAILABLE FOR ISSUANCE	1,625,558	126,625,558

(1) Does not include shares of Common Stock that would be authorized for future issuance under the bluebird bio, Inc. 2023 Incentive Award Plan, if approved.

As indicated in the table above, 85.1% of our authorized shares are outstanding as of April 11, 2023, and the settlement of all of our currently outstanding equity awards and warrants and grant of new equity awards under our incentive compensation plans up to the full number of shares available under the plans would result in the issuance of 98.7% of our authorized shares of Common Stock. Therefore, our Board believes it is in the best interests of the Company and our stockholders to increase our authorized shares of Common Stock in order to have additional shares available for use as our Board deems appropriate or necessary, including having shares available to settle our outstanding equity awards and warrants and to grant new equity awards using shares authorized under our incentive plans. As such, the primary purpose of the Share Increase Amendment is to provide the Company with greater flexibility with respect to managing its Common Stock in connection with such corporate purposes as may, from time to time, be considered advisable by our Board. These corporate purposes could include, without limitation, financing activities, public or private offerings, stock dividends or splits, conversions of convertible securities, issuance of options and other equity awards pursuant to our employee benefit plans,

establishing a strategic relationship with a corporate partner and acquisition transactions. Having an increased number of authorized but unissued shares of Common Stock would allow us to take prompt action with respect to corporate opportunities that develop, without the delay and expense of convening a special meeting of stockholders for the purpose of approving an increase in our capitalization. Our Board will determine whether, when and on what terms the issuance of shares of Common Stock may be warranted in connection with any of the foregoing purposes.

Other than shares that will be reserved for issuance under our existing incentive plans, employee stock purchase plan and inducement plan, we do not currently have any other arrangements, agreements or understandings that would require the issuance of additional shares of Common Stock. Because our directors and executive officers have outstanding equity awards under our incentive plans, and may be granted additional equity awards under these plans, they may be deemed to have an indirect interest in the Share Increase Amendment, because absent the amendment, the Company may not have sufficient authorized shares to settle or grant such awards.

The Share Increase Amendment will not have any immediate effect on the rights of existing stockholders. However, our Board will have the authority to issue authorized Common Stock without requiring future stockholder approval of such issuances, except as may be required by applicable law or rules of the Nasdaq Stock Market. Future issuances of Common Stock or securities convertible into or exchangeable for Common Stock could have a dilutive effect on our earnings per share, book value per share and the voting power and interest of current stockholders.

Our Board has not proposed the Share Increase Amendment with the intention of discouraging tender offers or takeover attempts of the Company. However, the availability of additional authorized shares for issuance could, under certain circumstances, discourage or make more difficult efforts to obtain control of our Company. This proposal is not being presented with the intent that it be used to prevent or discourage any acquisition attempt, but nothing would prevent our Board from taking any appropriate actions not inconsistent with its fiduciary duties. We do not have a poison pill plan and have not made any non-shareholder approved repricings of our equity awards.

If our stockholders approve this proposal, then the first sentence of Article IV of our Certificate of Incorporation will be deleted and replaced in its entirety to read as follows:

“The total number of shares of capital stock which the Corporation shall have authority to issue is two hundred fifty-five million (255,000,000) of which (i) two hundred fifty million (250,000,000) shares shall be a class designated as common stock, par value \$0.01 per share (the “Common Stock”), and (ii) five million (5,000,000) shares shall be a class designated as undesignated preferred stock, par value \$0.01 per share (the “Undesignated Preferred Stock”).”

Effect of Approval of Proposed Amendment

If the Share Increase Amendment is approved by stockholders, all other sections of the Certificate of Incorporation would be maintained in their current form. The Share Increase Amendment would become effective upon the filing of a Certificate of Amendment to our Certificate of Incorporation with the Secretary of State of the State of Delaware, which the Company would do promptly after the Annual Meeting. In the event that the Share Increase Amendment is not approved by our stockholders at the Annual Meeting, the current Certificate of Incorporation would remain in effect in its entirety. Our Board reserves the right, notwithstanding stockholder approval of the Share Increase Amendment and without further action by our stockholders, not to proceed with the Share Increase Amendment at any time before it becomes effective.

Dissenters' Rights of Appraisal

Under Delaware law, stockholders are not entitled to appraisal rights with respect to the Share Increase Amendment, and we will not independently provide our stockholders with any such right.

THE BOARD UNANIMOUSLY RECOMMENDS THAT YOU VOTE

FOR

THE APPROVAL OF THE AMENDMENT TO THE AMENDED AND RESTATED CERTIFICATE OF INCORPORATION TO INCREASE THE NUMBER OF AUTHORIZED SHARES OF COMMON STOCK OF THE COMPANY FROM 125,000,000 TO 250,000,000

(PROPOSAL 3 ON YOUR PROXY CARD)

PROPOSAL 4
APPROVAL OF THE 2023 INCENTIVE AWARD PLAN

On April 18, 2023, the Board adopted, subject to stockholder approval, the bluebird bio, Inc. 2023 Incentive Award Plan (the "2023 Plan"). The 2023 Plan is intended to replace our 2013 Stock Option and Incentive Plan (the "2013 Plan"), which will, by its terms, expire in June 2023. Upon stockholder approval of the 2023 Plan, the 2023 Plan will become effective and will supersede and replace in its entirety the 2013 Plan, and no further awards will be granted under the 2013 Plan; however, the terms and conditions of the 2013 Plan will continue to govern any outstanding awards granted thereunder. If the 2023 Plan is not approved by our stockholders, it will not become effective, and we may only continue to grant awards under the 2013 Plan until its expiration in June 2023, using the shares available for issuance thereunder. Furthermore, after such time, we would not have an equity incentive plan in place under which equity awards can be granted to existing employees, directors, advisors or consultants which would prohibit us from making our annual equity grants in 2024. We believe that our stock-based compensation programs have been integral to our success in the past and are critical to our ability to succeed in the future. The inability to make competitive equity awards to attract and retain talented employees in a highly competitive market could have an adverse impact on our business. Further, if the 2023 Plan is not approved, we could be forced to increase cash compensation, which will reduce the resources we have allocated to meeting our business needs and objectives. Therefore, the approval of the 2023 Plan is vital to our future success.

Employees and consultants of the Company and its subsidiaries, as well as members of our Board, are eligible to receive awards under the 2023 Plan. We grant all of our 345 employees equity awards upon hire and on an annual basis, which we believe is an integral part of their total compensation package. The 2023 Plan provides for the grant of stock options, including incentive stock options ("ISOs") and nonqualified stock options ("NSOs"), stock appreciation rights ("SARs"), restricted stock, restricted stock units ("RSUs"), performance bonus awards, performance stock units, other stock or cash-based awards, and dividend equivalents to eligible individuals.

The Board approved a share reserve under the 2023 Plan equal to 5,200,000 shares of our common stock. In addition, as described below, if an award under the 2023 Plan or, after the effective date of the 2023 Plan, the 2013 Plan expires, lapses or is terminated, is converted into an award in respect of shares of another entity in connection with a spin-off or other similar event, exchanged or settled for cash, surrendered, repurchased, cancelled without having been fully exercised or forfeited, in any case, in a manner that results in us acquiring the underlying shares at a price not greater than the price paid by the participant for such shares or not issuing the underlying shares, such unused shares subject to the award at such time will be available for future grants under the 2023 Plan.

In designing the 2023 Plan, we sought to implement current compensation and governance best practices to ensure the 2023 Plan furthers our compensation plan objectives and supports long-term stockholder interests.

Approval of the 2023 Plan will constitute approval pursuant to the stockholder approval requirements of Section 422 of the U.S. Internal Revenue Code of 1986, as amended (the "Code"), relating to ISOs.

Background on Share Request

In its determination to approve the 2023 Plan, our Board reviewed our historical share usage, certain burn rate metrics, the anticipated costs of the 2023 Plan and other considerations outlined below in conjunction with information provided by our independent compensation consultant, Human Capital Solutions practice of Aon Consulting, Inc. ("Aon"). Specifically, our Board considered the following:

- In determining the reasonableness of the 2023 Plan share reserve, our Board considered our historic burn rate, described below under "Key Equity Metrics." The 5,200,000 new shares represents 4.9% of common shares outstanding as of April 11, 2023 which our Board believes is a reasonable request under the 2023 Plan.
- We expect the share authorization under the 2023 Plan to provide us with enough shares for awards for approximately one year, assuming we continue to grant awards consistent with our current practices and historical usage. We cannot predict our future equity grant practices, the future price of our shares or future hiring activity with any degree of certainty at this time, and the share reserve under the 2023 Plan could last for a shorter or longer period of time. Accordingly, the Board carefully balanced the request for additional equity to hire and retain talent to drive our share strategy and the need to return to our shareholders for approval of more shares in a short period of time.

- If shareholders do not approve the 2023 Plan at the Annual Meeting, we may be unable to continue granting equity awards as needed, which could prevent us from successfully attracting and retaining the highly skilled talent we need.

We believe that the adoption of the 2023 Plan is essential to our success. Equity awards are intended to incentivize, retain, and motivate participants and align the interests of our directors, employees and consultants with those of our shareholders. Our Board and management believe that equity awards are necessary to remain competitive in our industry and are essential to recruiting and retaining the best talent in a crucial period of growth for the Company. In light of the factors described above, our Board has determined that the size of the share reserve under the 2023 Plan is reasonable and appropriate at this time. The proposed 2023 Plan does not include an evergreen provision (which the 2013 Plan contains) and we include several features that we believe are consistent with protecting the interests of our stockholders and sound corporate governance practices, as described below.

Key Features of the 2023 Plan

- *No liberal share counting.* The 2023 Plan prohibits the reuse of shares withheld or delivered to satisfy the exercise price of a stock option or to satisfy tax withholding requirements with respect to stock options or stock awards.
- *No repricing of awards without stockholder approval.* Under the 2023 Plan, awards may not be repriced without stockholder approval if the effect would be to reduce the exercise price for the shares underlying the award.
- *No evergreen feature; stockholder approval required for share reserve increases.* The 2023 Plan does not provide for an annual increase in the share reserve, and the 2023 Plan may not be amended to increase the share reserve without stockholder approval.
- *Limit on Non-Employee Director Awards.* The sum of the grant date fair value of all equity-based awards and the maximum amount that may become payable pursuant to all cash-based awards that may be as compensation for services as a non-employee director during any calendar year may not exceed \$750,000; provided that such maximum amount will not exceed \$1,000,000 in the calendar year of any such non-employee director's initial election or appointment to the Board.
- *No reload options or SARs.* No additional stock options or SARs may contain a provision entitling the award holder to automatic grant of additional options or SARs in connection with any exercise of the original option or SAR.
- *No discounted options or SARs.* All options and SARs must have an exercise or measurement price that is at least equal to the fair market value of the underlying common stock on the date of grant.
- *No payment of dividends on unvested awards.* Under the 2023 Plan, no dividends or dividend equivalents in respect of shares underlying an unvested award may be paid until the award vests and no dividend or dividend equivalents may be paid on outstanding stock options or SARs.
- *All awards are subject to clawback.* All awards granted under the 2023 Plan are subject to our clawback policy.
- *Independent plan administrator.* The Compensation Committee, consisting of independent members of our board of directors, is charged with the administration of the 2023 Plan.
- *No accelerated vesting.* The 2023 Plan does not have automatic accelerated vesting provisions for awards in connection with a change in control (other than in connection with the non-assumption of awards).

Key Equity Metrics

- *Overhang.* "Overhang" is a measure of potential dilution which we define as the sum of (i) the total number of shares underlying all equity awards outstanding and (ii) the total number of shares available for future award grants, divided by (iii) the number of shares of common stock outstanding. On April 11, 2023, the Company had an aggregate of 106,383,498 shares of common stock outstanding and a total of approximately 1,558,793 shares of common stock reserved for issuance and available for future grants under the 2013 Plan and 828,383 shares of common stock reserved for issuance and available for future grants under the Inducement Plan. As of April 11, 2023, there were approximately 6,069,490 stock options outstanding with a weighted average exercise price of \$36.71, of which 6,047,090 are currently underwater, and 4,623,261 RSUs outstanding under the 2013 Plan, 4,305,414 of which were subject solely to time-based vesting conditions, and 317,847 of which were subject to performance-based vesting conditions (with performance-based awards counted assuming "target" performance). Additionally, as of April 11, 2023, there were 271,040 stock options outstanding with a weighted average exercise price of \$23.06 (all of which are underwater), and 150,577 of RSUs outstanding under the Inducement Plan, all of which are subject to time-based vesting. If the 5,200,000 shares proposed to be authorized for grant under the 2023 Plan are included in the calculation, our overhang on April 11, 2023 would have been 17.2%.

- **Burn Rate.** “Burn Rate” measures how quickly we use shares and is calculated by dividing (a) the number of shares subject to equity awards granted during the applicable fiscal year (excluding performance-based vesting RSUs granted in the applicable fiscal year, but including performance-based vesting RSUs that are earned during the applicable year) by (b) the weighted average number of shares of our common stock outstanding during the applicable fiscal year. The following table provides information regarding the grant of equity awards over the past three completed fiscal years and which we considered in setting the number of shares available for issuance under the 2023 Plan:

Fiscal Year	Stock Options	Time-Based RSUs Granted	Performance-Based RSUs Granted ⁽¹⁾	Actual Performance Based RSUs Earned ⁽²⁾	Total Granted ⁽³⁾	Weighted Average # of Shares	Burn Rate
2020	1,585,293	877,358	141,000	65,378	2,528,029	62,177,749	4.1 %
2021	1,238,018	2,963,957	395,031	112,350	4,314,325	68,910,001	6.3 %
2022	1,194,060	1,685,151	27,000	76,103	2,955,314	78,584,574	3.8 %

Average Three-Year Burn Rate (2020-2022) 4.7%

(1) Reflects target number of performance-vesting RSUs granted in applicable fiscal year.

(2) Reflects the performance-vesting RSUs for which the performance criteria was certified as attained and earned during such fiscal year.

(3) Total number of shares granted in a particular fiscal year includes all stock options and time-vesting RSUs granted during such fiscal year, and performance-vesting RSUs for which the performance criteria was certified as attained and earned during such fiscal year.

Summary of 2023 Plan

A summary of the principal provisions of the 2023 Plan is set forth below. The summary is qualified by reference to the full text of the 2023 Plan, which is attached as Appendix A to this Proxy Statement.

Administration

The Compensation Committee (or, with respect to awards to non-employee directors, our Board) (together, the “administrator”) is charged with the general administration of the 2023 Plan. The 2023 Plan provides that, subject to certain limitations, our Board and the Compensation Committee may from time to time delegate its authority to grant awards to a committee consisting of one or more members of our Board or the Compensation Committee or one or more of our officers. Subject to the terms and conditions of the 2023 Plan, the administrator will have the authority to select the persons to whom awards are to be made; to determine the type of awards to be granted, the number of shares to be subject to awards and the terms and conditions of awards; to determine when awards can be settled in cash, shares, or other property or whether an award may be cancelled, forfeited or surrendered; to accelerate vesting or lapse restrictions; and to make all other determinations and to take all other actions necessary or advisable for the administration of the 2023 Plan. The administrator will also be authorized to adopt, amend or repeal rules relating to the administration of the 2023 Plan.

Eligibility

Persons eligible to participate in the 2023 Plan include all members of the Board (currently comprised of 7 non-employee directors), approximately 345 employees of the Company and its subsidiaries, and approximately 50 consultants of the Company and its subsidiaries, in each case, as determined by the administrator of the 2023 Plan. Only employees may be granted ISOs under the 2023 Plan.

Shares Available and Limitations on Awards

If our stockholders approve the 2023 Plan, the number of shares available for issuance under the 2023 Plan will be equal to 5,200,000 shares of our common stock. The maximum number of shares that may be issued under the 2023 Plan upon the exercise of ISOs is 5,200,000.

If all or any part of an award under the 2023 Plan or, after the effective date of the 2023 Plan, the 2013 Plan, expires, lapses or is terminated, converted into an award in respect of shares of another entity in connection with a spin-off or other similar event, exchanged or settled for cash, surrendered, repurchased, cancelled without having been fully exercised or forfeited, in any case, in a manner that results in us acquiring the underlying shares at a price not greater than the price paid by the participant for such shares or not issuing the underlying shares, such unused shares subject to the award at such time will be available for future grants under the 2023 Plan. In addition, the following items will not be counted against the shares available for issuance under the 2023 Plan: (i) the payment of dividends or dividend equivalents in cash in conjunction with any outstanding awards; (ii) any awards which are settled in cash rather than by issuance of shares; and (iii) shares issued in assumption of, or in substitution for, any outstanding awards of any entity acquired in any form of combination by us or any

of our subsidiaries, except shares acquired upon the exercise of ISOs will count against the maximum number of shares that may be issued under the 2023 Plan pursuant to the exercise of ISOs.

The following types of shares will not be added back to the shares available for issuance under the 2023 Plan: (i) shares tendered by a participant or withheld by us in payment of the exercise price of an option; (ii) shares tendered by a participant or withheld to satisfy any tax withholding obligation with respect to an award; (iii) shares subject to a SAR that are not issued in connection with the stock settlement of the SAR on exercise; and (iv) shares purchased on the open market with the cash proceeds from the exercise of options.

In addition, under the 2023 Plan, the sum of the grant date fair value (determined as of the grant date in accordance with Financial Accounting Standards Board Accounting Standards Codification Topic 718) of all equity-based awards and the maximum amount that may become payable pursuant to all cash-based awards that may be granted to a service provider as compensation for services as a non-employee director during any calendar year may not exceed \$750,000; provided that such maximum amount will not exceed \$1,000,000 in the calendar year of any such non-employee director's initial election or appointment to the Board.

As of April 11, 2023, the closing price of a share of our common stock on Nasdaq was \$2.99.

Awards

The 2023 Plan provides that the administrator may grant or issue stock options, SARs, restricted stock, RSUs, performance bonus awards, performance stock units, other stock or cash-based awards, dividend equivalents, or any combination thereof. Each award will be set forth in a separate agreement with the person receiving the award and will indicate the type, terms and conditions of the award.

- *Nonqualified Stock Options* will provide for the right to purchase shares of our common stock at a specified price which may not be less than fair market value on the date of grant, and usually will become exercisable (at the discretion of the administrator) in one or more installments after the grant date, subject to the participant's continued employment or service with us and/or subject to the satisfaction of corporate performance targets and individual performance targets established by the administrator. NSOs may be granted for any term specified by the administrator that does not exceed ten years.
- *Incentive Stock Options* will be designed in a manner intended to comply with the provisions of Section 422 of the Code and will be subject to specified restrictions contained in the Code. Among such restrictions, ISOs must have an exercise price of not less than the fair market value of a share of our common stock on the date of grant, may only be granted to employees, and must not be exercisable after a period of ten years measured from the date of grant. In the case of an ISO granted to an individual who owns (or is deemed to own) at least 10% of the total combined voting power of all classes of our capital stock, the 2023 Plan provides that the exercise price must be at least 110% of the fair market value of a share of common stock on the date of grant and the ISO must not be exercisable after a period of five years measured from the date of grant.
- *Restricted Stock* may be granted to any eligible individual and made subject to such restrictions as may be determined by the administrator. Restricted stock typically may be forfeited for no consideration or repurchased by us at the original purchase price if the conditions or restrictions on vesting are not met. In general, restricted stock may not be sold or otherwise transferred until restrictions are removed or expire. Purchasers of restricted stock, unlike recipients of options, will have voting rights and will have the right to receive dividends, if any, prior to the time when the restrictions lapse, however, dividends will not be paid until the restrictions are removed and the vesting conditions are met.
- *Restricted Stock Units* may be awarded to any eligible individual, typically without payment of consideration, but subject to vesting conditions based on continued employment or service or on performance criteria established by the administrator. Like restricted stock, RSUs may not be sold, or otherwise transferred or hypothecated, until vesting conditions are removed or expire. Unlike restricted stock, stock underlying RSUs will not be issued until the RSUs have vested, and recipients of RSUs generally will have no voting or dividend rights prior to the time when vesting conditions are satisfied.
- *Stock Appreciation Rights* may be granted in connection with stock options or other awards, or separately. SARs granted in connection with stock options or other awards typically will provide for payments to the holder based upon increases in the price of our common stock over a set exercise price. The exercise price of any SAR granted under the 2023 Plan must be at least 100% of the fair market value of a share of our common stock on the date of grant. SARs under the 2023 Plan will be settled in cash or shares of our common stock, or in a combination of both, at the election of the administrator.

- *Performance Bonus Awards and Performance Stock Units* are denominated in cash or share/unit equivalents, respectively, and may be linked to one or more performance or other criteria as determined by the administrator.
- *Other Stock or Cash Based Awards* are awards of cash, fully vested shares of our common stock and other awards valued wholly or partially by referring to, or otherwise based on, shares of our common stock. Other stock or cash based awards may be granted to participants and may also be available as a payment form in the settlement of other awards, as standalone payments and as payment in lieu of base salary, bonus, fees or other cash compensation otherwise payable to any individual who is eligible to receive awards. The administrator will determine the terms and conditions of other stock or cash based awards, which may include vesting conditions based on continued service, performance and/or other conditions.
- *Dividend Equivalents* represent the right to receive the equivalent value of dividends paid on shares of our common stock and may be granted alone or in tandem with awards other than stock options or SARs. Dividend equivalents are converted to cash or shares by such formula and such time as determined by the administrator. In addition, dividend equivalents with respect to an award subject to vesting will either (i) to the extent permitted by applicable law, not be paid or credited or (ii) be accumulated and subject to vesting to the same extent as the related award.

Any award may be granted as a performance award, meaning that the award will be subject to vesting and/or payment based on the attainment of specified performance goals.

Prohibition on Repricing

Except in connection with a corporate transaction involving the Company, the terms of outstanding awards may not be amended without the approval of our stockholders to (i) reduce the exercise price per share of outstanding options or SARs or (ii) cancel outstanding options or SARs in exchange for cash or other awards when the exercise price of such option or SAR exceeds the fair market value of the underlying shares.

Awards Subject to Clawback

All awards (including any proceeds, gains or other economic benefit actually or constructively received by a participant) granted under the 2023 Plan will be subject to our clawback policy.

Adjustment Upon Certain Events

The administrator has broad discretion to take action under the 2023 Plan, as well as to make adjustments to the terms and conditions of existing and future awards, to prevent the dilution or enlargement of intended benefits and facilitate necessary or desirable changes in the event of certain transactions and events affecting our common stock, such as stock dividends, stock splits, mergers, acquisitions, consolidations, change in control events, and other corporate transactions. Notwithstanding the foregoing, in the event of a change in control in which awards are not assumed, continued or substituted by the successor entity or parent thereof, as of the effective time of such change in control the 2023 Plan and all outstanding awards thereunder will terminate and, subject to the applicable award agreements, any time-based awards will fully vest and become exercisable and any performance-based awards may become vested and exercisable in the administrator's discretion. In addition, in the event of certain non-reciprocal transactions with our stockholders known as "equity restructurings," the administrator will make equitable adjustments to the 2023 Plan and outstanding awards.

Foreign Participants, Transferability, and Participant Payments

The administrator may modify awards granted to participants who are foreign nationals or employed outside the United States or establish subplans or procedures to address differences in laws, rules, regulations or customs of such foreign jurisdictions. Except as the administrator may determine or provide in an award agreement, awards under the 2023 Plan are generally non-transferrable, except by will or the laws of descent and distribution, or, subject to the administrator's consent, pursuant to a domestic relations order, and are generally exercisable only by the participant. With regard to tax withholding obligations arising in connection with awards under the 2023 Plan, and exercise price obligations arising in connection with the exercise of stock options under the 2023 Plan, the administrator may, in its discretion, accept cash, wire transfer or check, shares of common stock that meet specified conditions, a "market sell order," such other consideration as the administrator deems suitable, or any combination of the foregoing.

Plan Amendment and Termination

The administrator may amend, suspend, or terminate the 2023 Plan at any time. However, we must generally obtain stockholder approval to the extent required by applicable law, rule or regulation (including any applicable stock exchange

rule), and generally no amendment may materially and adversely affect any outstanding award without the affected participant's consent.

No ISOs may be granted pursuant to the 2023 Plan after the tenth anniversary of the date the Board approved the 2023 Plan. Any award that is outstanding on the termination date of the 2023 Plan will remain in force according to the terms of the 2023 Plan and the applicable award agreement.

Material U.S. Federal Income Tax Consequences

The following is a general summary under current law of the principal United States federal income tax consequences related to awards under the 2023 Plan. This summary deals with the general federal income tax principles that apply and is provided only for general information. Some kinds of taxes, such as state, local and foreign income taxes and federal employment taxes, are not discussed. This summary is not intended as tax advice to participants, who should consult their own tax advisors.

- *Nonqualified Stock Options.* If a participant is granted an NSO under the 2023 Plan, the participant should not have taxable income on the grant of the option. Generally, the participant should recognize ordinary income at the time of exercise in an amount equal to the fair market value of the shares acquired on the date of exercise, less the exercise price paid for the shares. The participant's basis in the common stock for purposes of determining gain or loss on a subsequent sale or disposition of such shares generally will be the fair market value of our common stock on the date the participant exercises such option. Any subsequent gain or loss will be taxable as a long-term or short-term capital gain or loss. We or our subsidiaries or affiliates generally should be entitled to a federal income tax deduction at the time and for the same amount as the participant recognizes ordinary income.
- *Incentive Stock Options.* A participant should not recognize taxable income upon grant or exercise of an ISO. However, the excess of the fair market value of the shares of our common stock received upon exercise over the option exercise price is an item of tax preference income potentially subject to the alternative minimum tax. If stock acquired upon exercise of an ISO is held for a minimum of two years from the date of grant and one year from the date of exercise and otherwise satisfies the ISO requirements, the gain or loss (in an amount equal to the difference between the fair market value on the date of disposition and the exercise price) upon disposition of the stock will be treated as a long-term capital gain or loss, and we will not be entitled to any deduction. If the holding period requirements are not met, the ISO will be treated as one that does not meet the requirements of the Code for ISOs and the participant will recognize ordinary income at the time of the disposition equal to the excess of the fair market value of the shares at the time of exercise over the exercise price (or if less, the amount realized in the disposition over the exercise price), with any remaining gain or loss being treated as capital gain or capital loss. We or our subsidiaries or affiliates generally are not entitled to a federal income tax deduction upon either the exercise of an ISO or upon disposition of the shares acquired pursuant to such exercise, except to the extent that the participant recognizes ordinary income on disposition of the shares.
- *Other Awards.* The current federal income tax consequences of other awards authorized under the 2023 Plan generally follow certain basic patterns: SARs are taxed and deductible in substantially the same manner as NSOs; nontransferable restricted stock subject to a substantial risk of forfeiture results in income recognition equal to the excess of the fair market value over the price paid, if any, only at the time the restrictions lapse (unless the recipient elects to accelerate recognition as of the date of grant through a Code Section 83(b) election, in which case ordinary income is recognized on the date of grant in an amount equal to the excess of the fair market value of the shares on the date of grant over the price paid, if any); and restricted stock units, dividend equivalents and other stock or cash based awards are generally subject to tax at the time of payment. We or our subsidiaries or affiliates generally should be entitled to a federal income tax deduction at the time and for the same amount as the participant recognizes ordinary income.
- *Limitation on the Employer's Compensation Deduction.* Section 162(m) of the Code limits the deduction certain employers may take for otherwise deductible compensation payable to certain executive officers of the employer to the extent the compensation paid to such an officer for the year exceeds \$1 million.
- *Section 409A of the Code.* Certain types of awards under the 2023 Plan may constitute, or provide for, a deferral of compensation subject to Section 409A of the Code. Unless certain requirements set forth in Section 409A of the Code are complied with, holders of such awards may be taxed earlier than would otherwise be the case (e.g., at the time of vesting instead of the time of payment) and may be subject to an additional 20% penalty tax (and, potentially, certain interest, penalties and additional state taxes). To the extent applicable, the 2023 Plan and awards granted under the 2023 Plan are generally intended to be structured and interpreted in a manner intended to either comply with or be exempt from Section 409A of the Code and the Department of Treasury regulations and other interpretive guidance that may be issued under Section 409A of the Code.

New Plan Benefits

Other than with respect to annual grants of stock options and RSUs to our non-employee directors that will be made on the date of the Annual Meeting (reflected in the table below), all future awards under the 2023 Plan (assuming it is approved by stockholders) are subject to the discretion of the administrator and are not currently determinable, and therefore it is not possible to determine the benefits that will be received in the future by other participants in the 2023 Plan.

Name and Position	Dollar Value (\$)	Number of Options (#)	Number of RSUs (#)
<i>Named Executive Officers</i>			
Andrew Obenshain, Chief Executive Officer and Director	—	—	—
Thomas J. Klima, Chief Commercial and Operating Officer	—	—	—
Richard A. Colvin, Chief Medical Officer	—	—	—
Jason Cole, Former Chief Strategy and Financial Officer	—	—	—
<i>All current executive officers as a group</i>	—	—	—
<i>All current directors who are not executive officers as a group</i>	(1)	935,607 ⁽¹⁾	48,154 ⁽¹⁾
<i>All employees who are not executive officers as a group</i>	—	—	—

(1) Each non-employee director serving on our Board on the date of our Annual Meeting (other than Richard Paulson who joined our Board within the past six months in April 2023 and so is ineligible to receive an annual equity award) will be awarded 10,790 RSUs and 21,600 options pursuant to our non-employee director compensation policy. The dollar value of the RSUs and options to be granted to non-employee directors is not included in the table above because the value of their equity awards will depend on the per share closing price of our common stock on the date of the Annual Meeting.

To be approved, the votes cast FOR this proposal must exceed the votes cast AGAINST this proposal. Only FOR and AGAINST votes will affect the outcome of the vote on this proposal. Abstentions and broker non-votes will have no effect on the outcome of the vote on this proposal.

**THE BOARD UNANIMOUSLY RECOMMENDS THAT YOU VOTE
FOR
THE APPROVAL OF THE 2023 INCENTIVE AWARD PLAN
(PROPOSAL 4 ON YOUR PROXY CARD)**

CERTAIN RELATIONSHIPS AND RELATED PERSON TRANSACTIONS

Procedures for related party transactions

We have adopted a related person transaction approval policy that governs the review of related person transactions at bluebird. Pursuant to this policy, if we want to enter into a transaction with a related person or an affiliate of a related person, our Chief Legal and Business Officer will review the proposed transaction to determine, based on applicable Nasdaq and SEC rules, if such transaction requires pre-approval by the Audit Committee and/or Board. If pre-approval is required, such matters will be reviewed at the next regular or special Audit Committee and/or Board meeting. In addition, our Compensation Committee charter requires that compensation arrangements with our executive officers be approved by our Compensation Committee. We may not enter into a related person transaction unless our Chief Legal and Business Officer has either specifically confirmed in writing that no further reviews are necessary or has confirmed that all requisite corporate reviews have been obtained.

Transactions with related persons

The following are certain transactions, arrangements and relationships with our directors, executive officers and stockholders owning 5% or more of our outstanding common stock, or any member of the immediate family of any of the foregoing persons, since January 1, 2021, other than equity and other compensation, termination, change in control and other arrangements, which are described under "Executive Officer and Director Compensation."

Agreements with 2seventy bio, Inc.

In connection with the 2021 separation of our severe genetic disease and oncology programs into two independent, publicly traded companies (the "Separation"), we entered into a separation agreement with 2seventy bio that, among other things, set forth bluebird's agreements with 2seventy bio regarding the principal actions to be taken in connection with the Separation. Nick Leschly, our former Chief Executive Officer, William D. Baird, III, our former Chief Financial Officer, and Philip Gregory, our former Chief Scientific Officer, are executive officers of 2seventy bio, and Mr. Leschly is a member of our Board. The separation agreement identified assets transferred to, liabilities assumed by and contracts assigned to 2seventy bio as part of the Separation, and it provided for when and how these transfers, assumptions and assignments occurred. The purpose of the separation agreement was to provide 2seventy bio and bluebird with assets to operate their respective businesses and retain or assume liabilities related to those assets. Each of 2seventy bio and bluebird agreed to releases, with respect to pre-Separation claims, and cross indemnities, with respect to post-Separation claims, that were principally designed to place financial responsibility for the obligations and liabilities allocated to 2seventy bio under the separation agreement with 2seventy bio and financial responsibility for the obligations and liabilities allocated to bluebird under the separation agreement with bluebird. bluebird and 2seventy bio are also each subject to mutual 12-month employee non-solicit and non-hire restrictions, subject to certain customary exceptions.

In connection with the Separation, we also entered into two transition services agreements with 2seventy bio. Pursuant to the transition services agreements, we are obligated to provide and are entitled to receive certain transition services related to corporate functions, such as finance, human resources, internal audit, research and development, financial reporting, and information technology. Services provided by us to 2seventy bio will continue for an initial term of up to two years, unless earlier terminated or extended according to the terms of the transition services agreement. Services received and performed are paid at a mutually agreed upon rate. During the years ended December 31, 2022 and 2021, we incurred \$8.8 million and \$0.7 million, respectively, of net expense for services provided by 2seventy bio. In April 2022, we and 2seventy bio agreed to amend certain terms of the transition services agreement to reduce our occupancy of a shared facility with 2seventybio and reduce the related fees.

We also entered into a tax matters agreement with 2seventy bio governing bluebird's and 2seventy bio's respective rights, responsibilities and obligations with respect to taxes (including taxes arising in the ordinary course of business and taxes, if any, incurred as a result of any failure of the distribution and certain related transactions to qualify as tax-free for U.S. federal income tax purposes), tax attributes, the preparation and filing of tax returns, the control of audits and other tax proceedings, and assistance and cooperation in respect of tax matters.

In addition, we entered into an employee matters agreement with 2seventy bio. The employee matters agreement allocates assets, liabilities and responsibilities relating to the employment, compensation and employee benefits of bluebird and 2seventy bio employees, and other related matters, in connection with the Separation, including the treatment of outstanding bluebird incentive equity awards and certain retirement and welfare benefit obligations. The employee matters agreement generally provides that, unless otherwise specified, 2seventy bio is responsible for liabilities associated with employees who transfer to 2seventy bio and employees whose employment terminated prior to the distribution but who primarily supported the 2seventy bio business, and bluebird is responsible for liabilities associated with other employees,

including employees retained by bluebird. Pursuant to the employee matters agreement, the outstanding bluebird equity awards held by 2seventy bio and bluebird employees were adjusted immediately prior to the distribution, with the intent to maintain, immediately following the distribution, the economic value of the awards immediately before the distribution date.

We additionally entered into an intellectual property license agreement with 2seventy bio, pursuant to which each party granted a license to certain intellectual property and technology to the other. bluebird granted 2seventy bio a perpetual, worldwide, non-exclusive, royalty-free, fully paid-up license (or, as the case may be, sublicense) to certain intellectual property to allow 2seventy bio to use such intellectual property in connection with 2seventy bio's ongoing and future research and development activities and product candidates. 2seventy bio granted bluebird a perpetual, worldwide, non-exclusive, royalty-free, fully paid-up license (or, as the case may be, sublicense) to certain intellectual property for use in bluebird's existing products and product candidates. Such licenses between the parties generally allow current or future uses of the intellectual property in connection with each party's respective fields.

Delinquent Section 16(a) Reports

Section 16(a) of the Securities Exchange Act of 1934, as amended, requires our executive officers and directors (and persons who own more than 10% of our equity securities) to file reports of ownership and changes in ownership with the SEC. Based solely on our review of forms filed electronically with the SEC and written representations from the reporting persons, the Company has determined that no reporting person known to it was delinquent with respect to their reporting obligations as of April 28, 2023, other than as previously disclosed, except for a late Form 4 filed on March 9, 2023 for Elisabeth Leiderman, M.D. to report the sale of shares sold for tax withholding obligations.

AUDIT COMMITTEE REPORT (1)

The Audit Committee has reviewed our audited financial statements for the fiscal year ended December 31, 2022 and has discussed these statements with management and representatives of Ernst & Young LLP, the independent registered public accounting firm. Our management is responsible for the preparation of our financial statements and for maintaining an adequate system of disclosure controls and procedures and internal control over financial reporting for that purpose. Ernst & Young LLP is responsible for expressing an opinion on the conformity of the audited financial statements with generally accepted accounting principles, their judgments as to the quality, not just the acceptability, of our accounting principles and such other matters as are required to be discussed with the Audit Committee under audit standards of the Public Company Accounting Oversight Board (PCAOB). The Audit Committee is responsible for providing independent, objective oversight of our accounting functions and internal controls.

The Audit Committee also received from, and discussed with, members of Ernst & Young LLP the written disclosures and other communications that our independent registered public accounting firm is required to provide to the Audit Committee, including the applicable requirements of the PCAOB and the SEC. PCAOB Audit Standards require our independent registered public accounting firm to discuss with the Audit Committee, among other things, the following:

- methods to account for significant unusual transactions;
- the effect of significant accounting policies in controversial or emerging areas for which there is a lack of authoritative guidance or consensus;
- the process used by management in formulating particularly sensitive accounting estimates and the basis for the independent registered public accounting firm's conclusions regarding the reasonableness of those estimates; and
- disagreements with management regarding financial accounting and reporting matters and audit procedures.

Ernst & Young LLP also provided the Audit Committee with the written disclosures and the letter required by Rule 3526 of the PCAOB. PCAOB Rule 3526 requires independent registered public accounting firms annually to disclose in writing all relationships that in their professional opinion may reasonably be thought to bear on independence, to confirm their perceived independence and engage in a discussion of independence. The Audit Committee has reviewed this disclosure and has discussed with members of Ernst & Young LLP their independence from us.

Based on its discussions with management and our independent registered public accounting firm, and its review of the representations and information provided by management and our independent registered public accounting firm, the Audit Committee recommended to the Board that the audited financial statements be included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, for filing with the SEC.

Respectfully submitted by the Audit Committee,

Elisabeth Leiderman, M.D., Chairperson
John O. Agwunobi, M.D.
Mark Vachon

(1) This Section is not "soliciting material," is not deemed filed with the SEC and is not to be incorporated by reference in any filing of the Company under the Securities Act of 1933 or the Securities Exchange Act of 1934, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

**PROPOSAL 5
RATIFICATION OF THE SELECTION OF INDEPENDENT REGISTERED PUBLIC
ACCOUNTING FIRM**

The firm of Ernst & Young LLP, the independent registered public accounting firm, has been selected by the Audit Committee as auditors for bluebird for the fiscal year ending December 31, 2023. Ernst & Young LLP has served as the independent registered public accounting firm for bluebird since 2012. A representative of Ernst & Young LLP is expected to be present at the Annual Meeting with the opportunity to make a statement if he or she desires and to respond to appropriate questions.

Our organizational documents do not require that the stockholders ratify the selection of Ernst & Young LLP as our independent registered public accounting firm. bluebird requests such ratification as a matter of good corporate practice. The selection of Ernst & Young LLP as our independent registered public accounting firm will be ratified if the votes cast FOR exceed the votes cast AGAINST the proposal. Abstentions will have no effect on the ratification. Brokers, bankers and other nominees have discretionary voting power on this routine matter; as such, we do not anticipate any broker non-votes in connection with this proposal. If the stockholders do not ratify the selection of Ernst & Young LLP, the Audit Committee will reconsider whether to retain Ernst & Young LLP, but still may retain this firm. Even if the selection is ratified, the Audit Committee, in its discretion, may change the appointment at any time during the year if it determines that such a change would be in the best interests of the Company and its stockholders.

The Audit Committee, or a designated member thereof, pre-approves each audit and non-audit service rendered by Ernst & Young LLP to the Company consistent with our Audit and Non-Audit Services Pre-Approval Policy.

Independent Registered Public Accounting Firm Fees

The following is a summary and description of fees billed by Ernst & Young LLP for the fiscal years ended December 31, 2022 and 2021.

	Fiscal Year 2022	Percentage of 2022 Services Approved by Audit Committee	Fiscal Year 2021	Percentage of 2021 Services Approved by Audit Committee
Audit fees (1)	\$ 1,179,300	100%	\$ 1,928,500	100%
Audit-related fees (2)	\$ —	100%	\$ 1,365,000	100%
Tax fees (3)	\$ 282,116	100%	\$ 1,076,223	100%
All other fees (4)	\$ 2,585	100%	\$ 5,700	100%
Total fees	<u>\$ 1,464,001</u>	100%	<u>\$ 4,375,423</u>	100%

- (1) Audit fees in 2022 and 2021 include fees for our annual audit, and quarterly review procedures. Additionally, audit fees in 2022 include fees incurred in connection with our public equity offerings, including registration statements, comfort letters and consents and audit fees in 2021 include fees incurred for internal control attestation and audit related activities associated with the sale of our manufacturing facility.
- (2) Audit-related fees are related to accounting consultations.
- (3) Tax fees are related to tax return preparation, tax advisory services and international tax compliance.
- (4) All other fees are related to licensing fees paid to Ernst & Young LLP for access to its proprietary accounting research database.

THE BOARD UNANIMOUSLY RECOMMENDS THAT YOU VOTE

FOR

**THE RATIFICATION OF THE SELECTION OF ERNST & YOUNG LLP AS THE COMPANY'S INDEPENDENT REGISTERED PUBLIC
ACCOUNTING FIRM**

(PROPOSAL 5 ON YOUR PROXY CARD)

PROPOSAL 6

APPROVAL OF AN ADJOURNMENT OF THE ANNUAL MEETING, IF NECESSARY, TO SOLICIT ADDITIONAL PROXIES IF THERE ARE NOT SUFFICIENT VOTES AT THE TIME OF THE ANNUAL MEETING TO APPROVE PROPOSAL 3 OR PROPOSAL 4

The Board believes that if the number of shares of the Company's common stock outstanding and entitled to vote at the Annual Meeting is insufficient to approve Proposal 3 (the amendment to our Amended and Restated Certificate of Incorporation to increase the number of authorized shares of our common stock) or Proposal 4 (our 2023 Incentive Award Plan), it is in the best interests of the stockholders to enable the Company to continue to seek to obtain a sufficient number of additional votes to approve Proposal 3 and/or Proposal 4.

In this Proposal 6, we are asking stockholders to authorize the holder of any proxy solicited by the Board to vote in favor of adjourning the Annual Meeting or any adjournment or postponement thereof. If our stockholders approve this proposal, we could adjourn the Annual Meeting, and any adjourned session of the Annual Meeting, to use the additional time to solicit additional proxies in favor of Proposal 3 and/or Proposal 4.

To be approved, the votes cast FOR this proposal must exceed the votes cast AGAINST this proposal. Only FOR and AGAINST votes will affect the outcome of the vote on this proposal. Abstentions and broker non-votes will have no effect on the outcome of the vote on this proposal.

THE BOARD UNANIMOUSLY RECOMMENDS THAT YOU VOTE

FOR

THE APPROVAL OF AN ADJOURNMENT OF THE ANNUAL MEETING, IF NECESSARY, TO SOLICIT ADDITIONAL PROXIES IF THERE ARE NOT SUFFICIENT VOTES AT THE TIME OF THE ANNUAL MEETING TO APPROVE PROPOSAL 3 OR PROPOSAL 4

(PROPOSAL 6 ON YOUR PROXY CARD)

STOCKHOLDER COMMUNICATIONS WITH THE BOARD

Stockholder Recommendations for Director Nominations

Any stockholder wishing to recommend a director candidate for consideration by the Nominating and Corporate Governance Committee should provide the following information to the chair of the Nominating and Corporate Governance Committee, bluebird bio, Inc., 455 Grand Union Boulevard, Somerville, Massachusetts 02145: (a) a brief statement outlining the reasons the candidate would be an effective director for bluebird; (b) (i) the name, age, and business and residence addresses of the candidate, (ii) the principal occupation or employment of the candidate for the past five years, as well as information about any other board of directors and board committees on which the candidate has served during that period, (iii) the number of shares of bluebird stock, if any, beneficially owned by the candidate and (iv) details of any business or other significant relationship the candidate has ever had with bluebird; and (c) (i) the stockholder's name and record address and the name and address of the beneficial owner of our shares, if any, on whose behalf the proposal is made and (ii) the number of shares of bluebird stock that the stockholder and any such other beneficial owner beneficially own. The Committee may seek further information from or about the stockholder making the recommendation, the candidate, or any such other beneficial owner, including information about all business and other relationships between the candidate and the stockholder and between the candidate and any such other beneficial owner.

Deadlines for Stockholder Proposals and Director Nominations

Stockholders who wish to present proposals for inclusion in our proxy materials for the 2024 Annual Meeting of Stockholders may do so by following the procedures prescribed in Rule 14a-8 under the Securities Exchange Act. Our Secretary must receive stockholder proposals intended to be included in our proxy statement and form of proxy relating to our 2024 Annual Meeting made under Rule 14a-8 by December 30, 2023.

Under our current By-laws, proposals of business and nominations for directors other than those to be included in our proxy materials following the procedures described in Rule 14a-8 may be made by stockholders entitled to vote at the meeting if notice is timely given and if the notice contains the information required by the By-laws. To provide timely notice with respect to our 2024 Annual Meeting of Stockholders, notice must be delivered to our Secretary no earlier than the close of business on February 17, 2024 (120 calendar days prior to the first anniversary of our 2023 Annual Meeting) and no later than the close of business on March 18, 2024 (90 calendar days prior to the first anniversary of our 2023 Annual Meeting), unless the date of the 2024 Annual Meeting is advanced by more than thirty (30) days or delayed by more than sixty (60) days from the anniversary date of the 2023 Annual Meeting, in which event the By-laws provide that notice must be delivered to our Secretary no later than the close of business on the later of the ninetieth (90th) day prior to the scheduled date of the 2024 Annual Meeting or the tenth (10th) day following the day on which public announcement of the date of such meeting is first made.

In addition to satisfying the foregoing requirements under our By-laws, to comply with the universal proxy rules, stockholders who intend to solicit proxies in support of director nominees other than the Company's nominees must provide notice that sets forth the information required by Rule 14a-19 under the Exchange Act.

Any proposal of business or nomination should be mailed to: Joseph Vittiglio, Secretary, bluebird bio, Inc., 455 Grand Union Boulevard, Somerville, Massachusetts 02145.

In connection with our solicitation of proxies for our 2024 Annual Meeting, we intend to file a proxy statement and WHITE proxy card with the SEC. Stockholders may obtain our proxy statement (and any amendments and supplements thereto) and other documents as and when filed with the SEC without charge from the SEC's website at: www.sec.gov.

Other Stockholder Communications

Generally, stockholders who have questions or concerns should contact our Investor Relations department at investor@bluebirdbio.com. However, stockholders who wish to communicate directly with our Board, or any individual director, should direct such communications in writing to bluebird bio, Inc., 455 Grand Union Boulevard, Somerville, Massachusetts 02145, Attention: Joseph Vittiglio, Secretary. All such communications will be opened by our corporate secretary for the sole purpose of determining whether the contents represent a message to our directors. Any contents that are not in the nature of advertising, promotions of a product or service, or patently offensive material will be forwarded promptly to the addressee(s).

WHERE YOU CAN FIND MORE INFORMATION

bluebird files annual, quarterly and current reports, proxy statements and other information with the SEC.

The Company's SEC filings are available to the public at the website maintained by the SEC at <http://www.sec.gov>. You may also read and copy any document the Company files with the SEC on our website at <http://investor.bluebirdbio.com>.

You should rely on the information contained in this document to vote your shares at the Annual Meeting. bluebird has not authorized anyone to provide you with information that is different from what is contained in this document. This document is dated April 28, 2023. You should not assume that the information contained in this document is accurate as of any date other than that date, and the mailing of this document to stockholders at any time after that date does not create an implication to the contrary. This proxy statement does not constitute a solicitation of a proxy in any jurisdiction where, or to or from any person to whom, it is unlawful to make such proxy solicitations in such jurisdiction.

FORM 10-K

We will provide without charge to each person to whom a copy of the proxy statement is delivered, upon the written or oral request of any such persons, additional copies of our Annual Report on Form 10-K for the fiscal year ended December 31, 2022 as filed with the SEC. Requests for such copies should be addressed to:

bluebird bio, Inc.
455 Grand Union Boulevard
Somerville, Massachusetts 02145
(339) 499-9300
Attention: Joseph Vittiglio, Secretary

IMPORTANT NOTICE REGARDING DELIVERY OF STOCKHOLDER DOCUMENTS

Stockholders of bluebird common stock who share a single address, may receive only one copy of this proxy statement, Notice of Internet Availability and our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, unless bluebird has received contrary instructions from any stockholder at that address. This practice, known as "householding," is designed to reduce the Company's printing and postage costs. However, if any stockholder residing at such an address wishes to receive a separate copy of this proxy statement, Notice of Internet Availability or our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, he or she may contact bluebird bio, Inc., 455 Grand Union Boulevard, Somerville, Massachusetts 02145, (339) 499-9300, Attention: Joseph Vittiglio, Secretary, and bluebird will deliver those documents to such stockholder promptly upon receiving the request. Any such stockholder may also contact Joseph Vittiglio, Secretary, using the above contact information if he or she would like to receive separate proxy statements, notice of internet availability and annual reports in the future. If you are receiving multiple copies of our annual reports, notice of internet availability and proxy statements, you may request householding in the future by contacting Joseph Vittiglio, Secretary.

OTHER BUSINESS

The Board knows of no business to be brought before the 2023 Annual Meeting which is not referred to in the accompanying Notice of Annual Meeting. Should any such matters be presented, the persons named in the proxy shall have the authority to take such action in regard to such matters as in their judgment seems advisable. If you hold shares through a broker, bank or other nominee as described above, they will not be able to vote your shares on any other business that comes before the 2023 Annual Meeting unless they receive instructions from you with respect to such matter.

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**APPENDIX A
TO PROXY STATEMENT**

**BLUEBIRD BIO, INC.
2023 INCENTIVE AWARD PLAN**

**ARTICLE I.
PURPOSE**

The Plan's purpose is to enhance the Company's ability to attract, retain and motivate persons who make (or are expected to make) important contributions to the Company by providing these individuals with equity ownership opportunities.

**ARTICLE II.
DEFINITIONS**

As used in the Plan, the following words and phrases have the meanings specified below, unless the context clearly indicates otherwise:

2.1 **"Administrator"** means the Board or a Committee to the extent that the Board's powers or authority under the Plan have been delegated to such Committee. With reference to the Board's or a Committee's powers or authority under the Plan that have been delegated to one or more officers pursuant to Section 4.2, the term "Administrator" shall refer to such officer(s) unless and until such delegation has been revoked.

2.2 **"Applicable Law"** means any applicable law, including without limitation: (a) provisions of the Code, the Securities Act, the Exchange Act and any rules or regulations thereunder; (b) corporate, securities, tax or other laws, statutes, rules, requirements or regulations, whether U.S. or non-U.S. federal, state or local; and (c) rules of any securities exchange or automated quotation system on which the Shares are listed, quoted or traded.

2.3 **"Award"** means an Option award, Stock Appreciation Right award, Restricted Stock award, Restricted Stock Unit award, Performance Bonus Award, Performance Stock Unit award, Dividend Equivalents award or Other Stock or Cash Based Award granted to a Participant under the Plan.

2.4 **"Award Agreement"** means an agreement evidencing an Award, which may be written or electronic, that contains such terms and conditions as the Administrator determines, consistent with and subject to the terms and conditions of the Plan.

2.5 **"Board"** means the Board of Directors of the Company.

2.6 **"Change in Control"** means the occurrence of any of the following:

(a) A transaction or series of transactions (other than an offering of Common Stock to the general public through a registration statement filed with the Securities and Exchange Commission) whereby any "person" or related "group" of "persons" (as such terms are used in Sections 13(d) and 14(d)(2) of the Exchange Act) directly or indirectly acquires beneficial ownership (within the meaning of Rules 13d-3 and 13d-5 under the Exchange Act) of the Company's securities possessing more than 50% of the total combined voting power of the Company's securities outstanding immediately after such acquisition; provided, however, that the following acquisitions shall not constitute a Change in Control: (i) any acquisition by the Company or any Subsidiary; (ii) any acquisition by an employee benefit plan maintained by the Company or any Subsidiary, (iii) any acquisition which complies with clauses (c)(i), (c)(ii) and (c)(iii) of this definition; or (iv) in respect of an Award held by a particular Participant, any acquisition by the Participant or any group of persons including the Participant (or any entity controlled by the Participant or any group of persons including the Participant);

(b) The Incumbent Directors cease for any reason to constitute a majority of the Board;

(c) The consummation by the Company (whether directly involving the Company or indirectly involving the Company through one or more intermediaries) of (x) a merger, consolidation, reorganization, or business combination, (y) a sale or other disposition of all or substantially all of the Company's assets in any single transaction or series of related transactions or (z) the acquisition of assets or stock of another entity, in each case other than a transaction:

(i) which results in the Company's voting securities outstanding immediately before the transaction continuing to represent (either by remaining outstanding or by being converted into voting securities of the Company or the person that, as a result of the transaction, controls, directly or indirectly, the Company or owns, directly or indirectly, all or substantially all of the Company's assets or otherwise succeeds to the business of the Company (the Company or such person, the "**Successor Entity**")) directly or indirectly, at least a majority of the combined voting power of the Successor Entity's outstanding voting securities immediately after the transaction;

(ii) after which no person or group beneficially owns voting securities representing 50% or more of the combined voting power of the Successor Entity; provided, however, that no person or group shall be treated for purposes of this clause (c)(ii) as beneficially owning 50% or more of the combined voting power of the Successor Entity solely as a result of the voting power held in the Company prior to the consummation of the transaction; and

(iii) after which at least a majority of the members of the board of directors (or the analogous governing body) of the Successor Entity were Board members at the time of the Board's approval of the execution of the initial agreement providing for such transaction; or

(d) The completion of a liquidation or dissolution of the Company.

Notwithstanding the foregoing, if a Change in Control constitutes a payment event with respect to any Award (or any portion of an Award) that provides for the deferral of compensation that is subject to Section 409A, to the extent required to avoid the imposition of additional taxes under Section 409A, the transaction or event described in subsection (a), (b), (c) or (d) of this definition with respect to such Award (or portion thereof) shall only constitute a Change in Control for purposes of the payment timing of such Award if such transaction also constitutes a "change in control event," as defined in Treasury Regulation Section 1.409A-3(i)(5).

The Administrator shall have full and final authority, which shall be exercised in its sole discretion, to determine conclusively whether a Change in Control has occurred pursuant to the above definition, the date of such Change in Control and any incidental matters relating thereto; provided that any exercise of authority in conjunction with a determination of whether a Change in Control is a "change in control event" as defined in Treasury Regulation Section 1.409A-3(i)(5) shall be consistent with such regulation.

2.7 "**Code**" means the U.S. Internal Revenue Code of 1986, as amended, and all regulations, guidance, compliance programs and other interpretative authority issued thereunder.

2.8 "**Committee**" means one or more committees or subcommittees of the Board, which may include one or more Directors or executive officers of the Company, to the extent permitted by Applicable Law. To the extent required to comply with the provisions of Rule 16b-3, it is intended that each member of the Committee will be, at the time the Committee takes any action with respect to an Award that is subject to Rule 16b-3, a "non-employee director" within the meaning of Rule 16b-3; however, a Committee member's failure to qualify as a "non-employee director" within the meaning of Rule 16b-3 will not invalidate any Award granted by the Committee that is otherwise validly granted under the Plan.

2.9 "**Common Stock**" means the common stock of the Company.

2.10 "**Company**" means bluebird bio, Inc., a Delaware corporation, or any successor.

2.11 "**Consultant**" means any person, including any adviser, engaged by the Company or a Subsidiary to render services to such entity if the consultant or adviser: (a) renders bona fide services to the Company or a Subsidiary; (b) renders services not in connection with the offer or sale of securities in a capital-raising transaction and does not directly or indirectly promote or maintain a market for the Company's securities; and (c) is a natural person.

2.12 "**Designated Beneficiary**" means, if permitted by the Company, the beneficiary or beneficiaries the Participant designates, in a manner the Company determines, to receive amounts due or exercise the Participant's rights if the Participant dies. Without a Participant's effective designation, "Designated Beneficiary" will mean the Participant's estate or legal heirs.

2.13 "**Director**" means a Board member.

2.14 "**Disability**" means a permanent and total disability under Section 22(e)(3) of the Code.

2.15 **“Dividend Equivalents”** means a right granted to a Participant to receive the equivalent value (in cash or Shares) of dividends paid on a specified number of Shares. Such Dividend Equivalent shall be converted to cash or additional Shares, or a combination of cash and Shares, by such formula and at such time and subject to such limitations as may be determined by the Administrator.

2.16 **“DRO”** means a “domestic relations order” as defined by the Code or Title I of the Employee Retirement Income Security Act of 1974, as amended, or the rules thereunder.

2.17 **“Effective Date”** has the meaning set forth in Section 11.3.

2.18 **“Employee”** means any employee of the Company or any of its Subsidiaries.

2.19 **“Equity Restructuring”** means a nonreciprocal transaction between the Company and its stockholders, such as a stock dividend, stock split (including a reverse stock split), spin-off or recapitalization through a large, nonrecurring cash dividend, that affects the number or kind of Shares (or other Company securities) or the share price of Common Stock (or other Company securities) and causes a change in the per share value of the Common Stock underlying outstanding Awards.

2.20 **“Exchange Act”** means the U.S. Securities Exchange Act of 1934, as amended, and all regulations, guidance and other interpretative authority issued thereunder.

2.21 **“Fair Market Value”** means, as of any date, the value of a Share determined as follows: (a) if the Common Stock is listed on any established stock exchange, the value of a Share will be the closing sales price for a Share as quoted on such exchange for such date, or if no sale occurred on such date, the last day preceding such date during which a sale occurred, as reported in *The Wall Street Journal* or another source the Administrator deems reliable; (b) if the Common Stock is not listed on an established stock exchange but is quoted on a national market or other quotation system, the value of a Share will be the closing sales price for a Share on such date, or if no sales occurred on such date, then on the last date preceding such date during which a sale occurred, as reported in *The Wall Street Journal* or another source the Administrator deems reliable; or (iii) if the Common Stock is not listed on any established stock exchange or quoted on a national market or other quotation system, the value established by the Administrator in its sole discretion.

2.22 **“Full Value Award”** means any Award that is settled in Shares other than (a) an Option, (b) a Stock Appreciation Right or (c) any other Award for which a Participant pays the intrinsic value existing as of the date of grant (whether directly or by foregoing a right to receive a payment from the Company or any affiliate thereof).

2.23 **“Greater Than 10% Stockholder”** means an individual then owning (within the meaning of Section 424(d) of the Code) more than 10% of the total combined voting power of all classes of stock of the Company or any parent corporation or subsidiary corporation of the Company, as determined in accordance with Section 424(e) and (f) of the Code, respectively.

2.24 **“Incentive Stock Option”** means an Option that meets the requirements to qualify as an “incentive stock option” as defined in Section 422 of the Code.

2.25 **“Incumbent Directors”** means, for any period of 12 consecutive months, individuals who, at the beginning of such period, constitute the Board together with any new Director(s) (other than a Director designated by a person who shall have entered into an agreement with the Company to effect a transaction described in clause (a) or (c) of the Change in Control definition) whose election or nomination for election to the Board was approved by a vote of at least a majority (either by a specific vote or by approval of the proxy statement of the Company in which such person is named as a nominee for Director without objection to such nomination) of the Directors then still in office who either were Directors at the beginning of the 12-month period or whose election or nomination for election was previously so approved. No individual initially elected or nominated as a director of the Company as a result of an actual or threatened election contest with respect to Directors or as a result of any other actual or threatened solicitation of proxies by or on behalf of any person other than the Board shall be an Incumbent Director.

2.26 **“Non-Employee Director”** means a Director who is not an Employee.

2.27 **“Nonqualified Stock Option”** means an Option that is not an Incentive Stock Option.

2.28 **“Option”** means a right granted under Article VI to purchase a specified number of Shares at a specified price per Share during a specified time period. An Option may be either an Incentive Stock Option or a Nonqualified Stock Option.

2.29 **“Other Stock or Cash Based Awards”** means cash awards, awards of Shares, and other awards valued wholly or partially by referring to, or are otherwise based on, Shares or other property.

2.30 **“Overall Share Limit”** means the sum of (a) 5,200,000 Shares plus (b) any Shares that are subject to Prior Plan Awards that become available for issuance under the Plan as Shares pursuant to Article V.

2.31 **“Participant”** means a Service Provider who has been granted an Award.

2.32 **“Performance Bonus Award”** has the meaning set forth in Section 8.3.

2.33 **“Performance Stock Unit”** means a right granted to a Participant pursuant to Section 8.1 and subject to Section 8.2, to receive Shares or an amount of cash or other consideration determined by the Administrator to be of equal value as of the settlement date, the payment of which is contingent upon achieving certain performance goals or other performance-based targets established by the Administrator.

2.34 **“Permitted Transferee”** means, with respect to a Participant, any “family member” of the Participant, as defined in the General Instructions to Form S-8 Registration Statement under the Securities Act (or any successor form thereto), or any other transferee specifically approved by the Administrator after taking into account Applicable Law.

2.35 **“Plan”** means this 2023 Incentive Award Plan.

2.36 **“Prior Plan”** means the Company’s 2013 Stock Option and Incentive Plan, as it may be amended from time to time.

2.37 **“Prior Plan Award”** means an award outstanding under the Prior Plan as of immediately prior to the Effective Date.

2.38 **“Restricted Stock”** means Shares awarded to a Participant under Article VII, subject to certain vesting conditions and other restrictions.

2.39 **“Restricted Stock Unit”** means an unfunded, unsecured right to receive, on the applicable settlement date, one Share or an amount in cash or other consideration determined by the Administrator to be of equal value as of such settlement date, subject to certain vesting conditions and other restrictions.

2.40 **“Rule 16b-3”** means Rule 16b-3 promulgated under the Exchange Act, including any amendments thereto.

2.41 **“Section 409A”** means Section 409A of the Code.

2.42 **“Securities Act”** means the Securities Act of 1933, as amended, and all regulations, guidance and other interpretative authority issued thereunder.

2.43 **“Service Provider”** means an Employee, Consultant or Director.

2.44 **“Shares”** means shares of Common Stock.

2.45 **“Stock Appreciation Right”** or **“SAR”** means a right granted under Article VI to receive a payment equal to the excess of the Fair Market Value of a specified number of Shares on the date the right is exercised over the exercise price set forth in the applicable Award Agreement.

2.46 **“Subsidiary”** means any entity (other than the Company), whether U.S. or non-U.S., in an unbroken chain of entities beginning with the Company if each of the entities other than the last entity in the unbroken chain beneficially owns, at the time of the determination, securities or interests representing at least 50% of the total combined voting power of all classes of securities or interests in one of the other entities in such chain.

2.47 **“Substitute Awards”** means Awards granted or Shares issued by the Company in assumption of, or in substitution or exchange for, awards previously granted, or the right or obligation to make future awards, in each case by a company or other entity acquired by the Company or any Subsidiary or with which the Company or any Subsidiary combines.

2.48 **“Tax-Related Items”** means any U.S. and non-U.S. federal, state and/or local taxes (including, without limitation, income tax, social insurance contributions, fringe benefit tax, employment tax, stamp tax and any employer tax liability which has been transferred to a Participant) for which a Participant is liable in connection with Awards and/or Shares.

2.49 **“Termination of Service”** means:

(a) As to a Consultant, the time when the engagement of a Participant as a Consultant to the Company or a Subsidiary is terminated for any reason, including, without limitation, by resignation, discharge, death or retirement, but excluding terminations where the Consultant simultaneously commences or remains in employment or service with the Company or any Subsidiary.

(b) As to a Non-Employee Director, the time when a Participant who is a Non-Employee Director ceases to be a Director for any reason, including, without limitation, a termination by resignation, failure to be elected, death or retirement, but excluding terminations where the Participant simultaneously commences employment or service or remains in service with the Company or any Subsidiary.

(c) As to an Employee, the time when the employee-employer relationship between a Participant and the Company or any Subsidiary is terminated for any reason, including, without limitation, a termination by resignation, discharge, death, disability or retirement; but excluding terminations where the Participant simultaneously commences or remains in employment or service with the Company or any Subsidiary.

The Company, in its sole discretion, shall determine the effect of all matters and questions relating to any Termination of Service, including, without limitation, whether a Termination of Service has occurred, whether a Termination of Service resulted from a discharge for “cause” and all questions of whether particular leaves of absence constitute a Termination of Service. For purposes of the Plan, a Participant’s employee-employer relationship or consultancy relationship shall be deemed to be terminated in the event that the Subsidiary employing or contracting with such Participant ceases to remain a Subsidiary following any merger, sale of stock or other corporate transaction or event (including, without limitation, a spin-off), even though the Participant may subsequently continue to perform services for that entity.

ARTICLE III. ELIGIBILITY

Service Providers are eligible to be granted Awards under the Plan, subject to the limitations described herein. No Service Provider shall have any right to be granted an Award pursuant to the Plan and neither the Company nor the Administrator is obligated to treat Service Providers, Participants or any other persons uniformly.

ARTICLE IV. ADMINISTRATION AND DELEGATION

4.1 Administration.

(a) The Plan is administered by the Administrator. The Administrator has authority to determine which Service Providers receive Awards, grant Awards and set Award terms and conditions, subject to the conditions and limitations in the Plan. The Administrator also has the authority to take all actions and make all determinations under the Plan, to interpret the Plan and Award Agreements and to adopt, amend and repeal Plan administrative rules, guidelines and practices as it deems advisable. The Administrator may correct defects and ambiguities, supply omissions, reconcile inconsistencies in the Plan or any Award and make all other determinations that it deems necessary or appropriate to administer the Plan and any Awards. The Administrator (and each member thereof) is entitled to, in good faith, rely or act upon any report or other information furnished to the Administrator or member thereof by any officer or other Employee, the Company’s independent certified public accountants, or any executive compensation consultant or other professional retained by the Company to assist in the administration of the Plan. The Administrator’s determinations under the Plan are in its sole discretion and will be final, binding and conclusive on all persons having or claiming any interest in the Plan or any Award.

(b) Without limiting the foregoing, the Administrator has the exclusive power, authority and sole discretion to: (i) designate Participants; (ii) determine the type or types of Awards to be granted to each Participant; (iii) determine the number of Awards to be granted and the number of Shares to which an Award will relate; (iv) subject to the limitations in the Plan, determine the terms and conditions of any Award and related Award Agreement, including, but not limited to, the exercise price, grant price, purchase price, any performance criteria, any restrictions or limitations on the Award, any schedule for vesting, lapse of forfeiture restrictions or restrictions on the exercisability of an Award, and

accelerations, waivers or amendments thereof; (v) determine whether, to what extent, and under what circumstances an Award may be settled in, or the exercise price of an Award may be paid in cash, Shares, or other property, or an Award may be cancelled, forfeited, or surrendered; and (vi) make all other decisions and determinations that may be required pursuant to the Plan or as the Administrator deems necessary or advisable to administer the Plan.

4.2 Delegation of Authority. To the extent permitted by Applicable Law, the Board or any Committee may delegate any or all of its powers under the Plan to one or more Committees or officers of the Company or any of its Subsidiaries; provided, however, that in no event shall an officer of the Company or any of its Subsidiaries be delegated the authority to grant Awards to, or amend Awards held by, the following individuals: (a) individuals who are subject to Section 16 of the Exchange Act, or (b) officers of the Company or any of its Subsidiaries or Directors to whom authority to grant or amend Awards has been delegated hereunder. Any delegation hereunder shall be subject to the restrictions and limits that the Board or Committee specifies at the time of such delegation or that are otherwise included in the applicable organizational documents, and the Board or Committee, as applicable, may at any time rescind the authority so delegated or appoint a new delegate. At all times, the delegate appointed under this Section 4.2 shall serve in such capacity at the pleasure of the Board or the Committee, as applicable, and the Board or the Committee may abolish any committee at any time and re-vest in itself any previously delegated authority. Further, regardless of any delegation, the Board or a Committee may, in its discretion, exercise any and all rights and duties as the Administrator under the Plan delegated thereby, except with respect to Awards that are required to be determined in the sole discretion of the Board or Committee under the rules of any securities exchange or automated quotation system on which the Shares are listed, quoted or traded.

ARTICLE V. STOCK AVAILABLE FOR AWARDS

5.1 Number of Shares. Subject to adjustment under Article IX and the terms of this Article V, Awards may be made under the Plan covering up to the Overall Share Limit. As of the Effective Date, the Company will cease granting awards under the Prior Plan; however, Prior Plan Awards will remain subject to the terms of the Prior Plan. Shares issued or delivered under the Plan may consist of authorized but unissued Shares, Shares purchased on the open market or treasury Shares.

5.2 Share Recycling.

(a) If all or any part of an Award or Prior Plan Award expires, lapses or is terminated, converted into an award in respect of shares of another entity in connection with a spin-off or other similar event, exchanged or settled for cash, surrendered, repurchased, cancelled without having been fully exercised or forfeited, in any case, in a manner that results in the Company acquiring Shares covered by the Award or Prior Plan Award at a price not greater than the price (as adjusted to reflect any Equity Restructuring) paid by the Participant for such Shares or not issuing any Shares covered by the Award or Prior Plan Award, the unused Shares covered by the Award or Prior Plan Award will, as applicable, become or again be available for Awards under the Plan. The payment of dividends or Dividend Equivalents in cash in conjunction with any outstanding Awards or Prior Plan Awards and any Awards that are settled in cash rather than by issuance of Shares shall not count against the Overall Share Limit.

(b) Notwithstanding anything in the Plan to the contrary, the following Shares shall not be available for future grants of Awards: (i) Shares tendered by a Participant or withheld by the Company in payment of the exercise price of an Option or any stock option granted under the Prior Plan; (ii) Shares tendered by a Participant or withheld by the Company to satisfy any tax withholding obligation with respect to an Award or any Prior Plan Award; (iii) Shares subject to a Stock Appreciation Right that are not issued in connection with the stock settlement of the Stock Appreciation Right or stock appreciation right granted under the Prior Plan on exercise; and (iv) Shares purchased on the open market with the cash proceeds from the exercise of Options or stock options granted under the Prior Plan.

5.3 Incentive Stock Option Limitations. Notwithstanding anything to the contrary herein, no more than 5,200,000 Shares (as adjusted to reflect any Equity Restructuring) may be issued pursuant to the exercise of Incentive Stock Options.

5.4 Substitute Awards. In connection with an entity's merger or consolidation with the Company or any Subsidiary or the Company's or any Subsidiary's acquisition of an entity's property or stock, the Administrator may grant Substitute Awards in respect of any options or other stock or stock-based awards granted before such merger or consolidation by such entity or its affiliate subject to Applicable Law. Substitute Awards may be granted on such terms and conditions as the Administrator deems appropriate, notwithstanding limitations on Awards in the Plan. Subject to Applicable Law, Substitute Awards will not count against the Overall Share Limit (nor shall Shares subject to a Substitute Award be added to the Shares available for Awards under the Plan as provided under Section 5.2 above), except that Shares acquired by

exercise of substitute Incentive Stock Options will count against the maximum number of Shares that may be issued pursuant to the exercise of Incentive Stock Options under the Plan. Additionally, in the event that a company acquired by the Company or any Subsidiary or with which the Company or any Subsidiary combines has shares available under a pre-existing plan approved by stockholders and not adopted in contemplation of such acquisition or combination subject to Applicable Law, the shares available for grant pursuant to the terms of such pre-existing plan (as appropriately adjusted to reflect the transaction) may be used for Awards under the Plan and shall not count against the Overall Share Limit (and Shares subject to such Awards may again become available for Awards under the Plan as provided under Section 5.2 above); provided that Awards using such available shares shall not be made after the date awards or grants could have been made under the terms of the pre-existing plan, absent the acquisition or combination, and shall only be made to individuals who were not Service Providers prior to such acquisition or combination.

5.5 Non-Employee Director Award Limit. The maximum aggregate amount of cash and value of Awards (calculated based on grant date fair value determined in accordance with Financial Accounting Standards Board Accounting Standards Codification Topic 718, or any successor thereto) granted in any calendar year to any individual Non-Employee Director for their services as a Non-Employee Director shall not exceed \$750,000 in the case of an incumbent Non-Employee Director; provided, however, that such maximum aggregate amount shall not exceed \$1,000,000 in any calendar year for any individual Non-Employee Director in such Non-Employee Director's initial year of election or appointment; and provided, further, however, that fees paid by the Company on behalf of any Non-Employee Director in connection with regulatory compliance and any amounts paid to a Non-Employee Director as reimbursement of an expense shall not count against the foregoing limit. The Board may make exceptions to this limit for individual Non-Employee Directors in extraordinary circumstances, as the Board may determine in its discretion, provided that the Non-Employee Director receiving such additional compensation may not participate in the decision to award such compensation. For the avoidance of doubt, this limitation shall not apply to cash or Awards granted to a Non-Employee Director in his or her capacity as an advisor or consultant to the Company.

ARTICLE VI. STOCK OPTIONS AND STOCK APPRECIATION RIGHTS

6.1 General. The Administrator may grant Options or Stock Appreciation Rights to one or more Service Providers, subject to such terms and conditions not inconsistent with the Plan as the Administrator shall determine. The Administrator will determine the number of Shares covered by each Option and Stock Appreciation Right, the exercise price of each Option and Stock Appreciation Right and the conditions and limitations applicable to the exercise of each Option and Stock Appreciation Right. A Stock Appreciation Right will entitle the Participant (or other person entitled to exercise the Stock Appreciation Right) to receive from the Company upon exercise of the exercisable portion of the Stock Appreciation Right an amount determined by multiplying (a) the excess, if any, of the Fair Market Value of one Share on the date of exercise over the exercise price per Share of the Stock Appreciation Right by (b) the number of Shares with respect to which the Stock Appreciation Right is exercised, subject to any limitations of the Plan or that the Administrator may impose, and payable in cash, Shares valued at Fair Market Value on the date of exercise or a combination of the two as the Administrator may determine or provide in the Award Agreement.

6.2 Exercise Price. The Administrator will establish each Option's and Stock Appreciation Right's exercise price and specify the exercise price in the Award Agreement. Subject to Section 6.7, the exercise price will not be less than 100% of the Fair Market Value on the grant date of the Option or Stock Appreciation Right. Notwithstanding the foregoing, in the case of an Option or Stock Appreciation Right that is a Substitute Award, the exercise price per share of the Shares subject to such Option or Stock Appreciation Right, as applicable, may be less than the Fair Market Value per share on the date of grant; provided that the exercise price of any Substitute Award shall be determined in accordance with the applicable requirements of Sections 424 and 409A of the Code.

6.3 Duration of Options. Subject to Section 6.7, each Option or Stock Appreciation Right will be exercisable at such times and as specified in the Award Agreement, provided that the term of an Option or Stock Appreciation Right will not exceed ten years; provided, further, that, unless otherwise determined by the Administrator or specified in the Award Agreement, (a) no portion of an Option or Stock Appreciation Right which is unexercisable at a Participant's Termination of Service shall thereafter become exercisable and (b) the portion of an Option or Stock Appreciation Right that is unexercisable at a Participant's Termination of Service shall automatically expire on the date of such Termination of Service. In addition, in no event shall an Option or Stock Appreciation Right granted to an Employee who is a non-exempt employee for purposes of overtime pay under the U.S. Fair Labor Standards Act of 1938 be exercisable earlier than six months after its date of grant. Notwithstanding the foregoing, if the Participant, prior to the end of the term of an Option or Stock Appreciation Right, commits an act of "cause" (as determined by the Administrator), or violates any non-competition, non-solicitation or confidentiality provisions of any employment contract, confidentiality and nondisclosure agreement or other agreement

between the Participant and the Company or any of its Subsidiaries, the right to exercise the Option or Stock Appreciation Right, as applicable, may be terminated by the Company and the Company may suspend the Participant's right to exercise the Option or Stock Appreciation Right when it reasonably believes that the Participant may have participated in any such act or violation.

6.4 Exercise. Options and Stock Appreciation Rights may be exercised by delivering to the Company (or such other person or entity designated by the Administrator) a notice of exercise, in a form and manner the Company approves (which may be written, electronic or telephonic and may contain representations and warranties deemed advisable by the Administrator), signed or authenticated by the person authorized to exercise the Option or Stock Appreciation Right, together with, as applicable, (a) payment in full of the exercise price for the number of Shares for which the Option is exercised in a manner specified in Section 6.5 and (b) satisfaction in full of any withholding obligation for Tax-Related Items in a manner specified in Section 10.5.

6.5 No Fractional Shares. No fractional shares of Stock shall be issued or delivered pursuant to the Plan or any Award, and the Administrator shall determine whether cash, other securities or other property shall be paid or transferred in lieu of any fractional shares, or whether such fractional shares or any rights thereto shall be canceled, terminated or otherwise eliminated.

6.6 Payment Upon Exercise. The Administrator shall determine the methods by which payment of the exercise price of an Option shall be made, including, without limitation:

(a) Cash, check or wire transfer of immediately available funds; provided that the Company may limit the use of one of the foregoing methods if one or more of the methods below is permitted;

(b) If there is a public market for Shares at the time of exercise, unless the Company otherwise determines, (A) delivery (including electronically or telephonically to the extent permitted by the Company) of a notice that the Participant has placed a market sell order with a broker acceptable to the Company with respect to Shares then issuable upon exercise of the Option and that the broker has been directed to deliver promptly to the Company funds sufficient to pay the exercise price, or (B) the Participant's delivery to the Company of a copy of irrevocable and unconditional instructions to a broker acceptable to the Company to deliver promptly to the Company an amount sufficient to pay the exercise price by cash, wire transfer of immediately available funds or check; provided that such amount is paid to the Company at such time as may be required by the Company;

(c) To the extent permitted by the Administrator, delivery (either by actual delivery or attestation) of Shares owned by the Participant valued at their Fair Market Value on the date of delivery;

(d) To the extent permitted by the Administrator, surrendering Shares then issuable upon the Option's exercise valued at their Fair Market Value on the exercise date;

(e) To the extent permitted by the Administrator, any combination of the above payment forms.

6.7 Additional Terms of Incentive Stock Options. The Administrator may grant Incentive Stock Options only to employees of the Company, any of its present or future parent or subsidiary corporations, as defined in Sections 424(e) or (f) of the Code, respectively, and any other entities the employees of which are eligible to receive Incentive Stock Options under the Code. If an Incentive Stock Option is granted to a Greater Than 10% Stockholder, the exercise price will not be less than 110% of the Fair Market Value on the Option's grant date, and the term of the Option will not exceed five years. All Incentive Stock Options (and Award Agreements related thereto) will be subject to and construed consistently with Section 422 of the Code. By accepting an Incentive Stock Option, the Participant agrees to give prompt notice to the Company of dispositions or other transfers (other than in connection with a Change in Control) of Shares acquired under the Option made within the later of (a) two years from the grant date of the Option or (b) one year after the transfer of such Shares to the Participant, specifying the date of the disposition or other transfer and the amount the Participant realized, in cash, other property, assumption of indebtedness or other consideration, in such disposition or other transfer. Neither the Company nor the Administrator will be liable to a Participant, or any other party, if an Incentive Stock Option fails or ceases to qualify as an "incentive stock option" under Section 422 of the Code. Any Incentive Stock Option or portion thereof that fails to qualify as an "incentive stock option" under Section 422 of the Code for any reason, including becoming exercisable with respect to Shares having a fair market value exceeding the \$100,000 limitation under Treasury Regulation Section 1.422-4, will be a Nonqualified Stock Option.

ARTICLE VII.
RESTRICTED STOCK; RESTRICTED STOCK UNITS

7.1 General. The Administrator may grant Restricted Stock, or the right to purchase Restricted Stock, to any Service Provider, subject to forfeiture or the Company's right to repurchase all or part of the underlying Shares at their issue price or other stated or formula price from the Participant if conditions the Administrator specifies in the Award Agreement are not satisfied before the end of the applicable restriction period or periods that the Administrator establishes for such Award. In addition, the Administrator may grant Restricted Stock Units, which may be subject to vesting and forfeiture conditions during the applicable restriction period or periods, as set forth in an Award Agreement, to Service Providers. The Administrator shall establish the purchase price, if any, and form of payment for Restricted Stock and Restricted Stock Units; provided, however, that if a purchase price is charged, such purchase price shall be no less than the par value, if any, of the Shares to be purchased, unless otherwise permitted by Applicable Law. In all cases, legal consideration shall be required for each issuance of Restricted Stock and Restricted Stock Units to the extent required by Applicable Law. The Award Agreement for each Award of Restricted Stock and Restricted Stock Units shall set forth the terms and conditions not inconsistent with the Plan as the Administrator shall determine.

7.2 Restricted Stock.

(a) *Stockholder Rights*. Unless otherwise determined by the Administrator, each Participant holding Shares of Restricted Stock will be entitled to all the rights of a stockholder with respect to such Shares, subject to the restrictions in the Plan and the applicable Award Agreement, including the right to receive all dividends and other distributions paid or made with respect to the Shares to the extent such dividends and other distributions have a record date that is on or after the date on which such Participant becomes the record holder of such Shares; provided, however, that with respect to a share of Restricted Stock subject to restrictions or vesting conditions, except in connection with a spin-off or other similar event as otherwise permitted under Section 9.2, dividends which are paid to Company stockholders prior to the removal of restrictions and satisfaction of vesting conditions shall only be paid to the Participant to the extent that the restrictions are subsequently removed and the vesting conditions are subsequently satisfied and the share of Restricted Stock vests.

(b) *Stock Certificates*. The Company may require that the Participant deposit in escrow with the Company (or its designee) any stock certificates issued in respect of Shares of Restricted Stock, together with a stock power endorsed in blank.

(c) *Section 83(b) Election*. If a Participant makes an election under Section 83(b) of the Code to be taxed with respect to the Restricted Stock as of the date of transfer of the Restricted Stock rather than as of the date or dates upon which such Participant would otherwise be taxable under Section 83(a) of the Code, such Participant shall be required to deliver a copy of such election to the Company promptly after filing such election with the Internal Revenue Service along with proof of the timely filing thereof.

7.3 Restricted Stock Units. The Administrator may provide that settlement of Restricted Stock Units will occur upon or as soon as reasonably practicable after the Restricted Stock Units vest or will instead be deferred, on a mandatory basis or at the Participant's election, subject to compliance with Applicable Law. A Participant holding Restricted Stock Units will have only the rights of a general unsecured creditor of the Company (solely to the extent of any rights then applicable to Participant with respect to such Restricted Stock Units) until delivery of Shares, cash or other securities or property is made as specified in the applicable Award Agreement.

ARTICLE VIII.
OTHER TYPES OF AWARDS

8.1 General. The Administrator may grant Performance Stock Unit awards, Performance Bonus Awards, Dividend Equivalents or Other Stock or Cash Based Awards, to one or more Service Providers, in such amounts and subject to such terms and conditions not inconsistent with the Plan as the Administrator shall determine.

8.2 Performance Stock Unit Awards. Each Performance Stock Unit award shall be denominated in a number of Shares or in unit equivalents of Shares or units of value (including a dollar value of Shares) and may be linked to any one or more of performance or other specific criteria, including service to the Company or Subsidiaries, determined to be appropriate by the Administrator, in each case on a specified date or dates or over any period or periods determined by the Administrator. In making such determinations, the Administrator may consider (among such other factors as it deems relevant in light of the specific type of award) the contributions, responsibilities and other compensation of the particular Participant.

8.3 Performance Bonus Awards. Each right to receive a bonus granted under this Section 8.3 shall be denominated in the form of cash (but may be payable in cash, stock or a combination thereof) (a **“Performance Bonus Award”**) and shall be payable upon the attainment of performance goals that are established by the Administrator and relate to one or more of performance or other specific criteria, including service to the Company or Subsidiaries, in each case on a specified date or dates or over any period or periods determined by the Administrator.

8.4 Dividends and Dividend Equivalents. If the Administrator provides, an Award (other than an Option or Stock Appreciation Right) may provide a Participant with the right to receive dividends or Dividend Equivalents. Dividend and Dividend Equivalents may be paid currently or credited to an account for the Participant, settled in cash or Shares and subject to the same restrictions on transferability and forfeitability as the Award with respect to which the dividends or Dividend Equivalents are granted and subject to other terms and conditions as set forth in the Award Agreement. Notwithstanding anything to the contrary herein, dividends and Dividend Equivalents with respect to an Award subject to vesting shall either (a) to the extent permitted by Applicable Law, not be paid or credited or (b) be accumulated and subject to vesting to the same extent as the related Award. Any such dividends and Dividend Equivalents shall be paid at such time as the Administrator shall specify in the applicable Award Agreement or as determined by the Administrator in the event not specified in such Award Agreement. In no event shall dividends or Dividend Equivalents be paid with respect to Options or Stock Appreciation Rights.

8.5 Other Stock or Cash Based Awards. Other Stock or Cash Based Awards may be granted to Participants, including Awards entitling Participants to receive cash or Shares to be delivered in the future and annual or other periodic or long-term cash bonus awards (whether based on specified performance criteria or otherwise), in each case subject to any conditions and limitations in the Plan. Such Other Stock or Cash Based Awards will also be available as a payment form in the settlement of other Awards, as standalone payments and as payment in lieu of compensation to which a Participant is otherwise entitled, subject to compliance with Section 409A. Other Stock or Cash Based Awards may be paid in Shares, cash or other property, as the Administrator determines. Subject to the provisions of the Plan, the Administrator will determine the terms and conditions of each Other Stock or Cash Based Award, including any purchase price, performance goal(s), transfer restrictions, and vesting conditions, which will be set forth in the applicable Award Agreement. Except in connection with a spin-off or other similar event as otherwise permitted under Article IX, dividends that are scheduled to be paid prior to vesting of any Other Stock or Cash Based Award shall only be paid to the applicable Participant to the extent that the vesting conditions are subsequently satisfied and the Other Stock or Cash Based Award vests.

ARTICLE IX. ADJUSTMENTS FOR CHANGES IN COMMON STOCK AND CERTAIN OTHER EVENTS

9.1 Equity Restructuring. In connection with any Equity Restructuring, notwithstanding anything to the contrary in this Article IX, the Administrator will equitably adjust the terms of the Plan and each outstanding Award as it deems appropriate to reflect the Equity Restructuring, which may include (a) adjusting the number and type of securities subject to each outstanding Award or with respect to which Awards may be granted under the Plan (including, but not limited to, adjustments of the limitations in Article V hereof on the maximum number and kind of shares that may be issued); (b) adjusting the terms and conditions of (including the grant or exercise price), and the performance goals or other criteria included in, outstanding Awards; and (c) granting new Awards or making cash payments to Participants. The adjustments provided under this Section 9.1 will be nondiscretionary and final and binding on all interested parties, including the affected Participant and the Company; provided that the Administrator will determine whether an adjustment is equitable.

9.2 Corporate Transactions. In the event of any extraordinary dividend or other distribution (whether in the form of cash, Common Stock, other securities, or other property), reorganization, merger, consolidation, split-up, spin off, combination, amalgamation, repurchase, recapitalization, liquidation, dissolution, or sale, transfer, exchange or other disposition of all or substantially all of the assets of the Company, or sale or exchange of Common Stock or other securities of the Company, Change in Control, issuance of warrants or other rights to purchase Common Stock or other securities of the Company, other similar corporate transaction or event, other unusual or nonrecurring transaction or event affecting the Company or its financial statements or any change in any Applicable Law or accounting principles, the Administrator, on such terms and conditions as it deems appropriate, either by the terms of the Award or by action taken prior to the occurrence of such transaction or event (except that action to give effect to a change in Applicable Law or accounting principles may be made within a reasonable period of time after such change) and either automatically or upon the Participant’s request, is hereby authorized to take any one or more of the following actions whenever the Administrator determines that such action is appropriate in order to (i) prevent dilution or enlargement of the benefits or potential benefits intended by the Company to be made available under the Plan or with respect to any Award granted or issued under the Plan, (ii) to facilitate such transaction or event or (iii) give effect to such changes in Applicable Law or accounting principles:

(a) To provide for the cancellation of any such Award in exchange for either an amount of cash or other property with a value equal to the amount that could have been obtained upon the exercise or settlement of the vested portion of such Award or realization of the Participant's rights under the vested portion of such Award, as applicable, in each case as of the date of such cancellation; provided that, if the amount that could have been obtained upon the exercise or settlement of the vested portion of such Award or realization of the Participant's rights, in any case, is equal to or less than zero, then the Award may be terminated without payment;

(b) To provide that such Award shall vest and, to the extent applicable, be exercisable as to all Shares (or other property) covered thereby, notwithstanding anything to the contrary in the Plan or the provisions of such Award;

(c) To provide that such Award be assumed by the successor or survivor corporation or entity, or a parent or subsidiary thereof, or shall be substituted for by awards covering the stock of the successor or survivor corporation or entity, or a parent or subsidiary thereof, with appropriate adjustments as to the number and kind of shares and applicable exercise or purchase price, in all cases, as determined by the Administrator;

(d) To make adjustments in the number and type of Shares (or other securities or property) subject to outstanding Awards or with respect to which Awards may be granted under the Plan (including, but not limited to, adjustments of the limitations in Article V hereof on the maximum number and kind of shares which may be issued) or in the terms and conditions of (including the grant or exercise price), and the criteria included in, outstanding Awards;

(e) To replace such Award with other rights or property selected by the Administrator; or

(f) To provide that the Award will terminate and cannot vest, be exercised or become payable after the applicable event.

9.3 Change in Control.

(a) Notwithstanding any other provision of the Plan, in the event of a Change in Control, unless the Administrator elects to (i) terminate an Award in exchange for cash, rights or property, or (ii) cause an Award to become fully exercisable and no longer subject to any forfeiture restrictions prior to the consummation of a Change in Control, pursuant to Section 9.2, (A) such Award (other than any portion subject to performance-based vesting) shall continue in effect or be assumed or an equivalent Award substituted by the successor corporation or a parent or subsidiary of the successor corporation and (B) the portion of such Award subject to performance-based vesting shall be subject to the terms and conditions of the applicable Award Agreement and, in the absence of applicable terms and conditions, the Administrator's discretion.

(b) In the event that the successor corporation in a Change in Control refuses to assume or substitute for an Award (other than any portion subject to performance-based vesting), the Administrator shall cause such Award to become fully vested and, if applicable, exercisable immediately prior to the consummation of such transaction and all forfeiture restrictions on such Award to lapse and, to the extent unexercised upon the consummation of such transaction, to terminate in exchange for cash, rights or other property. The Administrator shall notify the Participant of any Award that becomes exercisable pursuant to the preceding sentence that such Award shall be fully exercisable for a period of 15 days from the date of such notice, contingent upon the occurrence of the Change in Control, and such Award shall terminate upon the consummation of the Change in Control in accordance with the preceding sentence.

(c) For the purposes of this Section 9.3, an Award shall be considered assumed if, following the Change in Control, the Award confers the right to purchase or receive, for each Share subject to the Award immediately prior to the Change in Control, the consideration (whether stock, cash, or other securities or property) received in the Change in Control by holders of Common Stock for each Share held on the effective date of the transaction (and if holders were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding Shares); provided, however, that if such consideration received in the Change in Control was not solely common stock of the successor corporation or its parent, the Administrator may, with the consent of the successor corporation, provide for the consideration to be received upon the exercise of the Award, for each Share subject to an Award, to be solely common stock of the successor corporation or its parent equal in fair market value to the per-share consideration received by holders of Common Stock in the Change in Control.

9.4 Administrative Stand Still. In the event of any pending stock dividend, stock split, combination or exchange of shares, merger, consolidation or other distribution (other than normal cash dividends) of Company assets to stockholders, or any other extraordinary transaction or change affecting the Shares or the share price of Common Stock (including any

Equity Restructuring or any securities offering or other similar transaction) or for reasons of administrative convenience or to facilitate compliance with any Applicable Law, the Company may refuse to permit the exercise or settlement of one or more Awards for such period of time as the Company may determine to be reasonably appropriate under the circumstances.

9.5 General. Except as expressly provided in the Plan or the Administrator's action under the Plan, no Participant will have any rights due to any subdivision or consolidation of Shares of any class, dividend payment, increase or decrease in the number of Shares of any class or dissolution, liquidation, merger, or consolidation of the Company or other corporation. Except as expressly provided with respect to an Equity Restructuring under Section 9.1 above or the Administrator's action under the Plan, no issuance by the Company of Shares of any class, or securities convertible into Shares of any class, will affect, and no adjustment will be made regarding, the number of Shares subject to an Award or the Award's grant price or exercise price. The existence of the Plan, any Award Agreements and the Awards granted hereunder will not affect or restrict in any way the Company's right or power to make or authorize (a) any adjustment, recapitalization, reorganization or other change in the Company's capital structure or its business, (b) any merger, consolidation, spinoff, dissolution or liquidation of the Company or sale of Company assets or (c) any sale or issuance of securities, including securities with rights superior to those of the Shares or securities convertible into or exchangeable for Shares.

ARTICLE X. PROVISIONS APPLICABLE TO AWARDS

10.1 Transferability.

(a) No Award may be sold, assigned, transferred, pledged or otherwise encumbered, either voluntarily or by operation of law, except by will or the laws of descent and distribution, or, subject to the Administrator's consent, pursuant to a DRO, unless and until such Award has been exercised or the Shares underlying such Award have been issued, and all restrictions applicable to such Shares have lapsed. During the life of a Participant, Awards will be exercisable only by the Participant, unless it has been disposed of pursuant to a DRO. After the death of a Participant, any exercisable portion of an Award may, prior to the time when such portion becomes unexercisable under the Plan or the applicable Award Agreement, be exercised by the Participant's personal representative or by any person empowered to do so under the deceased Participant's will or under the then-Applicable Law of descent and distribution. References to a Participant, to the extent relevant in the context, will include references to a transferee approved by the Administrator.

(b) Notwithstanding Section 10.1(a), the Administrator, in its sole discretion, may determine to permit a Participant or a Permitted Transferee of such Participant to transfer an Award other than an Incentive Stock Option (unless such Incentive Stock Option is intended to become a Nonqualified Stock Option) to any one or more Permitted Transferees of such Participant, subject to the following terms and conditions: (i) an Award transferred to a Permitted Transferee shall not be assignable or transferable by the Permitted Transferee other than (A) to another Permitted Transferee of the applicable Participant or (B) by will or the laws of descent and distribution or, subject to the consent of the Administrator, pursuant to a DRO; (ii) an Award transferred to a Permitted Transferee shall continue to be subject to all the terms and conditions of the Award as applicable to the original Participant (other than the ability to further transfer the Award to any person other than another Permitted Transferee of the applicable Participant); (iii) the Participant (or transferring Permitted Transferee) and the receiving Permitted Transferee shall execute any and all documents requested by the Administrator, including, without limitation, documents to (A) confirm the status of the transferee as a Permitted Transferee, (B) satisfy any requirements for an exemption for the transfer under Applicable Law and (C) evidence the transfer; and (iv) any transfer of an Award to a Permitted Transferee shall be without consideration, except as required by Applicable Law. In addition, and further notwithstanding Section 10.1(a), the Administrator, in its sole discretion, may determine to permit a Participant to transfer Incentive Stock Options to a trust that constitutes a Permitted Transferee if, under Section 671 of the Code and other Applicable Law, the Participant is considered the sole beneficial owner of the Incentive Stock Option while it is held in the trust.

(c) Notwithstanding Section 10.1(a), if permitted by the Administrator, a Participant may, in the manner determined by the Administrator, designate a Designated Beneficiary. A Designated Beneficiary, legal guardian, legal representative, or other person claiming any rights pursuant to the Plan is subject to all terms and conditions of the Plan and any Award Agreement applicable to the Participant and any additional restrictions deemed necessary or appropriate by the Administrator. If the Participant is married or a domestic partner in a domestic partnership qualified under Applicable Law and resides in a community property state, a designation of a person other than the Participant's spouse or domestic partner, as applicable, as the Participant's Designated Beneficiary with respect to more than 50% of the Participant's interest in the Award shall not be effective without the prior written or electronic consent of the Participant's spouse or domestic partner. Subject to the foregoing, a beneficiary designation may be changed or revoked by a Participant at any time; provided that the change or revocation is delivered in writing to the Administrator prior to the Participant's death.

10.2 Documentation. Each Award will be evidenced in an Award Agreement in such form as the Administrator determines in its discretion. Each Award may contain such terms and conditions as are determined by the Administrator in its sole discretion, to the extent not inconsistent with those set forth in the Plan.

10.3 Discretion. Except as the Plan otherwise provides, each Award may be made alone or in addition or in relation to any other Award. The terms of each Award to a Participant need not be identical, and the Administrator need not treat Participants or Awards (or portions thereof) uniformly.

10.4 Changes in Participant's Status. The Administrator will determine how the disability, death, retirement, authorized leave of absence or any other change or purported change in a Participant's Service Provider status affects an Award and the extent to which, and the period during which, the Participant, the Participant's legal representative, conservator, guardian or Designated Beneficiary may exercise rights under the Award, if applicable. Except to the extent otherwise required by Applicable Law or expressly authorized by the Company or by the Company's written policy on leaves of absence, no service credit shall be given for vesting purposes for any period the Participant is on a leave of absence.

10.5 Withholding. Each Participant must pay the Company or a Subsidiary, as applicable, or make provision satisfactory to the Administrator for payment of, any Tax-Related Items to be withheld in connection with such Participant's Awards and/or Shares. At the Company's discretion and subject to any Company insider trading policy (including black-out periods), any withholding obligation for Tax-Related Items may be satisfied by (a) deducting an amount sufficient to satisfy such withholding obligation from any payment of any kind otherwise due to a Participant; (b) accepting a payment from the Participant in cash, by wire transfer of immediately available funds, or by check made payable to the order of the Company or a Subsidiary, as applicable; (c) accepting the delivery of Shares, including Shares delivered by attestation; (d) retaining Shares from an Award; (e) if there is a public market for Shares at the time the withholding obligation for Tax-Related Items is to be satisfied, selling Shares issued pursuant to an Award, either voluntarily by the Participant or mandatorily by the Company; (f) any other method of withholding determined by the Company and, to the extent required by Applicable Law or the Plan, approved by the Administrator; or (g) any combination of the foregoing payment forms. The amount withheld pursuant to any of the foregoing payment forms shall be determined by the Company and may be up to, but no greater than, the aggregate amount of such obligations based on the maximum statutory withholding rates in the applicable Participant's jurisdiction for all Tax-Related Items.

10.6 Amendment of Award. The Administrator may amend, modify or terminate any outstanding Award, including by substituting another Award of the same or a different type, changing the exercise or settlement date, and converting an Incentive Stock Option to a Nonqualified Stock Option. The Participant's consent to such action will be required unless (a) the action, taking into account any related action, does not materially and adversely affect the Participant's rights under the Award, or (b) the change is permitted under Article IX or pursuant to Section 11.6.

10.7 Prohibition on Repricing. Except pursuant to Article IX, the Administrator shall not, without the approval of the Company's stockholders, (a) amend any outstanding Option or Stock Appreciation Right to reduce its exercise price per Share or (b) cancel any Option or Stock Appreciation Right in exchange for cash or another Award when the exercise price of such Option or Stock Appreciation Right exceeds the Fair Market Value of the underlying Shares.

10.8 Conditions on Delivery of Stock. The Company will not be obligated to deliver any Shares under the Plan or remove restrictions from Shares previously delivered under the Plan until (a) all Award conditions have been met or removed to the Company's satisfaction, (b) as determined by the Company, all other legal matters regarding the issuance and delivery of such Shares have been satisfied, including, without limitation, any applicable securities laws and stock exchange or stock market rules and regulations, (c) any approvals from governmental agencies that the Company determines are necessary or advisable have been obtained, and (d) the Participant has executed and delivered to the Company such representations or agreements as the Administrator deems necessary or appropriate to satisfy Applicable Law. The inability or impracticability of the Company to obtain or maintain authority to issue or sell any securities from any regulatory body having jurisdiction, which authority is deemed by the Company's counsel to be necessary to the lawful issuance and sale of any Shares hereunder, shall relieve the Company of any liability in respect of the failure to issue or sell such Shares as to which such requisite authority shall not have been obtained, and shall constitute circumstances in which the Administrator may determine to amend or cancel Awards pertaining to such Shares, with or without consideration to the Participant.

10.9 Acceleration. The Administrator may at any time provide that any Award will become immediately vested and fully or partially exercisable, free of some or all restrictions or conditions, or otherwise fully or partially realizable.

**ARTICLE XI.
MISCELLANEOUS**

11.1 No Right to Employment or Other Status. No person will have any claim or right to be granted an Award, and the grant of an Award will not be construed as giving a Participant the right to commence or continue employment or any other relationship with the Company or a Subsidiary. The Company and its Subsidiaries expressly reserve the right at any time to dismiss or otherwise terminate its relationship with a Participant free from any liability or claim under the Plan or any Award, except as expressly provided in an Award Agreement or other written agreement between the Participant and the Company or any Subsidiary.

11.2 No Rights as Stockholder; Certificates. Subject to the Award Agreement, no Participant or Designated Beneficiary will have any rights as a stockholder with respect to any Shares to be distributed under an Award until becoming the record holder of such Shares. Notwithstanding any other provision of the Plan, unless the Administrator otherwise determines or Applicable Law requires, the Company will not be required to deliver to any Participant certificates evidencing Shares issued in connection with any Award and instead such Shares may be recorded in the books of the Company (or, as applicable, its transfer agent or stock plan administrator). The Company may place legends on any share certificate or book entry to reference restrictions applicable to the Shares (including, without limitation, restrictions applicable to Restricted Stock).

11.3 Effective Date. The Board approved the Plan on April 18, 2023, subject to the approval of the Company's stockholders. The Plan will become effective on the date it is approved by the Company's stockholders (the "**Effective Date**"). If the Plan is not approved by the Company's stockholders on or before April 18, 2024, the Plan will not become effective. No Incentive Stock Option may be granted pursuant to the Plan after the tenth anniversary of the date the Plan was approved by the Board.

11.4 Amendment of Plan. The Administrator may amend, suspend or terminate the Plan at any time and from time to time; provided that (a) no amendment requiring stockholder approval to comply with Applicable Law shall be effective unless approved by the stockholders, and (b) no amendment, other than an increase to the Overall Share Limit or pursuant to Article IX or Section 11.6, may materially and adversely affect any Award outstanding at the time of such amendment without the affected Participant's consent. No Awards may be granted under the Plan during any suspension period or after Plan termination. Awards outstanding at the time of any Plan suspension or termination will continue to be governed by the Plan and the Award Agreement, as each in effect before such suspension or termination. The Administrator will obtain stockholder approval of any Plan amendment to the extent necessary to comply with Applicable Law.

11.5 Provisions for Non-U.S. Participants. The Administrator may modify Awards granted to Participants who are nationals of a country other than the United States or employed or residing outside the United States, establish subplans or procedures under the Plan or take any other necessary or appropriate action to address Applicable Law, including (a) differences in laws, rules, regulations or customs of such jurisdictions with respect to tax, securities, currency, employee benefit or other matters, (b) listing and other requirements of any non-U.S. securities exchange, and (c) any necessary local governmental or regulatory exemptions or approvals.

11.6 Section 409A.

(a) *General.* The Company intends that all Awards be structured to comply with, or be exempt from, Section 409A, such that no adverse tax consequences, interest, or penalties under Section 409A apply. Notwithstanding anything in the Plan or any Award Agreement to the contrary, the Administrator may, without a Participant's consent, amend this Plan or Awards, adopt policies and procedures, or take any other actions (including amendments, policies, procedures and retroactive actions) as are necessary or appropriate to preserve the intended tax treatment of Awards, including any such actions intended to (i) exempt this Plan or any Award from Section 409A, or (ii) comply with Section 409A, including regulations, guidance, compliance programs and other interpretative authority that may be issued after an Award's grant date. The Company makes no representations or warranties as to an Award's tax treatment under Section 409A or otherwise. The Company will have no obligation under this Section 11.6 or otherwise to avoid the taxes, penalties or interest under Section 409A with respect to any Award and will have no liability to any Participant or any other person if any Award, compensation or other benefits under the Plan are determined to constitute noncompliant "nonqualified deferred compensation" subject to taxes, penalties or interest under Section 409A.

(b) *Separation from Service.* If an Award constitutes "nonqualified deferred compensation" under Section 409A, any payment or settlement of such Award upon a Participant's Termination of Service will, to the extent necessary to avoid taxes under Section 409A, be made only upon the Participant's "separation from service" (within the

meaning of Section 409A), whether such “separation from service” occurs upon or after the Participant’s Termination of Service. For purposes of this Plan or any Award Agreement relating to any such payments or benefits, references to a “termination,” “termination of employment” or like terms means a “separation from service.”

(c) *Payments to Specified Employees.* Notwithstanding any contrary provision in the Plan or any Award Agreement, any payment(s) of “nonqualified deferred compensation” required to be made under an Award to a “specified employee” (as defined under Section 409A and as the Administrator determines) due to such employee’s “separation from service” will, to the extent necessary to avoid taxes under Section 409A(a)(2)(B)(i) of the Code, be delayed for the six-month period immediately following such “separation from service” (or, if earlier, until the specified employee’s death) and will instead be paid (as set forth in the Award Agreement) on the day immediately following such six-month period or as soon as administratively practicable thereafter (without interest). Any payments of “nonqualified deferred compensation” under such Award payable more than six months following the Participant’s “separation from service” will be paid at the time or times the payments are otherwise scheduled to be made.

(d) *Separate Payments.* If an Award includes a “series of installment payments” within the meaning of Section 1.409A-2(b)(2)(iii) of Section 409A, the Participant’s right to the series of installment payments will be treated as a right to a series of separate payments and not as a right to a single payment and, if an Award includes “dividend equivalents” within the meaning of Section 1.409A-3(e) of Section 409A, the Participant’s right to receive the dividend equivalents will be treated separately from the right to other amounts under the Award.

11.7 Limitations on Liability. Notwithstanding any other provisions of the Plan, no individual acting as an Administrator, Director, officer or other Employee will be liable to any Participant, former Participant, spouse, beneficiary, or any other person for any claim, loss, liability, or expense incurred in connection with the Plan or any Award, and such individual will not be personally liable with respect to the Plan because of any contract or other instrument executed in such person’s capacity as an Administrator, Director, officer or other Employee. The Company will indemnify and hold harmless each Director, officer or other Employee that has been or will be granted or delegated any duty or power relating to the Plan’s administration or interpretation, against any cost or expense (including attorneys’ fees) or liability (including any sum paid in settlement of a claim with the Administrator’s approval) arising from any act or omission concerning this Plan unless arising from such person’s own fraud or bad faith; provided that such person gives the Company an opportunity, at its own expense, to handle and defend the same before undertaking to handle and defend it on such person’s own behalf.

11.8 Data Privacy. As a condition for receiving any Award, each Participant explicitly and unambiguously consents to the collection, use and transfer, in electronic or other form, of personal data as described in this Section 11.8 by and among the Company and its Subsidiaries and affiliates exclusively for implementing, administering and managing the Participant’s participation in the Plan. The Company and its Subsidiaries and affiliates may hold certain personal information about a Participant, including the Participant’s name, address and telephone number; birthdate; social security, insurance number or other identification number; salary; nationality; job title(s); any Shares held in the Company or its Subsidiaries and affiliates; and Award details, to implement, manage and administer the Plan and Awards (the “*Data*”). The Company and its Subsidiaries and affiliates may transfer the Data amongst themselves as necessary to implement, administer and manage a Participant’s participation in the Plan, and the Company and its Subsidiaries and affiliates may transfer the Data to third parties assisting the Company with Plan implementation, administration and management. These recipients may be located in the Participant’s country, or elsewhere, and the Participant’s country may have different data privacy laws and protections than a recipient’s country. By accepting an Award, each Participant authorizes such recipients to receive, possess, use, retain and transfer the Data, in electronic or other form, to implement, administer and manage the Participant’s participation in the Plan, including any required Data transfer to a broker or other third party with whom the Company or the Participant may elect to deposit any Shares. The Data related to a Participant will be held only as long as necessary to implement, administer, and manage the Participant’s participation in the Plan. A Participant may, at any time, view the Data that the Company holds regarding such Participant, request additional information about the storage and processing of the Data regarding such Participant, recommend any necessary corrections to the Data regarding the Participant or refuse or withdraw the consents in this Section 11.8 in writing, without cost, by contacting the local human resources representative. The Company may cancel Participant’s ability to participate in the Plan and, in the Administrator’s sole discretion, the Participant may forfeit any outstanding Awards if the Participant refuses or withdraws the consents in this Section 11.8. For more information on the consequences of refusing or withdrawing consent, Participants may contact their local human resources representative.

11.9 Severability. If any portion of the Plan or any action taken under it is held illegal or invalid for any reason, the illegality or invalidity will not affect the remaining parts of the Plan, and the Plan will be construed and enforced as if the illegal or invalid provisions had been excluded, and the illegal or invalid action will be null and void.

11.10 Governing Documents. If any contradiction occurs between the Plan and any Award Agreement or other written agreement between a Participant and the Company (or any Subsidiary), the Plan will govern, unless such Award Agreement or other written agreement was approved by the Administrator and expressly provides that a specific provision of the Plan will not apply.

11.11 Governing Law. The Plan and all Awards will be governed by and interpreted in accordance with the laws of the State of Delaware, without regard to the conflict of law rules thereof or of any other jurisdiction. By accepting an Award, each Participant irrevocably and unconditionally consents to submit, at the Company's discretion, to the exclusive jurisdiction of the courts of the State of Delaware and of the United States of America, in each case located in the State of Delaware, for any action arising out of or relating to the Plan (and agrees not to commence any litigation relating thereto except in such courts), and further agrees that service of any process, summons, notice or document by U.S. registered mail to the address contained in the records of the Company shall be effective service of process for any litigation brought against it in any such court. By accepting an Award, each Participant irrevocably and unconditionally waives any objection to the laying of venue of any litigation arising out of the Plan or Award hereunder in the courts of the State of Delaware or the United States of America, in each case located in the State of Delaware, and further irrevocably and unconditionally waives and agrees not to plead or claim in any such court that any such litigation brought in any such court has been brought in an inconvenient forum. By accepting an Award, each Participant irrevocably and unconditionally waives, to the fullest extent permitted by Applicable Law, any and all rights to trial by jury in connection with any litigation arising out of or relating to the Plan or any Award hereunder.

11.12 Clawback Provisions. All Awards (including the gross amount of any proceeds, gains or other economic benefit the Participant actually or constructively receives upon receipt or exercise of any Award or the receipt or resale of any Shares underlying the Award) will be subject to recoupment by the Company to the extent required to comply with Applicable Law or any policy of the Company providing for the reimbursement of incentive compensation, whether or not such policy was in place at the time of grant of an Award.

11.13 Titles and Headings. The titles and headings in the Plan are for convenience of reference only and, if any conflict, the Plan's text, rather than such titles or headings, will control.

11.14 Conformity to Applicable Law. Participant acknowledges that the Plan is intended to conform to the extent necessary with Applicable Law. Notwithstanding anything herein to the contrary, the Plan and all Awards will be administered only in a manner intended to conform with Applicable Law. To the extent Applicable Law permits, the Plan and all Award Agreements will be deemed amended as necessary to conform to Applicable Law.

11.15 Relationship to Other Benefits. No payment under the Plan will be taken into account in determining any benefits under any pension, retirement, savings, profit sharing, group insurance, welfare or other benefit plan of the Company or any Subsidiary, except as expressly provided in writing in such other plan or an agreement thereunder.

11.16 Unfunded Status of Awards. The Plan is intended to be an "unfunded" plan for incentive compensation. With respect to any payments not yet made to a Participant pursuant to an Award, nothing contained in the Plan or Award Agreement shall give the Participant any rights that are greater than those of a general creditor of the Company or any Subsidiary.

11.17 Limitations Applicable to Section 16 Persons. Notwithstanding any other provision of the Plan, the Plan and any Award granted or awarded to any individual who is then subject to Section 16 of the Exchange Act shall be subject to any additional limitations set forth in any applicable exemptive rule under Section 16 of the Exchange Act (including Rule 16b-3) that are requirements for the application of such exemptive rule. To the extent permitted by Applicable Law, the Plan and Awards granted or awarded hereunder shall be deemed amended to the extent necessary to conform to such applicable exemptive rule.

11.18 Prohibition on Executive Officer and Director Loans. Notwithstanding any other provision of the Plan to the contrary, no Participant who is a Director or an "executive officer" of the Company within the meaning of Section 13(k) of the Exchange Act shall be permitted to make payment with respect to any Awards granted under the Plan, or continue any extension of credit with respect to such payment, with a loan from the Company or a loan arranged by the Company in violation of Section 13(k) of the Exchange Act.

11.19 Broker-Assisted Sales. In the event of a broker-assisted sale of Shares in connection with the payment of amounts owed by a Participant under or with respect to the Plan or Awards, including amounts to be paid under the final sentence of Section 10.5: (a) any Shares to be sold through the broker-assisted sale will be sold on the day the payment first

becomes due, or as soon thereafter as practicable; (b) such Shares may be sold as part of a block trade with other Participants in the Plan in which all Participants receive an average price; (c) the applicable Participant will be responsible for all broker's fees and other costs of sale, and by accepting an Award, each Participant agrees to indemnify and hold the Company and its Directors, officers and other Employees harmless from any losses, costs, damages, or expenses relating to any such sale; (d) to the extent the Company or its designee receives proceeds of such sale that exceed the amount owed, the Company will pay such excess in cash to the applicable Participant as soon as reasonably practicable; (e) the Company and its designees are under no obligation to arrange for such sale at any particular price; and (f) in the event the proceeds of such sale are insufficient to satisfy the Participant's applicable obligation, the Participant may be required to pay immediately upon demand to the Company or its designee an amount in cash sufficient to satisfy any remaining portion of the Participant's obligation.

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