

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

SCHEDULE 14A

Proxy Statement Pursuant to Section 14(a) of the Securities
Exchange Act of 1934

Filed by the Registrant

Filed by a Party other than the Registrant

Check the appropriate box:

<input checked="" type="checkbox"/>	Preliminary Proxy Statement
<input type="checkbox"/>	Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))
<input type="checkbox"/>	Definitive Proxy Statement
<input type="checkbox"/>	Definitive Additional Materials
<input type="checkbox"/>	Soliciting Material under §240.14a-12



VERTEX PHARMACEUTICALS INCORPORATED

(Name of Registrant as Specified In Its Charter)

Payment of Filing Fee (Check the appropriate box):

<input checked="" type="checkbox"/>	No fee required.
<input type="checkbox"/>	Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11. (1) Title of each class of securities to which transaction applies: (2) Aggregate number of securities to which transaction applies: (3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined): (4) Proposed maximum aggregate value of transaction: (5) Total fee paid:
<input type="checkbox"/>	Fee paid previously with preliminary materials.
<input type="checkbox"/>	Check box if any part of the fee is offset as provided by Exchange Act Rule 0-11(a)(2) and identify the filing for which the offsetting fee was paid previously. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing. (1) Amount Previously Paid: (2) Form, Schedule or Registration Statement No.: (3) Filing Party: (4) Date Filed:

**2018 PROXY STATEMENT
VERTEX PHARMACEUTICALS INCORPORATED**

Notice of Annual Meeting of Shareholders to be held on May 17, 2018





Dear Shareholders:

Since 2012 we have consistently executed on our strategy of investing in scientific innovation to create transformative medicines for people with serious diseases – a strategy that we believe will both maximize benefits for patients and generate long-term value for shareholders. In 2017, we saw this strategy pay off in remarkable ways for Vertex, for the eligible patients who benefit from our medicines, and for the long-term shareholders who believe in our company.

During the last year, we reached thousands of additional patients with our approved cystic fibrosis (CF) medicines and accelerated the progression of our CF pipeline with the possibility to treat up to 90% of all patients with this devastating disease. As we treated more patients, we exceeded expectations for revenue growth, became profitable, and expanded our operating margins and increased our cash flow. We also advanced our promising non-CF pipeline for important new diseases including, pain, sickle cell disease, and alpha-1 anti-trypsin deficiency. We are proud of these accomplishments, but we realize that with them comes even more responsibility to continue to innovate to produce more new medicines for patients and value for shareholders. As we exit 2017, we believe we are better positioned than ever to meet these obligations and grow our company for many years to come.

During the last six years, we have taken Vertex from a market capitalization of less than \$10 billion in early 2012 to over \$40 billion in early 2018, creating significant value for our shareholders. We created this value by executing on a clear and focused vision that balanced shorter-term goals – advancing our late-stage pipeline, increasing revenues and managing operating expenses – with goals directed at the long-term trajectory of the company, including enhancing our organizational capabilities, continuing to invest in research, and exploring promising new therapeutic approaches.

We believe we are one of a small number of biotechnology companies that has demonstrated the capacity to serially innovate in multiple disease areas. Not only have we brought four internally discovered and developed medicines for serious diseases to the market, but we also have established a pipeline of potentially transformative medicines that are in clinical development. This pipeline includes: next-generation triple-combination regimens that we are advancing into pivotal development, which have the potential to provide highly effective treatments for up to 90% of patients with CF; selective sodium channel inhibitors, the most advanced of which is currently in Phase 2 development, that we have shown have the potential to provide a non-opioid alternative for the relief of pain; and a potential novel treatment for influenza A infection that our collaborator advanced into pivotal development in late 2017. We continue to apply the lessons we have learned in CF about the importance of validated targets, predictive biomarkers, and efficient regulatory pathways to guide our research efforts as we develop additional drug candidates for serious diseases such as beta-thalassemia and sickle cell disease using CRISPR/Cas9 gene editing technology and alpha-1 anti-trypsin deficiency and polycystic kidney disease using other innovative approaches.

We are proud of the evolution of Vertex over the last several years and are excited about future opportunities to develop additional transformative medicines that could profoundly affect the lives of patients suffering from serious diseases. As we enter 2018, we are now a financially strong global biotechnology company well positioned to continue to grow revenues and deliver expanding operating margins, while investing in research and development to maintain and strengthen our position as one of the most innovative companies in the industry. We thank you for continuing to support us on this important journey.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeffrey M. Leiden".

Jeffrey M. Leiden, M.D., Ph.D.
Chairman, Chief Executive Officer and President



Notice of Annual Meeting of Shareholders

Thursday, May 17, 2018

9:30 a.m.

50 Northern Avenue
Boston, Massachusetts 02210

Dear Shareholders:

You are invited to attend Vertex Pharmaceuticals Incorporated's 2018 Annual Meeting of Shareholders. At the meeting, shareholders will vote:

- to elect the three director nominees that are set forth in the attached proxy statement to one year terms expiring in 2019;
- to approve amendments to our Restated Articles of Organization and Amended and Restated By-laws that eliminate supermajority provisions;
- to approve an amendment and restatement of our 2013 Stock and Option Plan, that, among other things, increases the number of shares authorized for issuance under this plan by 8.0 million shares;
- to ratify the selection of Ernst & Young LLP as our independent registered public accounting firm for 2018;
- to approve our named executive officers' compensation in an advisory vote; and
- on two proposals submitted by our shareholders, if properly presented at the meeting.

Shareholders also will transact any other business that may properly come before the annual meeting or any adjournment or postponement of the annual meeting.

RECORD DATE:

You can vote if you were a shareholder of record on March 29, 2018.

Your vote matters. Whether or not you plan to attend the annual meeting, please ensure that your shares are represented by voting, signing, dating and returning your proxy in the enclosed envelope, which requires no postage if mailed in the United States.

April __, 2018

By Order of the Board of Directors

A handwritten signature in black ink, appearing to read "Michael LaCascia".

Michael J. LaCascia
Secretary

IMPORTANT NOTICE REGARDING AVAILABILITY OF PROXY MATERIALS. This proxy statement and the enclosed proxy card are first being mailed or furnished to our shareholders on or about April __, 2018. This proxy statement and our Annual Report on Form 10-K for the year ended December 31, 2017 are available to holders of record of our common stock at www.envisionreports.com/vrtx and to beneficial holders of our common stock at www.edocumentview.com/vrtx.

SUMMARY INFORMATION

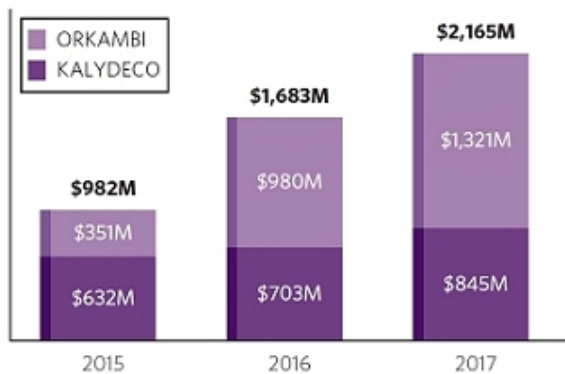
By any measure, 2017 was a remarkable year for Vertex as we continue to execute on our strategy of investing in scientific innovation to create transformative medicines for people with serious diseases. With near-30 percent growth in cystic fibrosis (CF) revenues and disciplined management of our operating expenses, we have established a foundation of financial strength to fuel our innovation engine and growth for the future. In CF, we continue to develop new and better medicines to treat more people with this devastating disease, and, with the announcement of the start of our triple combination regimen trials, we are more confident than ever that we will be able to treat up to 90 percent of people with CF in the near future. Outside of CF, we have made significant progress in advancing our research and development efforts in other serious diseases, including pain, alpha-1 anti-trypsin deficiency and, with our partner CRISPR, sickle cell disease. With these advances, we have enhanced our proven track record of serially innovating for patients waiting for new therapies. As we enter 2018, we are financially strong and well positioned to grow revenues, deliver expanding operating margins, and deliver long-term shareholder value.

Financial Performance

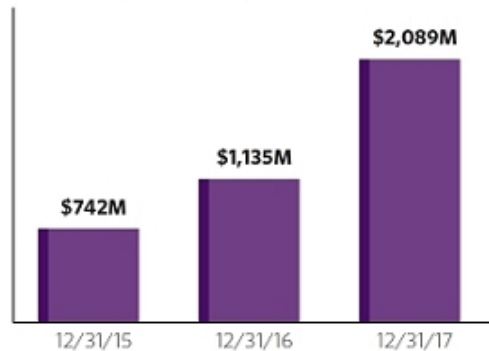
Our CF medicines, KALYDECO, ORKAMBI and SYMDEKO, which took more than 15 years to discover and develop, are now transforming the lives of eligible patients around the globe and driving our financial performance. In 2017, we increased our revenues, managed our operating expenses and established sustainable profitability on a GAAP and Non-GAAP basis for the first time.

- We exceeded our CF net product revenue guidance by \$265 million, or 14% (\$2.17 billion as compared to the mid-point of our initial guidance of \$1.9 billion)
- Our CF net product revenues increased to \$2.17 billion, up 29% as compared to 2016, and we are positioned to further increase CF net product revenues by an additional 25% in 2018
- We increased our net cash position by approximately \$950 million, or 84%, to approximately \$2.1 billion, and we expect to continue generating substantial cash flows in 2018
- We went from a GAAP net loss of \$112 million in 2016 to GAAP net income of \$263 million in 2017
- Our non-GAAP net income increased to \$495 million, up \$283 million, or 134%, from 2016, driven by our increased net product revenues (a reconciliation of non-GAAP net income is provided in Appendix D)

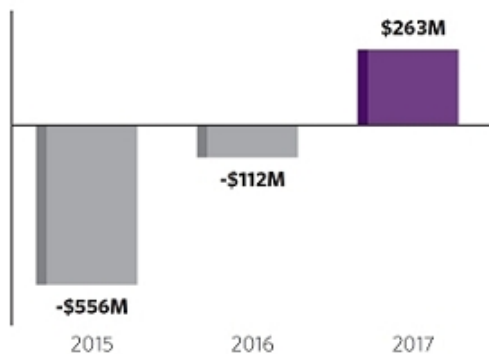
INCREASING CF NET PRODUCT REVENUES



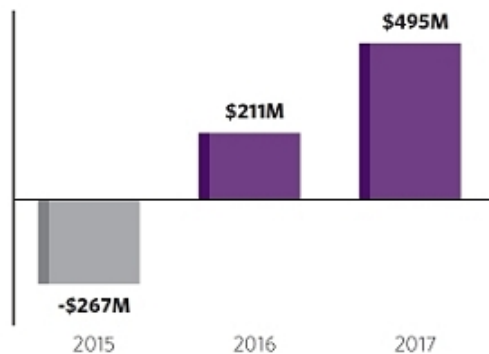
INCREASING FINANCIAL STRENGTH AND GENERATING SIGNIFICANT POSITIVE CASH FLOWS
(Cash, Cash Equivalents and Marketable Securities net of Debt)



GAAP NET INCOME (LOSS)

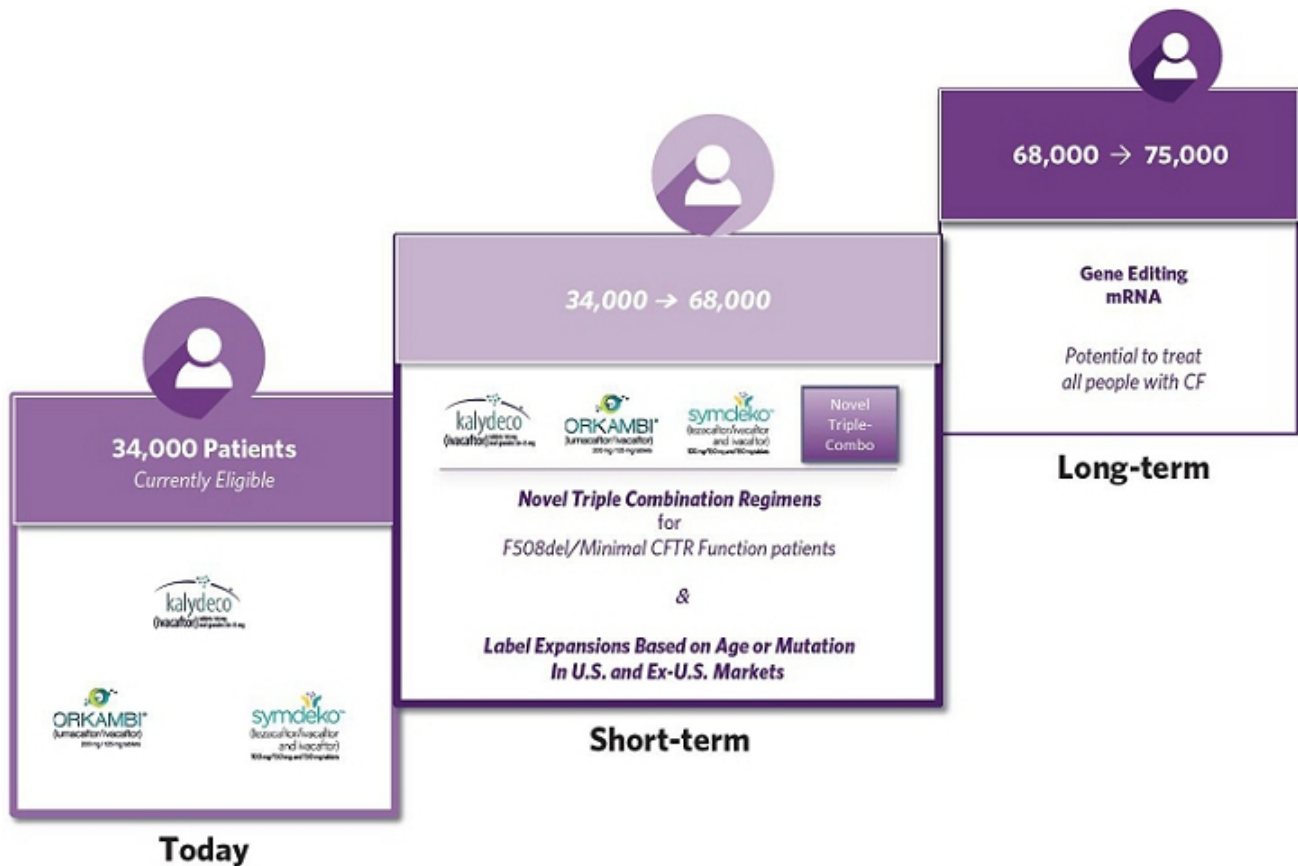


Non-GAAP NET INCOME (LOSS)



CF Pipeline

Advances in our pipeline and our strategic execution have moved us closer to our goal of delivering highly-effective treatments to all patients with CF. In January 2012, KALYDECO was first approved to treat approximately 1,000 patients with the G551D mutation. Since then, we have followed a focused strategy of developing new medicines for CF and expanding the number of patients eligible for our medicines, and today 34,000 patients around the world are eligible to receive one of our approved CF medicines.



Since the beginning of 2017, we:

- Obtained positive Phase 3 data for SYMDEKO (tezacaftor in combination with ivacaftor) in early 2017
- Achieved approval for SYMDEKO in the United States in February 2018
- Applied for European regulatory approval of tezacaftor in combination with ivacaftor in July 2017 with approval expected in the second half of 2018
- Obtained authorization to market ORKAMBI in the European Union for patients 6-11 in January 2018
- Received approvals to market KALYDECO for approximately 1,500 additional CF patients in the United States with residual function mutations in 2017
- Obtained positive Phase 3 data for KALYDECO for patients 1 to 2 years of age in December 2017
- Obtained highly-positive Phase 2 data for four triple combination regimens, each of which contained different next-generation correctors in combination with tezacaftor and ivacaftor, from mid-2017 through early 2018
- Accelerated initiation of the Phase 3 development program for VX-659 in combination with tezacaftor and ivacaftor, which started in February 2018
- Positioned ourselves to initiate a Phase 3 clinical development program for VX-445 in a triple combination regimen in mid-2018



With the start of our triple combination regimen Phase 3 clinical trials, we believe we are well-positioned to treat up to 90% of CF patients with medicines that target the underlying cause of their disease.

Non-CF Pipeline

Over the last decade, we have demonstrated an ability to serially discover and develop multiple groundbreaking medicines in different diseases. In 2017, we and our collaborators continued our serial innovation, advancing promising non-CF programs for important diseases, including pain, sickle cell disease, alpha-1 anti-trypsin deficiency, polycystic kidney disease and influenza. Specifically, since the beginning of 2017, we have:

- Obtained the first clinical proof-of-concept from a Phase 2 clinical trial evaluating a selective NaV1.8 inhibitor as a potential treatment for chronic pain in January 2017 (VX-150 is our lead non-opioid NaV1.8 inhibitor)
- Obtained clinical proof-of-concept from a second Phase 2 clinical trial of VX-150 as a potential treatment for acute pain in February 2018
- Initiated a Phase 1 clinical trial of VX-128, a second non-opioid sodium channel inhibitor, in December 2017
- Executed a co-development and co-commercialization agreement with CRISPR Therapeutics AG for beta-thalassemia and sickle cell disease
- Advanced through pre-clinical development CTX001 for beta-thalassemia and sickle cell disease pursuant to our collaboration with CRISPR Therapeutics AG. We expect to initiate Phase 1/2 clinical trials in 2018 to evaluate CTX001, which will be the first, or one of the first, clinical trials to evaluate a potential CRISPR/Cas9 drug candidate.
- Advanced our research program for alpha-1 anti-trypsin deficiency into late-stage pre-clinical development
- Janssen Pharmaceuticals, our collaborator, initiated Phase 3 development of pimodivir as a potential treatment for influenza
- Successfully outlicensed our oncology programs to Merck KGaA, Darmstadt, Germany



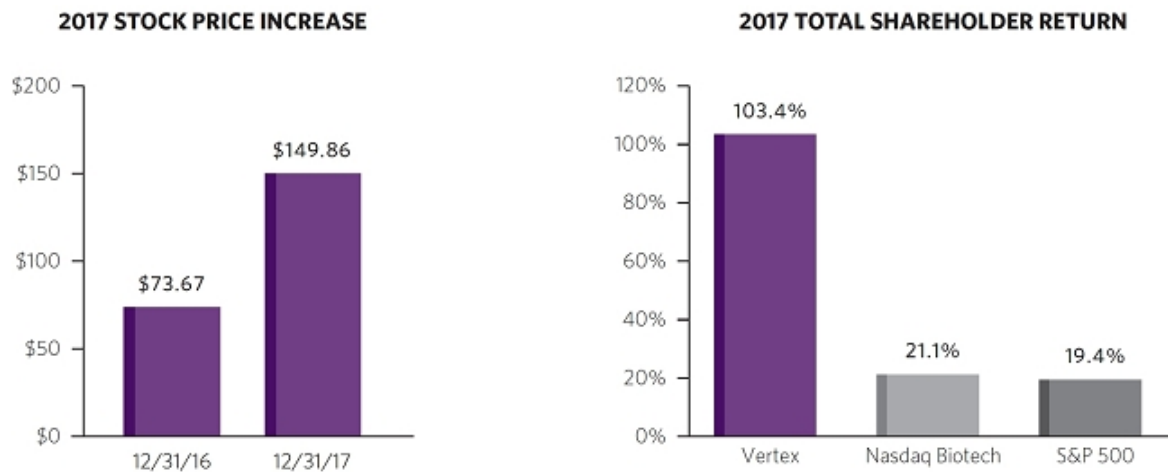
* We are co-developing CTX001 with CRISPR Therapeutics

** We have outlicensed pimodivir to Janssen Pharmaceuticals and M6620 to Merck KGaA

Increased Shareholder Value

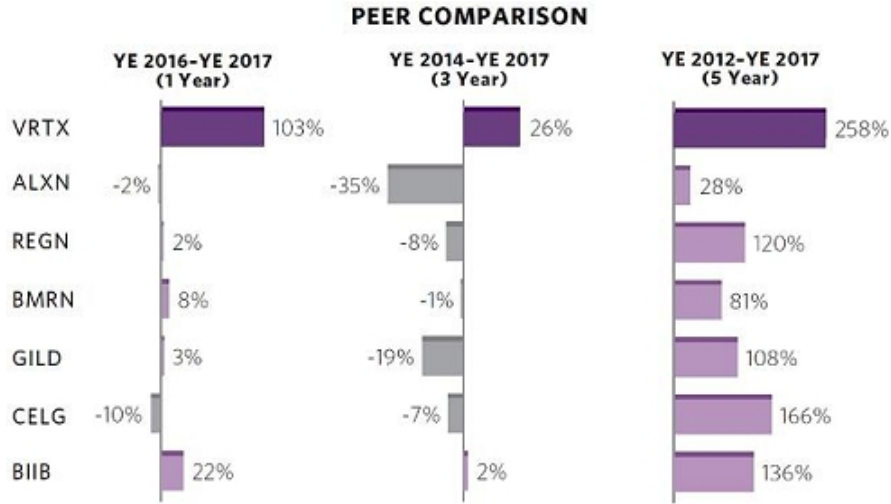
Driven by our exceptional financial performance and our pipeline success in 2017:

- Our stock price increased by more than 100% from \$73.67 per share to \$149.86 per share
- We were the third best performing stock among the approximately 500 mid- and large-cap companies that make up the S&P 500 index

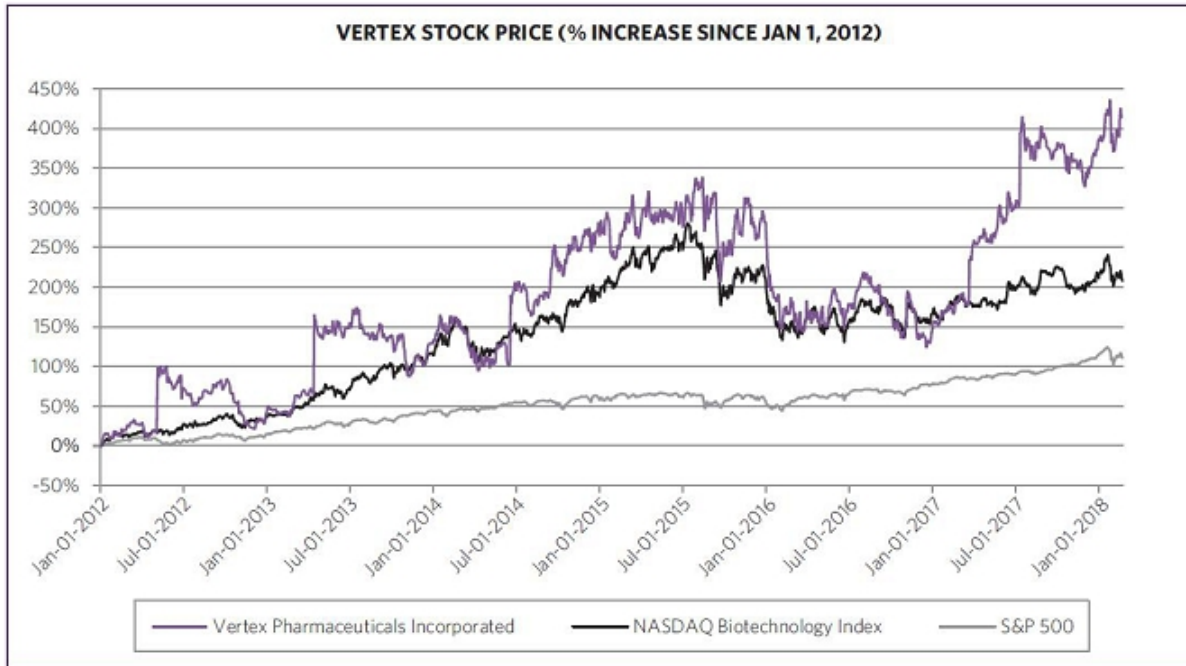


Although our performance in 2017 was remarkable, biotechnology companies are best measured over the longer-term, as opposed to in one-year increments. As result of executing on a clear and focused vision that balanced short-term and long-term goals, we have taken Vertex from a market capitalization of less than \$10 billion in early 2012 to over \$40 billion in early 2018, creating significant value for our shareholders.

The following chart shows our total shareholder return during the 1-year, 3-year and 5-year periods ending December 31, 2017 compared to the following members of our peer group: Alexion, Regeneron, Biomarin, Gilead, Celgene and Biogen. These peers are the companies we consider most similar to our company based on their business models (see page 54).



The following chart shows our total shareholder return from the beginning of 2012 when KALYDECO was first approved through February 2018.



2017 Compensation Decisions and Pay-for Performance

Our board of directors and management development and compensation committee, or MDCC, reviewed our compensation programs and made the following key decisions:

- We maintained the same compensation program design that we implemented in 2016, which we believe closely ties pay with performance and has contributed to our short- and long-term successes

- The company's exceptional performance in 2017, as described above, resulted in a leading rating (a company rating of 148 out of a potential 150) for 2017 and annual cash bonuses near the high end of the range for 2017, commensurate with this performance
- Our CEO's salary has been unchanged at \$1.3 million since 2014 and is aligned with the median CEO pay of our peer companies
- We continued our utilization of a mix of equity that consists of performance stock units that vest solely upon achievement of rigorous performance goals, stock options that only have value if our stock price appreciates and time-vesting restricted stock units that reward stock price appreciation but also serve as a retention tool

Corporate Responsibility

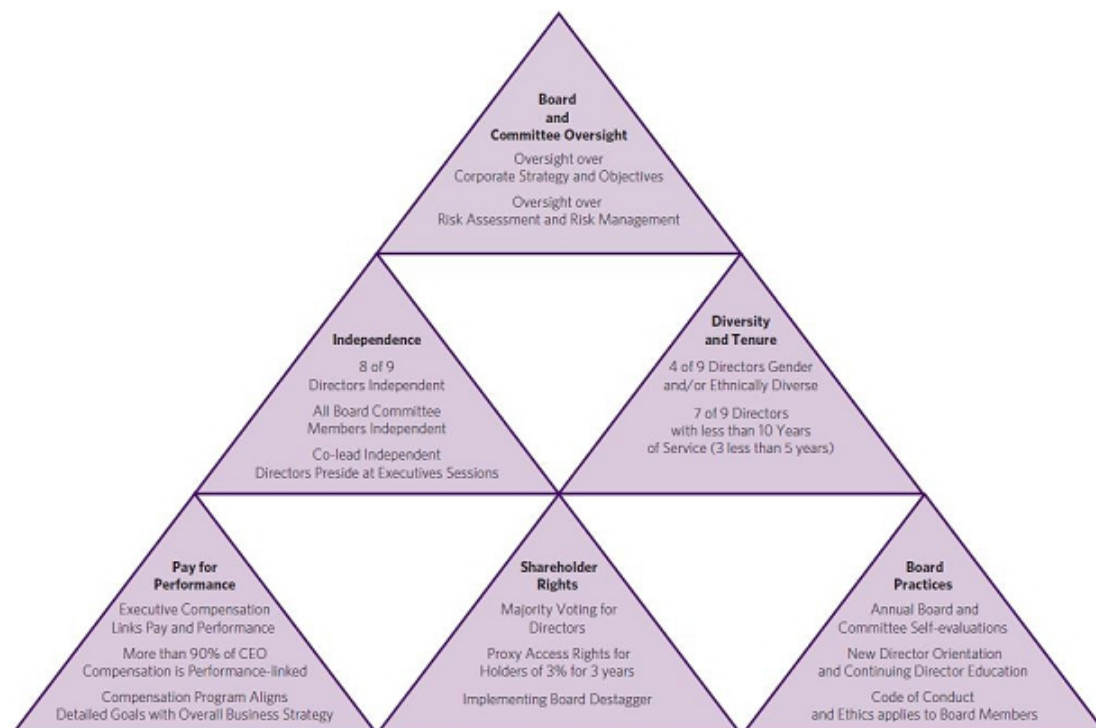
- **Giving and Access.** Giving is in our DNA here at Vertex. In 2017, we made a 10-year, \$500 million corporate giving commitment that extended and expanded our existing programs focused on four areas:
 - supporting patients
 - promoting science, technology, engineering, arts and math (STEAM) education
 - developing young physicians and scientists
 - strengthening our local communities
- **Diversity and Inclusion.** Our commitment to diversity and inclusion on our board and in our workforce is ingrained in our culture. Four of our nine directors are diverse on a gender and/or ethnic basis, and 63% of our critical hires at the vice president or above level were diverse on a gender/ethnic basis in 2017.
- **Sustainability.** We are committed to sustainability. Our facilities are designed to limit our environmental impact, and we encourage our employees to operate and commute in a sustainable manner through benefit programs and operational initiatives that have resulted in approximately 50% of our employees in Boston commuting using public transportation.

Shareholder Engagement

In 2017, we received support from 83% of our shareholders on our say-on-pay proposal, and we believe all of our ten largest shareholders supported this proposal. We believe this support is consistent with our long-term shareholders' understanding of our business model and the long-term value we are creating. We plan on continuing a high level of engagement with our shareholders regarding executive compensation and other matters important to our shareholders. In 2017, we held discussions regarding executive compensation and other matters with shareholders representing approximately 75% of our outstanding stock.

Corporate Governance Highlights

We are committed to maintaining strong corporate governance practices that promote the long-term interests of our shareholders and strengthen board and management accountability.



In addition, in February 2018, our board of directors approved, subject to shareholder approval, an amendment to our Restated Articles of Organization and an amendment and restatement of our By-Laws, which will result in the removal of the voting requirements in our charter and by-laws that call for greater than a simple majority vote.

This proposed amendment to our Restated Articles of Organization and the amendment and restatement of our By-Laws will be voted on at the 2018 annual shareholders meeting and are in response to the results of a shareholder proposal at our 2017 annual meeting.

Voting Matters

Item 1: Election of Directors for One Year Term Expiring in 2019	FOR all Nominees
Item 2: Approval of Amendments to Charter and By-laws	FOR
Item 3: Approval of Amendment and Restatement of 2013 Stock and Option Plan	FOR
Item 4: Ratify Selection of Independent Auditor for 2018	FOR
Item 5: Approve, on an Advisory Basis, Our Named Executive Officer Compensation	FOR
Item 6: Shareholder Proposal Regarding Lobbying Report	AGAINST
Item 7: Shareholder Proposal Regarding Report on Drug Pricing	AGAINST

Table of Contents

FREQUENTLY ASKED QUESTIONS REGARDING THE ANNUAL MEETING	13
ITEM 1: ELECTION OF DIRECTORS	16
Board Structure and Composition	16
Shareholder-Recommended Director Candidates	17
Majority Vote Standard	18
Director Nominees	19
Continuing Directors	20
CORPORATE GOVERNANCE AND RISK MANAGEMENT	23
Independence, Chair and Co-Lead Independent Directors	23
Board Committees	23
Risk Management	23
Code of Conduct	24
Board Attendance, Committee Meetings and Committee Membership	24
Public Policy and Engagement	26
DIRECTOR COMPENSATION	27
Non-Employee Director Compensation Program	27
Non-Employee Director Stock Ownership Guidelines	28
CORPORATE RESPONSIBILITY AND SUSTAINABILITY	29
Giving and Access	29
Diversity and Inclusion	30
Sustainability	30
ITEM 2: AMENDMENTS TO OUR CHARTER AND BY-LAWS	31
ITEM 3: AMENDMENT AND RESTATEMENT OF 2013 STOCK AND OPTION PLAN	32
Summary of the Amended and Restated 2013 Stock and Option Plan	33
Equity Compensation Plan Information	37
ITEM 4: RATIFICATION OF THE APPOINTMENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM	38
AUDIT AND FINANCE COMMITTEE REPORT	40
ITEM 5: ADVISORY VOTE TO APPROVE NAMED EXECUTIVE OFFICER COMPENSATION	41
ITEM 6: SHAREHOLDER PROPOSAL REGARDING REPORT ON DRUG PRICING	42
ITEM 7: SHAREHOLDER PROPOSAL REGARDING LOBBYING	44
COMPENSATION DISCUSSION AND ANALYSIS	45

Letter from MDCC to Shareholders	45
Executive Summary	46
Detailed Discussion and Analysis	52

MANAGEMENT DEVELOPMENT AND COMPENSATION COMMITTEE REPORT

67

COMPENSATION AND EQUITY TABLES

68

Summary Compensation Table	68
CEO Pay Ratio	69
Option Exercises and Stock Vested for 2017	70
Grants of Plan-Based Awards During 2017	71
Outstanding Equity Awards at Fiscal Year-End for 2017	72

SUMMARY OF TERMINATION AND CHANGE OF CONTROL BENEFITS

75

EMPLOYMENT CONTRACTS AND CHANGE OF CONTROL ARRANGEMENTS

77

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

81

OTHER INFORMATION

83

Other Matters	83
Shareholder Proposals for the 2019 Annual Meeting and Nominations for Director	83
Shareholder Communications to the Board	83
Householding of Annual Meeting Materials	84
Solicitation	84
Availability of Materials	84
Forward Looking Statements	84

APPENDIX A AMENDMENT TO RESTATED ARTICLES OF ORGANIZATION

85

APPENDIX B AMENDED AND RESTATED BY-LAWS OF VERTEX PHARMACEUTICALS INCORPORATED

87

APPENDIX C AMENDED AND RESTATED 2013 STOCK AND OPTION PLAN

96

APPENDIX D NON-GAAP FINANCIAL MEASURES

106

PROXY STATEMENT

This proxy statement, with the enclosed proxy card, is being furnished to shareholders of Vertex Pharmaceuticals Incorporated in connection with the solicitation by our board of directors of proxies to be voted at our 2018 annual meeting of shareholders and at any postponements or adjournments thereof. The annual meeting will be held on Thursday, May 17, 2018, at 9:30 a.m. at our headquarters, which are located at 50 Northern Avenue, Boston, Massachusetts.

This proxy statement and the enclosed proxy card are first being mailed or otherwise furnished to our shareholders on or about April __, 2018. Our 2017 Annual Report on Form 10-K and other materials regarding our company are being mailed to the shareholders with this proxy statement, but are not part of this proxy statement.

FREQUENTLY ASKED QUESTIONS REGARDING THE ANNUAL MEETING

What is the Purpose of the Annual Meeting?

At the annual meeting, shareholders will act upon the matters outlined in the Notice of Annual Meeting of Shareholders. These include:

- The election of directors;
- The approval of amendments to our charter and by-laws to eliminate supermajority provisions;
- The approval of the amendment and restatement of our 2013 Stock and Option Plan to, among other things, increase the number of shares available under the plan by 8.0 million shares;
- The ratification of the appointment of Ernst & Young LLP as our independent registered public accounting firm;
- The approval, on an advisory basis, of the compensation program for our named executive officers;
- A shareholder proposal requesting that we prepare a report on the risks to us of rising drug prices; and
- A shareholder proposal requesting that we prepare a report on our policies and activities with respect to lobbying.

Management, members of our board and representatives of Ernst & Young LLP are expected to attend the annual meeting and be available to respond to questions from shareholders.

What is a Proxy?

It is your legal designation of another person to vote the stock you own in the manner you direct. That other person is called a proxy. If you designate someone as your proxy in a written document, that document also is called a proxy or a proxy card. The board of directors has designated Jeffrey M. Leiden, Ian F. Smith, Michael Parini and Michael J. LaCascia to serve as proxies at the annual meeting.

What is a Proxy Statement?

It is a document that provides certain information about a company and matters to be voted upon at a meeting of shareholders. The rules of the SEC and other applicable laws require us to give you, as a shareholder, the information in this proxy statement and certain other information when we are soliciting your vote.

What is the Difference between a Shareholder of Record and a Shareholder Who Holds Stock in Street Name?

Shareholders of Record. If your shares are registered in your name with our transfer agent, Computershare, you are a shareholder of record with respect to those shares, and these proxy materials were sent directly to you by Computershare.

Street Name Holders. If you hold your shares in an account at a bank or broker, then you are the beneficial owner of shares held in "street name." The proxy materials were forwarded to you by your bank or broker, who is considered the shareholder of record for purposes of voting at the annual meeting. As a beneficial owner, you have the right to direct your bank or broker how to vote the shares held in your account.

How Many Shares Must be Represented in Order to Hold the Annual Meeting?

In order for us to conduct the annual meeting, holders of a majority of the shares entitled to vote as of the close of business on the record date must be present in person or by proxy. This constitutes a quorum. If you are a shareholder of record, your shares are counted as present if you properly return a proxy card or voting instruction form by mail or if you attend the annual meeting and vote in person. If you are the beneficial owner of shares held in "street name," you must follow the instructions of your bank or broker in order to direct them how to vote the shares held in your account. Abstentions and broker non-votes will be counted as present for purposes of establishing a quorum. If a quorum is not present, we will adjourn the annual meeting until a quorum is obtained.

How Can I Vote at the Annual Meeting if I Own Shares in Street Name?

If you are a street name holder, you may not vote your shares at the annual meeting unless you obtain a legal proxy from your bank or broker. A legal proxy is a bank's or broker's authorization for you to vote the shares it holds in its name on your behalf.

What is the Record Date and What Does it Mean?

The record date for the annual meeting is March 29, 2018 and was established by our board of directors. On the record date, there were 254,879,018 shares of our common stock outstanding, each of which is entitled to one vote on each matter properly brought before the annual meeting. Owners of record of common stock at the close of business on the record date are entitled to:

- receive notice of the annual meeting; and
- vote at the annual meeting and any adjournment or postponement of the annual meeting.

If I Submit a Proxy, May I Later Revoke it and/or Change my Vote?

Shareholders may revoke a proxy and/or change their vote prior to the completion of voting at the annual meeting by:

- signing another proxy card with a later date and delivering it to our Secretary, Michael J. LaCascia, at 50 Northern Avenue, Boston, Massachusetts 02210, before the annual meeting; or
- voting at the annual meeting, if you are a shareholder of record or hold your shares in street name and have obtained a legal proxy from your bank or broker.

What if I do not Specify a Choice for a Matter when Returning a Proxy?

Shareholders should specify their choice for each matter following the directions described on their proxy card. If no specific instructions are given, proxies that are signed and returned will be voted:

- FOR the election of all director nominees;
- FOR the amendments to our charter and by-laws to eliminate supermajority provisions;
- FOR the amendment and restatement of our 2013 Stock and Option plan to, among other things, increase the number of shares available for issuance by 8.0 million shares;
- FOR ratification of the appointment of Ernst & Young LLP as our independent registered public accounting firm for the year ending December 31, 2018;
- FOR our compensation program for our named executive officers;
- AGAINST the shareholder proposal requesting that we prepare a report on the risks to us of rising drug prices; and
- AGAINST the shareholder proposal requesting that we prepare a report on our policies and activities with respect to lobbying.

Are My Shares Voted if I do not Provide a Proxy?

If you are a shareholder of record and do not provide a proxy, you must attend the annual meeting in order to vote. If you hold shares through an account with a bank or broker, your shares may be voted by the bank or broker if you do not provide voting instructions. Banks and brokers have the authority under applicable rules to vote shares on routine matters for which their customers do not provide voting instructions. The ratification of Ernst & Young LLP as our independent registered public accounting firm is considered a routine matter. Each of the other proposals, including the election of directors, the approval of the amendments to our charter and by-laws, the approval of the amendment and restatement of our 2013 Stock and Option Plan, the advisory vote with respect to our executive compensation program and the two shareholder proposals are not considered routine, and banks and brokers cannot vote shares without instruction on those matters. Shares that banks and brokers are not authorized to vote on those matters are counted as "broker non-votes" and will have no effect on the results of those votes (other than for Item 2, where "broker non-votes" will have the same effect as votes against the proposal).

What Vote is Required to Approve Each Proposal and How are Votes Counted?

Item 1: Election of Directors

To be elected, the number of votes cast “FOR” a director nominee in an uncontested election must exceed the number of votes cast “AGAINST” that nominee. Abstentions are not counted for purposes of electing directors. Our Corporate Governance Principles contain procedures to be followed in the event that one or more directors do not receive a majority of the votes cast “FOR” his or her election.

Item 2: Approval of the Amendments to our Restated Articles of Organization and By-laws

To be approved, this proposal must receive an affirmative vote from shareholders present in person or represented by proxy at the annual meeting representing at least 80% of our outstanding shares of common stock as of the record date. Abstentions and broker non-votes will have the same effect on the result of this vote as votes against the proposal.

Item 3: Approval of the Amendment and Restatement of our 2013 Stock and Option Plan

To be approved, this proposal must receive an affirmative vote from shareholders present in person or represented by proxy at the annual meeting representing a majority of the votes cast on the proposal. Abstentions will have no effect on the results of this vote.

Item 4: Ratification of the Appointment of Independent Registered Public Accounting Firm

To be approved, this proposal must receive an affirmative vote from shareholders present in person or represented by proxy at the annual meeting representing a majority of the votes cast on the proposal. Abstentions will have no effect on the results of this vote.

Item 5: Advisory Vote to Approve Named Executive Officer Compensation

To be approved, this proposal must receive an affirmative vote from shareholders present in person or represented by proxy at the annual meeting representing a majority of the votes cast on the proposal. Abstentions will have no effect on the results of this vote.

Item 6: Shareholder Proposal Requesting that we Prepare a Report on the Risks to us of Rising Drug Prices

To be approved, this proposal must receive an affirmative vote from shareholders present in person or represented by proxy at the annual meeting representing a majority of the votes cast on the proposal. Abstentions will have no effect on the results of this vote.

Item 7: Shareholder Proposal Requesting that we Prepare a Report on our Policies and Activities With Respect to Lobbying

To be approved, this proposal must receive an affirmative vote from shareholders present in person or represented by proxy at the annual meeting representing a majority of the votes cast on the proposal. Abstentions will have no effect on the results of this vote.

Where Can I Find More Information About My Voting Rights as a Shareholder?

The SEC has an informational website that provides shareholders with general information about how to cast their vote and why voting should be an important consideration for shareholders. You may access that website at sec.gov/spotlight/proxymatters.shtml.

Item 1 Election of Directors

Our board of directors has nominated Sangeeta N. Bhatia, Jeffrey M. Leiden, and Bruce I. Sachs for election at our 2018 annual meeting of shareholders to hold office until our 2019 annual meeting of shareholders.

Our board of directors is our company's ultimate decision-making body, except with respect to those matters reserved to the shareholders. Our board selects our senior management team, which in turn is responsible for the day-to-day operations of our company. Our board acts as an advisor and counselor to senior management and oversees its performance.

In 2017, we amended our charter and by-laws to phase out our staggered board. Our board currently consists of directors divided into three classes, with terms ending at the 2018, 2019 and 2020 annual meeting of shareholders, respectively. The amendments provide that each class of our directors will continue through their current terms; however, commencing with this year's annual meeting of shareholders, each director nominee will stand for election or re-election, as applicable, for a one year term. Sangeeta N. Bhatia, Jeffrey M. Leiden, and Bruce I. Sachs, our current Class II Directors, have been nominated by our board for election at the 2018 annual meeting of shareholders for one-year terms that will expire at the 2019 annual meeting of shareholders. Each of the nominees has agreed to be named in this proxy statement and to serve if elected. We believe that all of the nominees will be able and willing to serve if elected. However, if any nominee should become unable for any reason or unwilling to serve, proxies may be voted for another person nominated as a substitute by our board, or our board may reduce the number of directors.

Board Structure and Composition

The corporate governance and nominating committee of our board of directors is responsible for recommending the composition and structure of our board and for developing criteria for board membership. This committee regularly reviews director competencies, qualities and experiences, with the goal of ensuring that our board is comprised of a team of directors who function collegially and effectively and who are able to apply their experience toward meaningful contributions to general corporate strategy and oversight of corporate performance, risk management, organizational development and succession planning.

Our by-laws provide that the size of our board may range between three and eleven members. We currently have nine members on our board. Our corporate governance and nominating committee may seek additional director candidates who meet the criteria below in order to complement the qualifications and experience of our existing board members. Our corporate governance and nominating committee may engage a search firm to recommend candidates who satisfy the criteria.

Director Criteria, Qualifications and Experience; Diversity

The corporate governance and nominating committee seeks to recommend for nomination directors of stature who have a substantive knowledge of our business and industry or who can bring to the board specific and valuable strategic or management capabilities acquired in other industries. The committee expects each of our directors to have proven leadership, sound judgment, integrity and a commitment to the success of our company. We also seek personal qualities that foster a respectful environment in which our directors listen to one another and are engaged and constructive. These goals for our board composition presuppose a diverse range of viewpoints, experiences and specific expertise. The corporate governance and nominating committee considers a nominee's personal characteristics and business experience relative to those of our existing board members, including the type of prior management experience, levels of expertise relevant to our business and its growth stage, prior board service, reputation in the business community, personal characteristics such as gender and race and other factors that the committee believes to be important. When considering whether or not to re-nominate a director for board service, the corporate governance and nominating committee also considers whether the potential nominee has served as a member of the board for more than 20 years and whether the potential nominee is over 72 years of age. At this time, our commitment to diversity is demonstrated by the composition of our board, which includes three women and two ethnically diverse individuals.

The key experience, qualifications, attributes and skills brought by our directors to our board that are important to our business include:

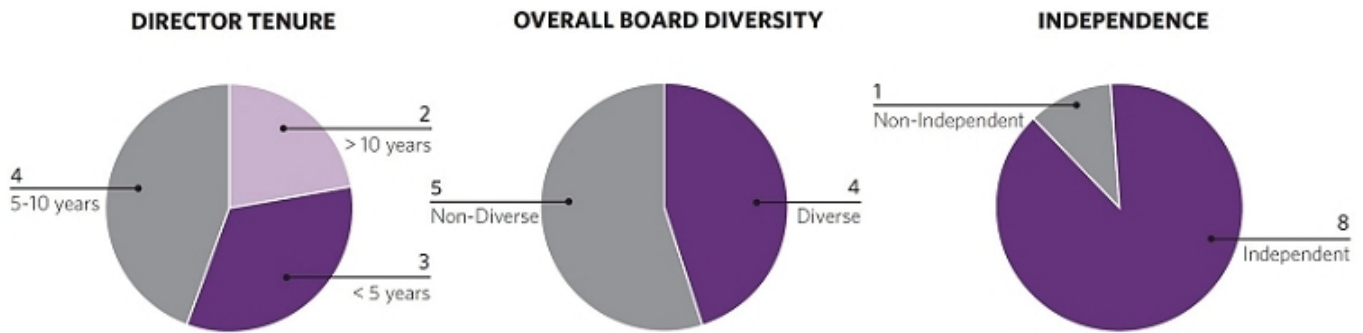
- **Leadership Experience.** We believe that directors who have held significant leadership positions over extended periods of time provide our company with special insights. These directors generally have a practical understanding of organizational processes and strategy that is valuable during periods of organizational change and growth.
- **Industry Knowledge.** We seek directors with substantive knowledge of the healthcare and biotechnology industries to successfully advise and oversee the strategic development and direction of our company.
- **Financial Expertise.** We believe that an understanding of finance is important for members of our board, and our budgeting processes and financial and strategic transactions require our directors to be financially knowledgeable.
- **International Perspective.** We have significant operations outside the United States and value directors with experience in the operation of complex multinational organizations.
- **Public Policy and Regulation.** We operate in a highly-regulated industry and seek directors who have experience in public policy and the regulation of medicines.

- **Academic Experience or Technological Background.** As a biotechnology company that seeks to develop transformative medicines for patients with serious diseases, we look for directors with backgrounds in academia, science and technology and, in particular, the research and development of pharmaceutical products.
- **Commitment to Company Values and Goals.** We seek directors who are committed to our company and its values and goals and who value the contributions that can be provided by individuals who believe in our company and its prospects for success.

Specifically, our continuing directors and our director nominees have the following background and experience:

	Leadership	Industry Knowledge	Finance Expertise	International Perspective	Public Policy/ Regulation	Academia/ Technology	Values
Sangeeta Bhatia	✓	✓				✓	✓
Alan Garber	✓	✓	✓		✓	✓	✓
Terrence C. Kearney	✓	✓		✓			✓
Yuchun Lee	✓		✓	✓			✓
Jeffrey M. Leiden	✓	✓	✓	✓	✓	✓	✓
Margaret G. McGlynn	✓	✓		✓	✓		✓
Bruce I. Sachs	✓		✓	✓		✓	✓
Elaine S. Ullian	✓	✓	✓		✓		✓
William D. Young	✓	✓	✓	✓		✓	✓

Below we highlight the composition of our continuing directors and our director nominees.



Shareholder-Recommended Director Candidates

The corporate governance and nominating committee will consider director candidates recommended by shareholders using the same criteria for director selection described above under *Director Criteria, Qualifications and Experience; Diversity*. Shareholders recommending candidates for consideration should submit any pertinent information regarding the candidate, including biographical information and a statement by the proposed candidate that he or she is willing to serve if nominated and elected, by mail to our corporate secretary at our offices at 50 Northern Avenue, Boston, Massachusetts 02210. If a shareholder wishes to nominate a candidate to be considered for election as a director at the 2019 annual meeting of shareholders using the procedures set forth in our by-laws, the shareholder must follow the procedures described in *Other Information—Shareholder Proposals for the 2019 Annual Meeting and Nominations for Director* on page 83 of this proxy statement.

Our by-laws provide for proxy access, a process that allows qualifying shareholders to nominate a director candidate for consideration at an annual meeting of shareholders and have such candidate be included in our proxy materials for the applicable shareholder meeting. The key elements of our proxy access by-law are as follows:

Provision	Requirement
Ownership Threshold and Holding Period	Available to shareholders owning 3% or more of our shares continuously for at least 3 years.
Number of Board Seats	Total number of proxy access nominees is capped at 20% of the existing board seats (or the closest whole number below 20%), with a minimum of two.
Aggregation Limits	20-shareholder limit on the number of shareholders who can aggregate their shares to satisfy the 3% ownership requirement.
Proxy Fights	Proxy access nominees will not be included in the proxy materials if we receive notice that a shareholder intends to nominate a candidate who is not to be included in our proxy materials.
Future Ineligibility	Proxy access nominees who fail to receive at least 10% of the votes cast "for" such nominee may not be re-nominated as a proxy access nominee for the next two annual meetings.

The above table is only a summary of our proxy access by-law and is qualified in its entirety by our by-laws, which is set forth in Exhibit 3.1 of a Quarterly Report that we filed with the SEC on July 28, 2017. A shareholder who wishes to nominate a proxy access nominee to be considered for election as a director at the 2019 annual meeting of shareholders must follow the procedures set forth in our by-laws as well as those described in *Other Information—Shareholder Proposals for the 2019 Annual Meeting and Nominations for Director* on page 83 of this proxy statement.

Majority Vote Standard

Our by-laws provide for a majority vote standard for uncontested elections of our directors. Under our by-laws, director nominees in an uncontested election who receive more votes cast "for" such director nominee than "against" such director nominee are elected. Our board's policy is that any nominee for director in an uncontested election who receives a greater number of votes "against" than votes "for" the nominee's election shall promptly tender his or her resignation to the chair of our board following certification of the shareholder vote. Our corporate governance and nominating committee will promptly consider the tendered resignation. Based on all factors it deems in its discretion to be relevant, the committee will recommend that our board either accept or reject the resignation and may recommend that the board adopt measures designed to address any issues perceived to underlie the election results. Our board will then act on the corporate governance and nominating committee's recommendation. We will promptly disclose our board's decision, including, if applicable, the reasons for rejecting the tendered resignation. Any director whose resignation is being considered under this policy will not participate in the corporate governance and nominating committee or board considerations, recommendations or actions with respect to the tendered resignation.

Director Nominees

Class II Directors— Present Terms Expiring in 2018 and Proposed Terms to Expire in 2019

Sangeeta N. Bhatia, M.D., Ph.D.

Age: 49
Director Since: 2015

Committee Assignments:

- Chair – Science and Technology Committee
- Member – Corporate Governance and Nominating Committee

Dr. Bhatia is a professor at the Massachusetts Institute of Technology, where she currently serves as the John J. and Dorothy Wilson Professor of Health Sciences & Technology/Electrical Engineering & Computer Science. Prior to joining the Massachusetts Institute of Technology in 2005, Dr. Bhatia was a professor of bioengineering and medicine at the University of California at San Diego from 1998 through 2005. Dr. Bhatia also is an investigator for the Howard Hughes Medical Institute, a member of the Department of Medicine at Brigham and Women's Hospital, a member of the Broad Institute and a member of the Koch Institute for Integrative Cancer Research. Dr. Bhatia holds an Sc.B. in biomedical engineering from Brown University, an S.M. and Ph.D. in Mechanical Engineering from the Massachusetts Institute of Technology and an M.D. from Harvard Medical School.

Skills and Qualifications: Dr. Bhatia is a leading academic scientist and medical researcher. Her extensive experience in the field of biomedical engineering and in-depth understanding on the use of advanced technologies in medical research provides valuable insights to our board of directors, including with respect to our key research and development initiatives.

Jeffrey M. Leiden, M.D., Ph.D.

Age: 62
Director Since: 2009

Committee Assignments:

- Chairman, Chief Executive Officer and President

Dr. Leiden is our Chairman, Chief Executive Officer and President. He has held the positions of Chief Executive Officer and President since February 2012 after joining us as CEO Designee in December 2011. He has been a member of our Board of Directors since July 2009, the Chairman of our Board of Directors since May 2012, and served as our lead independent director from October 2010 through December 2011. Dr. Leiden was a Managing Director at Clarus Ventures, a life sciences venture capital firm, from 2006 through January 2012. Dr. Leiden was President and Chief Operating Officer of Abbott Laboratories, Pharmaceuticals Products Group, and a member of the Board of Directors of Abbott Laboratories from 2001 to 2006. From 1987 to 2000, Dr. Leiden held several academic appointments, including the Rawson Professor of Medicine and Pathology and Chief of Cardiology and Director of the Cardiovascular Research Institute at the University of Chicago, the Elkan R. Blout Professor of Biological Sciences at the Harvard School of Public Health, and Professor of Medicine at Harvard Medical School. He is an elected member of both the American Academy of Arts and Sciences and the Institute of Medicine of the National Academy of Sciences. Dr. Leiden is a senior advisor to Clarus Ventures. Dr. Leiden serves as a director of Quest Diagnostics Inc., a medical diagnostics company, and Massachusetts Mutual Life Insurance Company, a mutual insurance company. Dr. Leiden was a director and the non-executive Vice Chairman of the board of Shire plc, a specialty biopharmaceutical company, from 2006 to January 2012. Dr. Leiden received his M.D., Ph.D. and B.A. degrees from the University of Chicago.

Skills and Qualifications: Dr. Leiden possesses strong leadership qualities, demonstrated through his service as a senior executive in the pharmaceutical industry and as a life sciences venture capitalist, and has extensive knowledge of the science underlying drug discovery and development through his experiences as a distinguished physician, scientist and teacher. As our CEO and as a former senior executive at Abbott Laboratories he brings a global perspective to our business and public policy issues facing our company. He also provides our board of directors with in-depth knowledge of our company through the day-to-day leadership of our executives.

Bruce I. Sachs

Age: 58
Director Since: 1998
Co-lead Independent Director

Committee Assignments:

- Chair – Management Development and Compensation Committee
- Member – Audit and Finance Committee

Mr. Sachs is a General Partner at Charles River Ventures, a venture capital firm he joined in 1999. From 1998 to 1999, he served as Executive Vice President and General Manager of Ascend Communications, Inc. From 1997 until 1998, Mr. Sachs served as President and Chief Executive Officer of Stratus Computer, Inc. From 1995 to 1997, he served as Executive Vice President and General Manager of the Internet Telecom Business Group at Bay Networks, Inc. From 1993 to 1995, he served as President and Chief Executive Officer of Xylogics, Inc. Mr. Sachs holds a B.S.E.E. in electrical engineering from Bucknell University, an M.E.E. in electrical engineering from Cornell University, and an M.B.A. from Northeastern University.

Skills and Qualifications: Mr. Sachs brings strong business judgment honed through his experience developing business strategy as a senior executive and in venture capital, to our board of directors. Mr. Sachs has a deep understanding of our business and the global business environment along with expertise in the technology that supports our infrastructure and operations. In addition, Mr. Sachs has extensive business leadership experience, including service as a CEO at a technology company, as well as financial expertise.

Board Recommendation

In each of the director nominee and continuing director biographies, we highlight the specific experience, qualifications, attributes, and skills that led the board of directors to conclude that the director nominee or continuing director should serve on our board at this time.

Our board of directors recommends that shareholders vote **FOR** each of the nominees.

Continuing Directors

Class III Directors — Terms to Expire in 2019

Terrence C. Kearney

Age: 63
Director Since: 2011

Committee Assignments:

- Chair – Audit and Finance Committee
- Member – Management Development and Compensation Committee

Mr. Kearney served as the Chief Operating Officer of Hospira, Inc., a specialty pharmaceutical and medication delivery company, from April 2006 to January 2011. From April 2004 to April 2006, he served as Hospira's Senior Vice President, Finance, and Chief Financial Officer, and he served as Acting Chief Financial Officer through August 2006. Mr. Kearney served as Vice President and Treasurer of Abbott Laboratories from 2001 to April 2004. From 1996 to 2001, Mr. Kearney was Divisional Vice President and Controller for Abbott's International Division. Mr. Kearney serves as a member of the Board of Directors at Acceleron Pharma Inc., a biopharmaceutical company, and AveXis, Inc., a gene therapy company, and served as a member of the Board of Directors at Innoviva, Inc. (formerly known as Theravance, Inc.), a royalty management company, until April 2016. He received his B.S. in biology from the University of Illinois and his M.B.A. from the University of Denver.

Skills and Qualifications: Mr. Kearney's corporate leadership experience, industry knowledge and financial expertise make him a valuable contributor to our board of directors. He has a practical perspective on the management of global pharmaceutical operations, including commercial, manufacturing and research and development activities, and financial management strategies. He is an "audit committee financial expert" with particular experience in matters faced by the audit committee of a company with pharmaceutical product revenues and related expenses.

Yuchun Lee

Age: 52
Director Since: 2012

Committee Assignments:

- Member – Audit and Finance Committee
- Member – Science and Technology Committee

Mr. Lee is an Executive in Residence (XIR) and Partner of General Catalyst Partners, a venture capital firm, which he joined in April of 2013. Mr. Lee also serves as the Chief Executive Officer of Allego Inc. and Executive Chairman of Clarabridge. Mr. Lee was the Vice President of IBM's Enterprise Marketing Management Group from November 2010 through January 2013. Mr. Lee co-founded Unica Corporation, a provider of software and services used to automate marketing processes, in 1992, and was Unica's President and/or Chief Executive Officer from 1992 through November 2010, when Unica was acquired by IBM. From 1989 to 1992, Mr. Lee was a senior consultant at Digital Equipment Corporation, a supplier of general computing technology and consulting services. Mr. Lee holds a B.S. and an M.S. in electrical engineering and computer science from the Massachusetts Institute of Technology and an M.B.A. from Babson College.

Skills and Qualifications: Mr. Lee's expertise in marketing processes and customer engagement and business and financial experience make him a valuable contributor to our board of directors. Mr. Lee is an innovator who founded and managed the growth of a successful technology company and gained further leadership experience while serving as an executive at IBM. Mr. Lee's experiences outside of the biopharmaceutical sector provide the board with an important perspective on the issues facing the company.

Elaine S. Ullian

Age: 70
Director Since: 1997
Co-lead Independent Director

Committee Assignments:

- Chair – Corporate Governance and Nominating Committee
- Member – Management Development and Compensation Committee

Ms. Ullian served as President and Chief Executive Officer of Boston Medical Center, a private, not-for-profit, 626-bed, academic medical center with a community-based focus, from 1996 through January 2010. From 1994 to 1996, she served as President and Chief Executive Officer of Boston University Medical Center Hospital. From 1987 to 1994, Ms. Ullian served as President and Chief Executive Officer of Faulkner Hospital. She also serves as a director of Thermo Fisher Scientific Inc. and Hologic, Inc. Ms. Ullian holds a B.A. in political science from Tufts University and an M.P.H. from the University of Michigan.

Skills and Qualifications: Ms. Ullian brings significant leadership experience acquired as the CEO of large health care providers to our board of directors. The knowledge she obtained serving as an executive, together with her extensive experience serving on the boards of directors of multiple public companies in the healthcare field, provide her with the expertise required to serve as one of our co-lead independent directors and as the chair of our corporate governance and nominating committee. She also provides the board with insight into public policy matters, including the perspective of providers, payors and patients, for whom our products are intended.

Class I Directors — Terms to Expire in 2020

Margaret G. McGlynn

Age: 58
Director Since: 2011

Committee Assignments:

- Member – Science and Technology Committee
- Member – Corporate Governance and Nominating Committee

Ms. McGlynn served as the President and Chief Executive Officer of the International AIDS Vaccine Initiative, a global not-for-profit organization whose mission is to ensure the development of safe, effective and accessible HIV vaccines for use throughout the world, from July 2011 until September 2015. Ms. McGlynn served as President, Vaccines and Infectious Diseases of Merck & Co., Inc. from 2005 until 2009. Ms. McGlynn joined Merck in 1983 and served in a variety of marketing, sales and managed care roles. Ms. McGlynn serves as a member of the Board of Directors for Air Products and Chemicals, Inc., a company specializing in gases and chemicals for industrial uses, and Amicus Therapeutics, Inc., a biopharmaceutical company. She is also a member of the National Industrial Advisory Committee at the University at Buffalo School of Pharmacy and Pharmaceutical Sciences. Ms. McGlynn holds a B.S. in Pharmacy and an M.B.A. in Marketing from the State University of New York at Buffalo.

Skills and Qualifications: Ms. McGlynn's leadership experience and industry knowledge make her a valuable contributor to our board of directors. Her service as an executive at Merck and her service on the board of Amicus Therapeutics and the board and audit committee of Air Products and Chemicals, Inc. give her a practical understanding of organizational practices valuable to a company at our stage of growth. Her experience in the development and commercialization of products across several therapeutic areas, and in her board roles and advocacy in rare diseases, provides her with a valuable understanding of the scientific, public policy, regulatory and marketplace issues we face in the drug development and commercialization process.

William D. Young

Age: 73
Director Since: 2014

Committee Assignments:

- Member – Corporate Governance and Nominating Committee
- Member – Management Development and Compensation Committee

Mr. Young is a Venture Partner at Clarus Ventures, a life sciences venture capital firm, which he joined in 2010. Prior to Clarus Ventures, Mr. Young served from 1999 until June 2009 as the Chairman and Chief Executive Officer of Monogram Biosciences, Inc., a biotechnology company acquired by Laboratory Corporation of America in June 2009. From 1980 to 1999, Mr. Young was employed at Genentech, Inc. in positions of increasing responsibility, including as Chief Operating Officer from 1997 to 1999, where he was responsible for all product development, manufacturing and commercial functions. Prior to joining Genentech, Mr. Young was with Eli Lilly & Co. for 14 years. Mr. Young currently serves as the Chairman of the Board of Directors of NanoString Technologies, Inc., and as a member of the Board of Directors of Theravance BioPharma Inc. Mr. Young retired from BioMarin Pharmaceutical Inc.'s Board of Directors in November 2015 and from Biogen's Board of Directors in June 2014. Mr. Young holds a B.S. in Chemical Engineering from Purdue University, an M.B.A. from Indiana University and an Honorary Doctorate in Engineering from Purdue University. Mr. Young was elected to the National Academy of Engineering in 1993 for his contributions to biotechnology.

Skills and Qualifications: Mr. Young is a valuable contributor to our board of directors due to the in-depth knowledge of the biotechnology industry that he acquired through his extensive experience as both a CEO and board member at numerous pharmaceutical and biotechnology organizations and as a venture capitalist focused on the life sciences industry. Mr. Young's strong leadership qualities, global industry knowledge and financial expertise provide him with the background to work collaboratively with both management and fellow board members in order to address issues facing our company.

Alan Garber, M.D., Ph.D.

Age: 62
Director Since: 2017

Committee Assignments:

- Member – Science and Technology Committee

Dr. Garber is Provost of Harvard University and the Mallinckrodt Professor of Health Care Policy at Harvard Medical School, a Professor of Economics in the Faculty of Arts and Sciences, Professor of Public Policy in the Harvard Kennedy School of Government, and Professor in the Department of Health Policy and Management in the Harvard T.H. Chan School of Public Health. From 1998 until he joined Harvard in 2011, he was the Henry J. Kaiser Jr. Professor, a Professor of Medicine, and a Professor (by courtesy) of Economics, Health Research and Policy, and of Economics in the Graduate School of Business at Stanford University. Dr. Garber is a member of the National Academy of Medicine, the American Society of Clinical Investigation, the Association of American Physicians, the American Academy for Arts and Sciences, and the Board on Science, Technology, and Economic Policy at the National Academies. He is a Fellow of the American Association for the Advancement of Science, the American College of Physicians, and the Royal College of Physicians. Dr. Garber is also a Research Associate with the National Bureau of Economic Research and served as founding Director of its Health Care Program for nineteen years. He has also served as a member of the National Advisory Council on Aging at the National Institutes of Health, as a member of the Board of Health Advisers of the Congressional Budget Office and as Chair of the Medicare Evidence Development and Coverage Advisory Committee at the Centers for Medicare and Medicaid Services. Dr. Garber has been a member of the Board of Directors of Exelixis, Inc., a biopharmaceutical company, since 2005. Dr. Garber holds an A.B. summa cum laude, an A.M. and a Ph.D., all in Economics, from Harvard University, and an M.D. with research honors from Stanford University.

Skills and Qualifications: Dr. Garber brings extensive leadership experience and knowledge regarding science, medicine and the healthcare industry and in particular healthcare economics to our board of directors. The insights he has developed as an expert in health care policy and as an advisor to government agencies provides our board important perspectives on the issues facing our company.

CORPORATE GOVERNANCE AND RISK MANAGEMENT

We are committed to good corporate governance and integrity in our business dealings. Our governance practices are documented in our Statement of Corporate Governance Principles, which addresses the role and composition of our board of directors and the functioning of the board and its committees. You can find our governance documents, including our Statement of Corporate Governance Principles, charters for each committee of the board and our Code of Conduct, on our website www.vrtx.com under “Investors—Corporate Governance—Governance Documents.”

Independence, Chair and Co-lead Independent Directors

Our board of directors has determined that eight of our nine directors qualify as “independent” under the definition of that term adopted by The Nasdaq Stock Market LLC, or NASDAQ. These directors include Dr. Bhatia, Dr. Garber, Mr. Kearney, Mr. Lee, Ms. McGlynn, Mr. Sachs, Ms. Ullian and Mr. Young. Our independent directors meet in executive session at each regularly scheduled board meeting.

Dr. Leiden, our president and chief executive officer, serves as the chairman of our board. Our employment agreement with Dr. Leiden provides that he will serve as the chairman of our board through March 31, 2020. In addition, we have two co-lead independent directors who are elected by the independent directors. Each of the board committees is chaired by one of our independent directors.

Our board believes that strong, independent board leadership is a critical aspect of effective corporate governance, and our corporate governance principles require that if the chair is not an independent director, then the independent directors elect a lead independent director. Since December 2011, Mr. Sachs and Ms. Ullian have served as our co-lead independent directors. We believe this structure provides our board independent leadership, while providing the benefit of having our chief executive officer, the individual with primary responsibility for managing our day-to-day operations, chair regular board meetings as we discuss key business and strategic issues. Combined with the co-lead independent directors and experienced and independent committee chairs, this structure provides strong independent oversight of management.

Our co-lead independent directors’ responsibilities include:

- calling and leading regular and special meetings of the independent directors;
- serving as a liaison between our executive officers and the independent directors;
- reviewing the planned dates for regularly scheduled board meetings and the primary agenda items for each meeting; and
- reviewing with the chair of each board committee agenda items that fall within the scope of the responsibilities of that committee.

Board Committees

Our board of directors has established various committees, each of which has a written charter, to assist in discharging its duties: the audit and finance committee, the corporate governance and nominating committee, the MDCC and the science and technology committee. Each member of the audit and finance committee, corporate governance and nominating committee and MDCC is an independent director as that term is defined by the SEC and NASDAQ. The primary responsibilities of each of the committees are set forth below, and the committee memberships are provided in the table appearing on page 24 of this proxy statement.

Each of the committees has the authority, as its members deem appropriate, to engage legal counsel or other experts or consultants in order to assist the committee in carrying out its responsibilities.

Risk Management

Our board of directors discharges its overall responsibility to oversee risk management with a focus on our most significant risks. We face considerable risk related to the commercialization of our approved products, including regulatory risk with respect to our promotional activities and competition from approved drugs and investigational drug candidates that may have product profiles superior to our approved products. We continue to invest significant resources in research programs and clinical development programs as part of our strategy to develop transformative medicines for patients with serious diseases. With respect to each of our drug development and commercialization programs, we face considerable risk that the program will not ultimately result in a commercially successful pharmaceutical product. Our board and its committees monitor and manage the strategic, compliance and operational risks related to KALYDECO, ORKAMBI, SYMDEKO and our research and development programs through regular board and committee discussions that include presentations to the board and its committees by our executive officers as well as during in-depth short- and long-term strategic reviews held at least annually.

For certain specific risk types, our board has delegated oversight responsibility to board committees as follows:

- Our audit and finance committee oversees our policies and programs related to our financial and accounting systems, accounting policies and investment strategies, internal audit function and cybersecurity. The audit and finance committee also is responsible for addressing risks arising from related party transactions.
- Our MDCC oversees risks associated with our compensation policies, management resources and structure, and management development and selection processes.
- Our corporate governance and nominating committee oversees risks related to the company's governance structure.
- Our science and technology committee oversees risks related to our research and development investments.
- Our MDCC and corporate governance and nominating committee work together to oversee CEO succession planning.

Code of Conduct

We have adopted a Code of Conduct that applies to all of our directors and employees, including our chief executive officer and chief financial and accounting officers. Our Code of Conduct is available on our website www.vrtx.com under "Investors—Corporate Governance—Governance Documents." Disclosure regarding any amendments to, or waivers from, provisions of the Code of Conduct that apply to our directors or principal executive, financial or accounting officers will be posted on our website or included in a Current Report on Form 8-K within four business days following the date of the amendment or waiver.

Board Attendance, Committee Meetings and Committee Membership

Director ⁽¹⁾	Independence	Board	Audit and Finance	Corporate Governance and Nominating	Management Development and Compensation	Science and Technology	2017 Attendance at Meetings ⁽²⁾
Sangeeta N. Bhatia	✓	■		■		■	91%
Alan Garber	✓	■				■	100%
Terrence C. Kearney	✓	■	■		■		100%
Yuchun Lee	✓	■	■			■	96%
Jeffrey M. Leiden		■					100%
Margaret G. McGlynn	✓	■		■		■	100%
Bruce I. Sachs	✓	★	■		■		100%
Elaine S. Ullian	✓	★		■	■		100%
William D. Young	✓	■		■	■		91%
2017 Meetings		11	9	5	7	5	

- = Member
- = Chair
- ★ = Co-lead

(1) We encourage each of our directors to attend shareholder meetings, and each of our directors attended our 2017 annual meeting of shareholders.
 (2) Includes meetings of the board of directors and meetings of each committee of the board while the director served on such committee.

Audit and Finance Committee

The primary purposes of the audit and finance committee are to:

- appoint, oversee and replace, if necessary, our independent registered public accounting firm;
- assist our board of directors in fulfilling its responsibility for oversight of our accounting and financial reporting processes;
- review and make recommendations to our board concerning our financial structure and financing strategy;
- oversee our policies and programs related to our financial and accounting systems and cybersecurity programs; and
- oversee our internal audit function.

Our independent registered public accounting firm reports directly to, and is held accountable by, our audit and finance committee in connection with the audit of our annual financial statements and related services.

Mr. Kearney, the chair of our audit and finance committee, is our "audit committee financial expert" as that term is defined in applicable regulations of the SEC. In addition, each of the other members of the audit and finance committee is qualified to serve as an audit committee financial expert under the SEC's rules.

The report of the audit and finance committee appears on page 40 of this proxy statement.

Our audit and finance committee reviews and, if appropriate, recommends for approval or ratification by our board, all transactions with related persons that are required to be disclosed by us pursuant to Item 404(a) of Regulation S-K promulgated by the SEC, except for transactions, if any, related to the employment of executive officers, which would be recommended for approval by the MDCC. Our policies and procedures with respect to transactions with related persons are governed by our written Related Party Transaction Policy. Pursuant to this policy, related party transactions include transactions, arrangements or relationships in which our company is a participant, the amount involved exceeds \$120,000, and one of our executive officers, directors, director nominees or 5% shareholders or their immediate family members, whom we refer to as related persons, has a direct or indirect material interest, except where disclosure of such transaction would not be required pursuant to Item 404(a) of Regulation S-K. As appropriate for the circumstances, our audit and finance committee will review and consider the related person's interest in the related party transaction and such other factors as it deems appropriate. Since January 1, 2017, we have not entered into any transactions disclosable pursuant to Item 404(a) of Regulation S-K.

Corporate Governance and Nominating Committee

The corporate governance and nominating committee:

- assists our board of directors in developing and implementing our corporate governance principles;
- recommends the size and composition of our board and its committees;
- develops and recommends to our board an annual self-evaluation process to assess the effectiveness of our board and oversees this process;
- reviews and recommends, with the advice of the MDCC, non-employee director compensation on an annual basis;
- identifies qualified individuals to become members of our board;
- recommends director nominations to the full board; and
- assists the board in external recruiting and evaluating potential candidates for the CEO position.

Management Development and Compensation Committee

The primary purposes of the MDCC are to oversee the discharge of our board of directors' responsibilities relating to:

- compensating and developing our executives (and assisting the corporate governance and nominating committee with respect to director compensation);
- recommending to our board (i) ratings for the company performance against company goals for the prior year and (ii) goals and weighting of goals for the next year;
- assisting the board in evaluating potential internal candidates for the CEO position; and
- reviewing and approving our benefit and equity compensation plans.

The MDCC has the authority to delegate any of its responsibilities to individual members to the extent deemed appropriate by the MDCC in its sole discretion, but subject always to the general oversight of the board.

See *Compensation Discussion and Analysis—Detailed Discussion* below for a discussion of the MDCC's role in overseeing executive compensation.

The report of the MDCC appears on page 67 of this proxy statement.

Science and Technology Committee

Our science and technology committee discharges our board of directors' responsibilities relating to the oversight of our investment in pharmaceutical research and development. In furtherance of that oversight function, the science and technology committee:

- reviews and assesses our current and planned research and development programs and technology initiatives from a scientific perspective;
- assesses the capabilities of our key scientific personnel and the depth and breadth of our scientific resources; and
- provides strategic advice to our board regarding emerging science and technology issues and trends.

Compensation Committee Interlocks and Insider Participation

Mr. Kearney, Mr. Sachs, Ms. Ullian and Mr. Young served on the MDCC during 2017. Each member of the MDCC was an independent director while serving on the MDCC. No member of our board of directors who was a member of our MDCC at any time during 2017 has ever been one of our employees or officers. No member of our board who was a member of our MDCC at any time during 2017 has ever been a party to a transaction required to be disclosed pursuant to Item 404(a) of Regulation S-K prior to becoming a member of our MDCC. During 2017, none of our executive officers served as a member of the board of directors or compensation committee of the board of directors, or performed the equivalent functions, of any entity that has one or more executive officers serving as a member of our board or the MDCC.

Public Policy and Engagement

The biotechnology industry is a highly-regulated industry, and it is important to our business, our patients and our shareholders that we engage compliantly on public policy issues. This includes providing advocacy for healthcare innovation and patient access to care. We engage with various policy makers to help promote an environment in which we can continue to innovate and develop transformative medicines for the benefit of patients with serious diseases.

We meet all federal, state and local laws and reporting requirements governing corporate political contributions. We file quarterly reports on our federal lobbying activity in compliance with the Honest Leadership and Open Government Act of 2007. These reports are available to the public at <https://soprweb.senate.gov/index.cfm?event=selectfields>.

Vertex is a member of a number of industry and trade groups, including the Biotechnology Industry Association. These organizations represent the biotechnology industry and/or businesses more broadly in engaging with policy makers on issues that affect our business. Our governmental affairs executives evaluate our participation in these organizations regularly to ensure that they are broadly aligned with our business objectives, but we do not always agree with positions taken by these organizations and/or its members.

DIRECTOR COMPENSATION

Non-Employee Director Compensation Program

We have designed and implemented our compensation program for our non-employee directors to attract, motivate and retain individuals who are committed to our values and goals and who have the expertise and experience that we need to achieve those goals.

The compensation program for our non-employee directors is:

Compensation Elements

Cash

Annual Cash Retainer		\$ 100,000
Annual Committee Chair Retainer	Audit and Finance Committee	\$ 30,000
	Management Development and Compensation Committee	\$ 25,000
	Corporate Governance and Nominating Committee	\$ 20,000
	Science and Technology Committee	\$ 20,000
Committee Membership Retainer		
	Audit and Finance Committee	\$ 15,000
	Management Development and Compensation Committee	\$ 12,500
	Corporate Governance and Nominating Committee	\$ 10,000
	Science and Technology Committee	\$ 10,000
Annual Co-Lead Independent Director Retainer		\$ 40,000

Equity

Initial Equity Grant	A \$475,000 value-based award, comprised of: <ul style="list-style-type: none"> \$200,000 in options vesting quarterly over four years from the date of grant \$275,000 in restricted stock units vesting annually over three years from the date of grant
Annual Equity Retainer	On June 1 of each year, a \$475,000 value-based award, comprised of: <ul style="list-style-type: none"> \$200,000 in options that are fully-vested upon grant \$275,000 in restricted stock units vesting in full on the first anniversary of the date of grant

Each of our non-employee directors is eligible to defer the cash and restricted stock portion of his/her compensation set forth above and elect to receive deferred stock units that are paid out in common stock upon the earliest to occur of (i) termination of the non-employee director's service on our board of directors, (ii) a change of control and (iii) the non-employee directors disability or death.

Our non-employee directors also are reimbursed for their business-related expenses incurred in connection with attendance at board and committee meetings and related activities. Our only employee director, Dr. Leiden, receives no separate compensation for his service in such capacity.

We annually review the compensation program for our non-employee directors. In 2017, based on a market assessment of the board compensation at our peer companies, we modified the non-employee director compensation program to (i) reduce the overall compensation payable to our non-employee directors and (ii) adjust the cash versus equity allocation of the compensation.

2017 Summary Compensation

Director	Fees Earned or Paid in Cash	Stock Units ⁽¹⁾	Option Awards ⁽¹⁾	Total
Sangeeta N. Bhatia	\$ 113,700	\$ 275,053	\$ 275,075	\$ 663,828
Joshua Boger ⁽²⁾	\$ 43,058	\$ 275,053	\$ 275,075	\$ 593,186
Alan Garber ⁽³⁾	\$ 53,503	\$ 275,117	\$ 275,150	\$ 603,770
Terrence C. Kearney	\$ 125,000	\$ 275,053	\$ 275,075	\$ 675,128
Yuchun Lee	\$ 110,000	\$ 275,053	\$ 275,075	\$ 660,128
Margaret G. McGlynn	\$ 103,700	\$ 275,053	\$ 275,075	\$ 653,828
Bruce I. Sachs ⁽⁴⁾	\$ 165,000	\$ 275,053	\$ 275,075	\$ 715,128
Elaine S. Ullian	\$ 155,000	\$ 275,053	\$ 275,075	\$ 705,128
William D. Young	\$ 105,000	\$ 275,053	\$ 275,075	\$ 655,128

(1) The amounts set forth under the captions "Stock Units" and "Option Awards" in the table above represent the grant-date fair value for financial statement reporting purposes of the equity awards granted during 2017. Our methodology, including underlying estimates and assumptions, for calculating these values is set forth in Note N to our consolidated financial statements included in our 2017 Annual Report on Form 10-K, filed with the SEC on February 15, 2018.

(2) Dr. Boger retired from our board of directors on June 8, 2017.

(3) Dr. Garber joined our board on June 8, 2017.

(4) Mr. Sachs elected to defer his quarterly cash retainers, which were paid in deferred stock units, on each of the quarterly payment dates occurring on the 15th of the month following the quarter end. The fair market value of each deferred stock unit on each of those dates were \$114.58, \$130.15, \$155.44 and \$157.50.

2017 Equity Grants

Grant	Date	Shares	Exercise Price	Grant-Date Fair Value
Annual Non-Employee Director Option Grants	June 1, 2017	5,295	\$ 125.71	\$ 275,075
Annual Non-Employee Director Stock Unit Grants	June 1, 2017	2,188	N/A	\$ 275,053
Initial Option Grant to Dr. Garber	June 8, 2017	5,320	\$ 125.11	\$ 275,150
Initial Restricted Stock Unit Grant to Dr. Garber	June 8, 2017	2,199	N/A	\$ 275,117

Outstanding Equity

As of December 31, 2017, our non-employee directors had outstanding restricted stock units, deferred stock units and stock options to purchase our common stock as follows:

Director	Outstanding Restricted Stock Units	Outstanding Deferred Stock Units	Exercisable Options	Total Outstanding Options
Sangeeta N. Bhatia	2,188	—	24,045	35,295
Alan Garber	2,199	—	665	5,320
Terrence C. Kearney	2,188	—	72,743	72,743
Yuchun Lee	2,188	—	95,702	95,702
Margaret G. McGlynn	2,188	—	92,368	92,368
Bruce I. Sachs	2,188	5,858	132,368	132,368
Elaine S. Ullian	2,188	—	79,868	79,868
William D. Young	2,188	—	78,618	82,368

Non-Employee Director Stock Ownership Guidelines

We have stock ownership guidelines for our non-employee directors pursuant to which our non-employee directors should, within five years of becoming subject to the guidelines, achieve ownership of shares of our common stock with a value equal to at least three times the annual cash retainer.

CORPORATE RESPONSIBILITY AND SUSTAINABILITY

During the last three years, we have significantly expanded our long-standing commitments to philanthropic giving, diversity and inclusion and global sustainability.



Giving and Access

Giving is in our DNA here at Vertex. In 2017, we made a global 10-year, \$500 million corporate giving commitment focused on four areas:

- patients, including enabling access to our medicines
- expanding our commitment to science, technology, engineering, arts and math (STEAM) education--\$50 million of this commitment is dedicated to STEAM education, particularly for underserved communities and women
- developing young physicians and scientists
- strengthening our local communities, including fostering the innovation ecosystem and supporting youth health and wellness

This corporate giving initiative extends and expands our long-term commitment to patients with serious diseases and our community, continuing programs to provide access to our medicines and extending and expanding our collaboration with the Boston Public Schools. Through this collaboration, high school students have ongoing access to Vertex's 3,000 square foot learning lab established in 2014 and mentoring and internship opportunities with Vertex scientists. In addition, we have established an extensive internship program for college students and fellowship programs for graduate students and postdoctoral scientists. We also annually grant full four-year scholarships to the University of Massachusetts.

As part of this commitment, we established The Vertex Foundation, a 501(c)(3) organization and long-term source of charitable giving, with an initial commitment of \$10 million. The Vertex Foundation supports, among other initiatives, a dollar-for-dollar employee matching gift program to magnify the impact of employees' donations to qualified non-profit organizations.

In addition, we encourage our employees to participate in community service activities. For example, our employees provide thousands of volunteer hours through, among other activities, participation in our global day of service (volunteering at dozens of nonprofit organizations and schools in our community), leading activities in our learning laboratory, and *pro bono* activities conducted by members of our legal and compliance group.

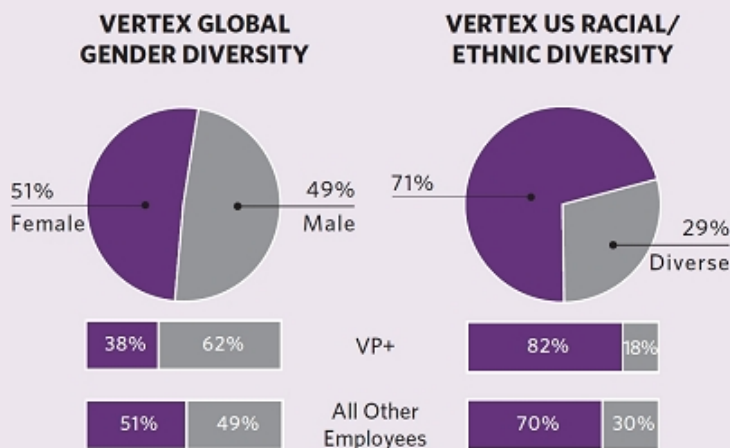


Diversity and Inclusion

Diversity and inclusion is deeply ingrained in our culture. We believe that in an inclusive workforce each employee brings diverse perspectives and strengths, and that embracing those strengths and celebrating those differences is essential to our success. Our commitment to gender and ethnic diversity is reflected at the board level and within our workforce and our hiring and promotion policies.

Four of our nine board members are diverse based on gender and/or ethnicity. This includes three female board members, and we are pleased to have been recognized by 2020 Women on Boards, a non-profit organization that is focused on educating corporate stakeholders on the importance of board diversity.

On a global basis, our employees are evenly split between men and women. In the United States, approximately 30% of our workforce is racially/ethnically diverse. As of the beginning of 2018, 38% of our senior employees (VP and above) were women and 18% of senior employees in the United States were racially/ethnically diverse.



In 2017:

- 63% of our critical hires at the vice president and above levels were diverse on a gender or ethnic basis
- 37% of new hires in the United States were ethnically diverse
- 65% of promotions were diverse on a gender or ethnic basis

We are also committed to fostering diversity and inclusion through support of our employee-led resource networks (ERNs) that foster connectivity and collaboration across our organization and provide mentoring, career development, community outreach and cultural awareness opportunities. Our current ERNs are: IWILL (Inspiring Women in Leadership and Learning), VIBE (Vertex Includes Boundless Ethnicities), and Vertex Pride (providing an opportunity to engage with the LGBT community).

2017 marked the first annual Diversity Week at Vertex, which included activities focused on advancing, promoting, engaging and celebrating diversity. Activities included speakers, unconscious bias training, communication and diversity workshops, ERN sponsored activities and other special events designed to increase employee awareness and engagement with respect to this critical issue.



Sustainability

We at Vertex are committed to sustainability. We seek to limit our environmental impact and have implemented a number of programs in an effort to operate our business in a sustainable manner.

In designing our major facilities around the world, we have focused on energy efficiency. This is demonstrated by our corporate headquarters in Boston, Massachusetts, which was completed in 2014 and achieved a LEED Gold certification. In 2015, our UK Paddington office was awarded BREEAM "Excellent Status" for sustainability, and our new research facility in San Diego is being constructed in accordance with LEED Gold standards. In addition, in 2016, we committed to reducing the greenhouse gas emissions at our corporate headquarters by a further 35% by 2020, pursuant to Greenovate Boston Mayor's Carbon Cup.

We promote energy efficiency through our employee benefits, which include a generous subsidy for employees who take public transportation, as well as programs promoting commuting using alternative means such as biking. As a result, approximately 50% of our Boston headquarters employees commute using public transportation.

In addition, we have implemented a recycling and composting program at multiple locations. At our corporate headquarters, these efforts have reduced waste and has converted 80% of the waste from our cafeteria into compost.

Item 2 Amendments to our Charter and By-laws

We are requesting that our shareholders approve (i) an amendment to our Restated Articles of Organization and (ii) our Amended and Restated By-Laws that would eliminate supermajority voting requirements.

Our Restated Articles of Organization and Amended and Restated By-Laws each currently require the affirmative vote of 80% of the voting power of the then outstanding shares of common stock to amend certain provisions relating to (1) the number, election and terms of our board of directors, (2) director nominations, (3) newly-created directorships and vacancies and (4) removal of directors.

At our 2017 annual meeting of shareholders, our shareholders approved a non-binding shareholder proposal requesting that we take each necessary step to eliminate each voting requirement in our charter and by-laws that called for greater than a simple majority vote. After the 2017 annual meeting of shareholders, we continued our engagement with our shareholders and monitored corporate governance trends and in February 2018 our board approved, subject to shareholder approval, an amendment to our Restated Articles of Organization and Amended and Restated By-Laws that eliminate the supermajority vote requirements. If approved by shareholders, all items in our Restated Articles of Organization and Amended and Restated By-Laws will be subject to amendment by a simple majority vote of shareholders, unless a greater vote threshold is required by applicable law.

The full text of the proposed amendment to our Restated Articles of Organization and the Amended and Restated By-Laws that would become effective upon shareholder approval of this proposal and filing the Restated Articles of Organization with The Commonwealth of Massachusetts are attached to this proxy statement as Appendix A and Appendix B, with additions of text indicated by underlining and deletions of text indicated by strike-outs.

Our board of directors recommends a vote **FOR** the approval of (i) the amendments to our restated articles of organization and (ii) our amended and restated by-laws. The affirmative vote by the holders of 80% of the shares outstanding as of the record date in person or by proxy on this matter is required for the approval of this proposal.

Item 3 Amendment and Restatement of 2013 Stock and Option Plan

Our board of directors believes that our broad-based equity compensation program is essential to attract, retain and motivate people with the necessary talent and experience and to provide additional incentive to achieve our short- and long-term business objectives. We are requesting that our shareholders approve an amendment and restatement of our 2013 Stock and Option Plan, or 2013 Plan, which would increase the number of shares available for issuance under the 2013 Plan by 8.0 million shares.

On April 2, 2018, our board of directors amended and restated our 2013 Plan, subject to shareholder approval, to, among other things, increase the number of shares of common stock authorized for issuance under the 2013 Plan by 8.0 million shares.

Our 2013 Plan utilizes “fungible” shares, with stock options counting as one share against the total authorized shares and full value awards, such as restricted stock or restricted stock units, counting as 1.66 shares against the total authorized shares. We adopted this fungible share plan to provide flexibility in the types of awards we grant under our equity compensation program, while appropriately accounting for the difference between stock options and full value awards. Over the last several years, we have implemented changes in our equity compensation program for our employees, executives and our board that have significantly reduced dilution from our employee equity awards while maintaining a broad-based equity program. We believe that our equity compensation program has been fundamental to our success over the last several years and that the amendment and restatement of the 2013 Plan, which authorizes the issuance of additional shares subject to the 2013 Plan, is necessary in order to support our equity compensation program going forward.

Maintenance of Broad-Based Equity Program While Reducing Dilution

Since our inception, we have compensated all eligible employees using a mix of cash and equity. The broad-based nature of our equity compensation program is an important element of our overall employee compensation program and reflects our philosophy that it is important for all of our employees to approach their jobs with a long-term commitment and perspective. Over the last several years, we have modified our equity compensation programs. These modifications are consistent with modifications other biotechnology companies have made as they matured from development-stage companies to commercial-stage companies with a strong financial profile. As a result of these changes, we granted on an absolute basis equity awards representing 41% fewer shares of common stock in 2017 as compared to 2012 and reduced our “burn rate” from 3.6% in 2012 to 1.8% in 2017.

	2012 Equity Awards	2013 Equity Awards	2014 Equity Awards	2015 Equity Awards	2016 Equity Awards	2017 Equity Awards	% Change 2012 v 2017
Total Shares Granted Subject to Equity Awards	7,525,000	6,276,000	5,629,000	5,035,000	4,887,000	4,470,000	(41)%
Burn Rate ⁽¹⁾	3.6%	2.8%	2.4%	2.1%	2.0%	1.8%	
Awards Canceled, Forfeited or Expired	1,644,000	2,622,000	1,628,000	1,573,000	928,000	1,107,000	
Net Dilution	5,881,000	3,654,000	4,001,000	3,462,000	3,959,000	3,363,000	
Net Burn Rate	2.8%	1.6%	1.7%	1.4%	1.6%	1.3%	

(1) “Burn rate” is defined as the number of equity awards granted in a specific year divided by the basic weighted average number of shares outstanding during that year.

We currently expect that we will grant fewer options in 2018 than in 2017. As a result, although the MDCC and board retains discretion with respect to equity grants, we expect that, consistent with the last several years, there will be a small further decline in the dilution to our shareholders from our equity compensation program in 2018 as compared to 2017.

Key Provisions of our 2013 Plan

The 2013 Plan includes a number of provisions designed to serve shareholders’ interests and facilitate effective corporate governance, including the following:

- **Fungible Shares:** Options and other awards granted at a purchase price of 100% of the fair market value of a share of our common stock on the date of grant count against the number of shares authorized under our 2013 Plan at a rate of one share for each share granted. Any restricted stock, restricted stock units or other “full value” awards granted under the 2013 Plan count against the number of shares authorized for issuance under our 2013 Plan at a rate of 1.66 shares for each share granted.
- **No Stock Option Re-pricing/Exchange:** Except in connection with specific corporate transactions (including stock dividends, stock splits, consolidations, mergers, recapitalizations and reorganizations), the 2013 Plan does not permit (i) the amendment of stock options or stock appreciation rights granted under the 2013 Plan to provide an exercise price that is lower than the then-current price per share of such outstanding option or stock appreciation right, (ii) the cancellation of any outstanding option or stock appreciation right (whether or not granted under the 2013 Plan) and the grant in substitution thereof of any award under the 2013 Plan covering the same or a different number of shares of common stock and having

an exercise price per share lower than the then-current exercise price per share of the cancelled option or stock appreciation right or (iii) the cancellation in exchange for a cash payment of any outstanding option or stock appreciation right with an exercise price per share above the then-current fair market value of our common stock without shareholder approval.

- *No Discounted Stock Options or SARs:* Stock options and stock appreciation rights cannot be granted with an exercise price less than the fair market value on the date of grant.
- *No “Evergreen” Provision:* The 2013 Plan does not contain an “evergreen” or similar provision. The 2013 Plan fixes the number of shares available for future grants and does not provide for any increase based on increases in the number of outstanding shares of common stock.
- *No Reload Rights:* Stock options granted under the 2013 Plan do not contain provisions entitling participants to automatic grants of additional stock options in connection with the exercise of the original option.
- *Limitation on Re-use of Shares:* Shares that are delivered to, or withheld by, the company under an award may not be reissued under the 2013 Plan. Shares may be delivered or withheld in connection with the exercise of stock options or the payment of required withholding taxes.
- *Limitations on Dividend Payments:* No dividends or dividend equivalents will be paid with respect to shares subject to stock options or stock appreciation rights unless and until such awards have vested and been exercised in accordance with their terms. Any dividends or dividend equivalents paid with respect to shares underlying stock rights other than stock options or stock appreciation rights will be subject to the same vesting terms otherwise applicable to the award
- *Independent Committee:* As it relates to our employees, the 2013 Plan is administered by the MDCC, which consists of “outside directors” within the meaning of Section 162(m) of the Internal Revenue Code of 1986, as amended, or the Code, “non-employee directors” within the meaning of Rule 16b-3 of the Exchange Act and “independent directors” as defined by NASDAQ.

Existing Plans

As of February 28, 2018, options to purchase (i) an aggregate of 7,876,791 shares having a weighted-average exercise price of \$114.94 per share and a weighted-average term before expiration of 8.23 years were outstanding under our 2013 Plan, and (ii) an aggregate of 2,416,691 shares having a weighted-average exercise price of \$62.85 per share and a weighted-average term before expiration of 4.28 years were outstanding under our Amended and Restated 2006 Stock and Option Plan, or 2006 Plan. Also, on February 28, 2018, there were outstanding an aggregate of 4,089,535 unvested shares of restricted stock and restricted stock units granted under our 2013 Plan and 87,111 unvested shares of restricted stock and restricted stock units granted under our 2006 Plan.

We may grant additional awards under our 2013 Plan. We are not able to grant additional awards under our 2006 Plan. As of February 28, 2018, there were 7,663,273 shares remaining available for award under our 2013 Plan. In addition, any shares of common stock subject to awards outstanding under the 2006 Plan which expire, terminate or are otherwise surrendered, canceled, forfeited or repurchased by us at their original issuance price pursuant to a contractual repurchase right, will become available for issuance under the 2013 Plan.

Submission of 2013 Plan

We are submitting the amendment to our 2013 Plan to our shareholders as required under applicable rules of NASDAQ and to ensure (i) favorable federal income tax treatment under Section 422 of the Code, for any grants of incentive stock options that we may make under our 2013 Plan and (ii) continued eligibility under Rule 162(m) of the Code, to the extent applicable, for a federal income tax deduction with respect to compensation earned in respect of certain awards granted under our 2013 Plan prior to December 22, 2017.

Summary of the Amended and Restated 2013 Stock and Option Plan

A summary of the principal features of our 2013 Plan is set forth below. A copy of our 2013 Plan, as amended and restated and in the form that would become effective upon shareholder approval of this proposal, is attached to this proxy statement as Appendix C.

Administration and Eligibility for Participation

The 2013 Plan is administered by our board of directors or any committee to which it delegates all or a part of its administrative responsibilities under the 2013 Plan. Our board has delegated the administration of the 2013 Plan to the MDCC. Subject to the provisions of the 2013 Plan, our board, or an authorized committee of our board, determines the persons to whom awards under the 2013 Plan will be granted, the number of shares to be covered by each award, the exercise price per share and the manner of exercise, the terms and

conditions upon which awards are granted, whether to accelerate the vesting or extend the date of exercise of any installment of any award and how to interpret the provisions of the 2013 Plan. Awards may be granted under the 2013 Plan to our employees, including officers and directors who are employees, and to our consultants, advisors and non-employee directors. As of March 31, 2018, we and our subsidiaries had approximately 2,327 employees and eight non-employee directors eligible to participate in the 2013 Plan. The number of consultants and advisors eligible for awards under our 2013 Plan varies from time to time. No participant may be granted awards in any calendar year for more than 1,000,000 shares, subject to adjustment for stock splits and similar recapitalizations.

Description of Awards

The 2013 Plan provides for the award of stock options, stock grants, and other stock-based awards. Any restricted stock grants, restricted stock units or other "full value" awards granted under the 2013 Plan will count against the number of shares authorized for issuance under the 2013 Plan at a rate of 1.66 shares for each share granted. Shares of common stock reserved for such awards granted under the 2013 Plan that lapse or are canceled or forfeited are added back to the share reserve at a rate of 1.66 shares for each share that lapses or is canceled or forfeited. Shares of common stock issued pursuant to restricted stock agreements and restricted stock unit awards may be purchased by employees for nominal value. If we were to permit shares of common stock to be delivered to us to pay the exercise price of a stock option or to be withheld to fund the payment of taxes, those shares would not be added back to the share reserve available for future awards. No option or stock appreciation right may be granted with a term exceeding ten years from the date of grant.

Stock Options

Stock options provide award recipients with the right, subject to the terms and conditions that are specified in connection with the option grant, to purchase a specified number of shares of our common stock at a specified exercise price. Stock options granted under the 2013 Plan may be awarded as either non-qualified stock options or as incentive stock options within the meaning of Section 422 of the Code, referred to as ISOs, however only employees may receive ISOs. The maximum value of shares of common stock—determined at the time of grant—that may be subject to ISOs that become exercisable by an employee in any one year is limited to \$100,000. Since 2003, we have only granted non-qualified stock options under our equity plans.

Stock options granted under the 2013 Plan may not be granted with an exercise price that is less than the fair market value of our common stock on the date of grant, which is defined under the 2013 Plan as the average of the highest and lowest quoted selling prices on such date. ISOs may not be granted with an exercise price that is less than 110% of fair market value in the case of employees or officers holding 10% or more of our voting stock. ISOs granted to an employee or officer holding 10% or more of our voting stock must expire not more than five years from the date of grant.

Stock options granted under the 2013 Plan can only be exercised by the optionholder and are not transferable except by the laws of descent and distribution or pursuant to domestic relations orders or Title I of the Employee Retirement Income Security Act or as otherwise determined by the MDCC, provided such transfer is not for value.

The 2013 Plan provides for stock option grants to non-employee directors under our director compensation program. In addition to any other stock rights as may be determined by our board of directors each non-employee director serving in office on June 1 of any year is granted, pursuant to our equity plans, a fully vested non-qualified option to purchase a specified number of shares determined from time to time by our board.

The 2013 Plan permits the MDCC to determine the manner of payment of the exercise price of options. Such methods include payment by cash or check, or, at the discretion of the MDCC, by means of a broker assisted "cashless exercise," delivery to us of shares of our common stock, any combination of such methods or any other lawful means approved by the MDCC, other than delivery of a promissory note.

Stock Grants

A stock grant is an award of shares of common stock. Stock grants may be issued subject to restrictions on transfer and vesting requirements, as determined by the board or an authorized committee of the board. Vesting requirements may take the form of our lapsing right to repurchase the stock from the award recipient, based on either continued employment for specified time periods or on the attainment of specified business performance goals set by our board or the committee of our board. Subject to the transfer restrictions and our repurchase rights, if any, the grantee will have all rights with respect to unvested shares of common stock issued under a stock grant as are possessed by our other shareholders, including all voting and dividend rights, provided that dividends, if any, with respect to unvested shares shall accrue and be payable only upon the vesting of such shares.

Stock-Based Awards

The 2013 Plan provides that the MDCC may grant other stock-based awards, including restricted stock units, share grants based upon specified conditions, the grant of securities convertible into shares, or the grant of stock appreciation rights, or phantom stock awards, in each case upon terms and conditions established by the MDCC.

Performance Awards

Under the 2013 Plan, we have the discretionary authority to structure one or more awards so that the shares of common stock subject to those particular awards will not vest unless certain pre-established objective performance goals are achieved, in order to, with respect to awards made before December 22, 2017, qualify such awards as performance-based compensation that will not be subject to the \$1,000,000 limitation imposed by Section 162(m) of the Code, to the extent applicable, on the income tax deductibility of the compensation paid to specified executive officers. Such objective goals may be based on one or more of the following criteria: (i) revenue targets or revenue growth; (ii) achievement of specified milestones in the discovery, development or regulatory approval of

one or more of our drug candidates; (iii) achievement of specified milestones in the commercialization of one or more of our products; (iv) achievement of specified milestones in the manufacturing of one or more of our products; (v) cost reduction or other expense control targets; (vi) personal management objectives; (vii) stock price (including, but not limited to, growth measures); (viii) total shareholder return; (ix) income per share; (x) operating efficiency measures; (xi) operating margin; (xii) gross margin; (xiii) return measures (including, but not limited to, return on assets, capital, equity or sales); (xiv) net or total revenue levels; (xv) productivity ratios; (xvi) operating income; (xvii) net operating profit; (xviii) net earnings or net income (before or after taxes); (xix) cash flow (including, but not limited to, operating cash flow, free cash flow and cash flow return on capital); (xx) earnings or operating income before interest, taxes, depreciation, amortization and/or stock-based compensation expense; (xxi) mergers, acquisitions or divestitures objectives; (xxii) market share; (xxiii) customer satisfaction; (xxiv) working capital targets; (xxv) budget objectives and (xxvi) achievement of other balance sheet or statements of operations objectives.

Each objective performance measure that is a financial measure may be determined pursuant to generally accepted accounting principles (GAAP) or on a non-GAAP basis. Such objective performance measures may reflect absolute entity or business unit performance or a relative comparison to the performance of a peer group of entities, an index or indices or other external measure of the selected performance criteria, and may be absolute in their terms or measured against or in relationship to other companies comparably, similarly or otherwise situated. The objective performance measures and any targets with respect thereto need not be based on an increase, a positive or improved result or the avoidance of loss. Such performance measures: (1) may vary by participant and may be different for different awards; (2) may be particular to a participant or the department, branch, line of business, subsidiary or other unit in which the participant works and may cover such performance period as may be specified by us; and (3) shall be set within the time period prescribed by, and shall otherwise comply with the requirements of, Section 162(m) of the Code, to the extent applicable.

We may specify that such performance measures shall be adjusted to exclude or provide for appropriate adjustment for one or more of the following items: (A) asset impairments or write-downs; (B) litigation and governmental investigation expenses and judgments, verdicts or claim settlements; (C) the effect of changes in tax law, accounting principles or other laws, regulations or provisions affecting reported results; (D) the effect of exchange rates for non-US dollar denominated net sales or goals based on operating profit, earnings or income; (E) accruals for reorganization and restructuring programs; (F) any non-GAAP adjustments as described in our earnings releases or in the management's discussion and analysis of financial condition and results of operations appearing in our periodic reports; (G) items of income, gain, loss or expense attributable to the operations of any business acquired by us, any parent or subsidiary or of any joint venture established by us or any parent or subsidiary; (H) costs and expenses incurred in connection with mergers and acquisitions; (I) items of income, gain, loss or expense attributable to one or more business operations divested by us, or any parent or subsidiary or the gain or loss realized upon the sale of any such divested business or the assets thereof; or (J) the effect of any change in the outstanding shares of common stock effected by reason of a stock split, stock dividend, stock repurchase, reorganization, recapitalization, merger, consolidation, spin-off, combination or exchange of shares or other similar corporate change or any distributions to our shareholders other than regular cash dividends.

Notwithstanding any provision of the 2013 Plan, with respect to any award that is intended to qualify as performance-based compensation, we may adjust downwards, but not upwards, the number of shares payable pursuant to such award, and we may not waive the achievement of the applicable performance measures except in the case of the death or disability of the participant or a change in control of our company or as otherwise provided by the MDCC.

We shall have the power to impose such other restrictions on performance awards as we may deem necessary or appropriate to ensure that such awards satisfy all requirements for performance-based compensation.

The foregoing references in this "Performance Awards" section to Section 162(m) of the Code refer to such Code section as in effect prior to December 22, 2017, including the regulations thereunder and other applicable Internal Revenue Service guidance, whether promulgated or issued before or after December 22, 2017.

It is the intent of the Company that the amendment and restatement of the 2013 Plan not constitute a "material modification" of the Plan or awards granted under it prior to May 17, 2018 (the effective date of the amendment and restatement of the 2013 Plan), in each case within the meaning of Section 162(m) of the Code. However, there can be no guarantee that awards made before December 22, 2017 under the 2013 Plan will be deductible as qualified performance-based compensation under Section 162(m) of the Code. In addition, the MDCC has and will continue to have authority to pay or provide compensation (including under the 2013 Plan) that is not deductible under Section 162(m) of the Code in order to maintain a competitive compensation program and provide compensation that will attract and retain highly qualified executives.

Adjustments in the Event of Stock Dividends, Stock Splits, Recapitalizations or Reorganizations

The number of shares subject to stock rights and other terms applicable to such rights will be equitably adjusted if we issue a stock dividend, or in the event of a stock split, recapitalization or reorganization. In addition, in the event of certain consolidations or acquisitions or a sale of substantially all of our assets, either (i) the MDCC or the entity assuming our obligations under the 2013 Plan shall make appropriate provision for the continuation of all outstanding stock rights under the 2013 Plan or grant replacement stock rights on an equitable basis as determined by the MDCC or the relevant entity, or (ii) if there is no assumption or replacement, the vesting of all outstanding and unvested stock rights under the 2013 Plan will be accelerated and such stock rights will become fully exercisable immediately prior to such consolidation, acquisition or sale.

Effective Date, Amendment and Expiration

The 2013 Plan became effective on May 8, 2013 and was previously amended and restated effective as of June 4, 2015 and June 8, 2017. The amendment and restatement of our 2013 Plan will be effective, subject to shareholder approval, on May 17, 2018. The 2013 Plan will terminate on April 12, 2027. Our board of directors may terminate or amend the 2013 Plan at any time, subject to shareholder approval under certain circumstances as provided in the 2013 Plan. No amendment or termination of the 2013 Plan will adversely and materially affect the rights provided in any award made under the 2013 Plan prior to the plan amendment or termination. Neither our board nor the administrator has the authority to reduce the exercise price of any stock option after the date of grant, except in the case of an equitable adjustment required under the 2013 Plan. No award may be made under the 2013 Plan after the plan expiration date. Awards made prior to expiration of the 2013 Plan may extend beyond the plan expiration date.

U.S. Federal Income Tax Consequences

The discussion of federal income tax consequences that follows is based on an analysis of the Code as currently in effect, existing law, judicial decisions and administrative regulations and rulings, all of which are subject to change, and is applicable to optionees who are U.S. taxpayers.

Non-Qualified Options

Options that are designated as non-qualified options are not intended to qualify for treatment under Section 422 of the Code. Options otherwise qualifying as ISOs, to the extent the aggregate fair market value of shares with respect to which such options are first exercisable by an individual in any calendar year exceeds \$100,000, also will be treated as options that are not ISOs.

A non-qualified option ordinarily will not result in income to the optionee or a deduction for us for tax purposes at the time of grant. Instead, the optionee will recognize compensation income at the time of exercise of a non-qualified option in an amount equal to the excess of the fair market value of the shares at the time of exercise over the option exercise price. Any compensation income may be subject to withholding taxes, and a deduction may then be allowable to us in an amount equal to the optionee's compensation income.

An optionee's initial basis in shares so acquired will be the amount paid on exercise of the non-qualified option plus the amount of any corresponding compensation income. Any gain or loss as a result of a subsequent disposition of the shares so acquired will be capital gain or loss.

Incentive Stock Options

ISOs are intended to qualify for treatment under Section 422 of the Code. An ISO does not result in taxable income to the optionee or a deduction for us at the time it is granted or exercised, provided that the optionee does not dispose of the shares acquired pursuant to the option either within two years after the date of grant of the option or within one year after the shares are issued, referred to as the ISO holding period. However, the difference between the fair market value of the shares on the date of exercise and the option exercise price will be an item of tax preference that is included in alternative minimum taxable income. Upon disposition of the shares after the expiration of the ISO holding period, the optionee generally will recognize long-term capital gain or loss based on the difference between the disposition proceeds and the option exercise price paid for the shares. If the shares are disposed of prior to the expiration of the ISO holding period, the optionee generally will recognize taxable compensation, and we will have a corresponding deduction, in the year of the disposition, equal to the excess of the fair market value of the shares on the date of exercise of the option over the option exercise price. Any additional gain realized on the disposition normally will constitute capital gain. If the amount realized upon such a disqualifying disposition is less than fair market value of the shares on the date of exercise, the amount of compensation income will be limited to the excess of the amount realized over the optionee's adjusted basis in the shares.

Stock Grants

With respect to stock grants that result in the issuance of shares that are either not restricted as to transferability or not subject to a substantial risk of forfeiture, the grantee must generally recognize ordinary income equal to the fair market value of shares received. Thus, deferral of the time of issuance generally will result in the deferral of the time the grantee will be liable for income taxes with respect to such issuance. We generally will be entitled to a deduction in an amount equal to the ordinary income recognized by the grantee.

With respect to stock grants involving the issuance of shares that are restricted as to transferability and subject to a substantial risk of forfeiture, the grantee generally must recognize ordinary income equal to the fair market value of the shares received at the time the shares become transferable or are not subject to a substantial risk of forfeiture, whichever occurs earlier. A grantee may elect to be taxed at the time of receipt of shares rather than upon lapse of restrictions on transferability or substantial risk of forfeiture, but if the grantee subsequently forfeits such shares, the grantee would not be entitled to any tax deduction, including as a capital loss, for the value of the shares on which the grantee previously paid tax. The grantee must file any such election with the Internal Revenue Service within 30 days of the receipt of the shares. We generally will be entitled to a deduction in an amount equal to the ordinary income recognized by the grantee.

The granting of awards under the 2013 Plan is discretionary and we cannot now determine the number or type of awards to be granted in the future to any particular person or group. For further information on awards to non-employee directors, see the section "Non-Employee Director Compensation Program" beginning on page 27 of this proxy statement.

The following table sets forth, as to our named executive officers and the other individuals and groups indicated, the number of shares of our common stock subject to option grants made under the 2013 Plan from May 8, 2013 through March 29, 2018.

Name	Position	Number of Shares Underlying Options Granted
Named Executive Officers		
Jeffrey M. Leiden	Chairman, President & Chief Executive Officer	816,372
David Altshuler	EVP & Chief Scientific Officer	139,579
Thomas Graney	SVP & Chief Financial Officer	10,436
Michael Parini	EVP & Chief Legal and Administrative Officer	158,844
Amit Sachdev	EVP & Chief Regulatory Officer	235,526
Ian F. Smith	EVP & Chief Operating Officer	255,113
All current executive officers as a group (9 persons)		2,179,813
Director Nominees		
Sangeeta N. Bhatia		42,368
Jeffrey M. Leiden		816,372
Bruce I. Sachs		57,368
All non-employee board members, including nominees, as a group (8 persons)		401,896
All employees, including current officers who are not executive officers, as a group		9,818,901

On March 29, 2018, the last reported sale price of our common stock on NASDAQ was \$162.98 per share.

Our board of directors recommends a vote **FOR** the approval of the amendment and restatement of our 2013 stock and option plan, that, among other things, increases the number of shares authorized for issuance under this plan by 8.0 million shares. The affirmative vote by the holders of a majority of the votes cast in person or by proxy on this matter is required for the approval of this proposal.

Equity Compensation Plan Information

As of February 28, 2018, there were 7,663,273 shares remaining available for award under our 2013 Plan. Under our 2013 Plan, all awards may be granted as full value awards but count as 1.66 shares for each full value share awarded.

As of February 28, 2018, under our equity plans:

- Stock options covering 10,293,482 shares of our common stock, with a weighted average exercise price of \$102.71 and a weighted average remaining term of 7.30 years, were outstanding; and
- unvested restricted stock awards or units covering 4,176,646 shares of our common stock were outstanding.

The following table provides aggregate information with respect to all of our equity compensation plans in effect as of December 31, 2017. We are required under applicable SEC rules to disclose in this table the number of shares remaining available for issuance under our equity plans as of December 31, 2017. Accordingly, the figures in the table below do not reflect the equity grants made to our employees under our 2013 Stock and Option Plan, or 2013 Plan, since December 31, 2017.

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights ⁽²⁾	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (excluding securities reflected in first column)
Equity Compensation Plans Approved by Shareholders ⁽¹⁾	9,767,326	\$ 91.57	11,427,114
Equity Compensation Plans Not Approved by Shareholders	—	—	—
TOTAL	9,767,326		11,427,114

(1) These plans consist of our 2013 Plan, 2006 Stock and Option Plan and our Employee Stock Purchase Plan.

(2) Does not include restricted stock awards or units covering 3,724,165 shares of our common stock outstanding as of December 31, 2017.

Item 4 Ratification of the Appointment of Independent Registered Public Accounting Firm

Engagement of Ernst & Young LLP

Our audit and finance committee is responsible for the appointment, compensation and oversight of our independent registered public accounting firm. Ernst & Young LLP has been our independent registered public accounting firm since 2005, and we believe that the selection of Ernst & Young LLP as our independent registered accounting firm for the year ending December 31, 2018 is in the best interest of our company and our shareholders.

In determining whether to reappoint our independent registered public accounting firm, our audit and finance committee undertakes an annual formal evaluation of the independent registered public accounting firm, during which it considers the quality of its discussions with and the performance of the lead audit partner, the audit team assigned to our account, the potential impact of changing our independent registered public accounting firm, the overall strength and reputation of the firm and issues pertaining to auditor independence, including fees that our independent registered public accounting firm receives for non-audit services.

Each year, our audit and finance committee, together with Ian F. Smith, our executive vice president and chief operating officer, Thomas Graney, our senior vice president and chief financial officer, and Paul Silva, our senior vice president and controller, review the selection of our lead audit partner from Ernst & Young LLP. The review considers several factors, including sound judgment, industry knowledge and experience managing audits of complex companies with substantial international operations. After undertaking such review, we decided to retain the same lead audit partner from Ernst & Young LLP for the 2018 audit. In accordance with applicable requirements, we are required to change our lead audit partner every five years.

Representatives of Ernst & Young LLP are expected to attend the annual meeting, will have the opportunity to make a statement if they desire to do so and will be available to respond to appropriate questions from shareholders.

Effect of Vote

We are not required to have shareholders ratify the selection of Ernst & Young LLP. If our shareholders do not ratify the selection, our audit and finance committee will reconsider the selection of Ernst & Young LLP for the ensuing year, but may determine that continued retention of Ernst & Young LLP is in our company's and our shareholders' best interests. Even if the appointment is ratified, the audit and finance committee, in its discretion, may direct the appointment of a different independent registered public accounting firm at any time during the year if it determines that such a change would be in our company's and our shareholders' best interests.

Independent Registered Public Accounting Firm Fees

The audit and finance committee works with our management in order to negotiate appropriate fees with Ernst & Young LLP and is ultimately responsible for approving those fees. The following is a summary and description of fees for services provided by Ernst & Young LLP in 2017 and 2016.

Service	2017	2016
Audit fees	\$ 2,818,000	\$ 2,671,000
Audit-related fees	24,000	0
Tax fees	2,587,000	2,282,000
All other fees	3,000	3,000
TOTAL	\$ 5,432,000	\$ 4,956,000

“**Audit fees**” represented the aggregate fees for professional services rendered for the audit of our annual consolidated financial statements, and our internal controls over financial reporting, for the reviews of the consolidated financial statements included in our Form 10-Q filings for each fiscal quarter, for statutory audits of our international operations and providing consents with respect to registration statements.

“**Audit-related fees**” consisted principally of fees for accounting consultations.

“**Tax fees**” consisted of fees related to tax compliance, worldwide tax planning and tax advice. The tax fees for 2017 and 2016 consisted of:

- tax compliance and preparation fees, including the preparation of original and amended tax returns and refund claims, and tax payment planning of \$1,857,000 and \$1,219,000, respectively; and
- tax advice and planning fees of \$730,000 and \$1,063,000, respectively.

“**All other fees**” consisted of licensing fees paid to Ernst & Young LLP for access to its proprietary accounting research database.

Audit and Finance Committee Pre-Approval Policies and Procedures

Our audit and finance committee has established a policy to pre-approve all audit and permissible non-audit services provided by our independent registered public accounting firm. Prior to the engagement of the firm for each year's audit, management submits to our audit and finance committee for approval a description of services expected to be rendered during that year for each of the following four categories of services and a budget for those services in the aggregate.

- **Audit services** include audit work performed in the preparation of financial statements, as well as work that generally only our independent registered public accounting firm can reasonably be expected to provide, including comfort letters, statutory audits, consents and attestation services.
- **Audit-related services** are for assurance and related services that traditionally are performed by the independent registered public accounting firm, including due diligence related to mergers and acquisitions, employee benefit plan audits, special procedures required to meet certain regulatory requirements and consultation regarding financial accounting and/or reporting standards.
- **Tax services** include all services performed by the independent registered public accounting firm's tax personnel except those services specifically related to the audit of our financial statements, and include fees in the areas of tax compliance, tax planning and tax advice.
- **All other fees** are those associated with services not captured in the three preceding categories.

Prior to the engagement of our independent registered public accounting firm, our audit and finance committee pre-approves these services by category of service. The fees are budgeted and our audit and finance committee requires the independent registered public accounting firm and management to report actual fees versus the budget periodically throughout the year by category of service. During the year, circumstances may arise when it may become necessary to engage the independent registered public accounting firm for additional services not contemplated in the original pre-approval. In those instances, our audit and finance committee requires that we obtain its specific pre-approval for these services.

The audit and finance committee may delegate pre-approval authority to one or more of its members. The member to whom such authority is delegated must report any pre-approval decisions to our audit and finance committee at its next scheduled meeting.

All of the services set forth above in the categories “audit-related fees,” “tax fees” and “all other fees” were pre-approved and none were approved by our audit and finance committee pursuant to Rule 2-01(c)(7)(i)(C), which relates to the approval of a *de minimis* amount of non-audit services after the fact but before completion of the audit.

Our board of directors recommends that you vote **FOR** ratification of the appointment of Ernst & Young LLP as our independent registered public accounting firm for the year ending December 31, 2018. The affirmative vote by the holders of a majority of the votes cast in person or by proxy on this matter is required for the approval of this proposal.

AUDIT AND FINANCE COMMITTEE REPORT

The Audit and Finance Committee of the Board of Directors (the “Audit Committee”) of Vertex Pharmaceuticals Incorporated (the “Company”), which consists entirely of directors who meet the independence and experience requirements of the Securities and Exchange Commission and The Nasdaq Stock Market LLC, has furnished the following report:

The Audit Committee assists the Company’s Board of Directors in overseeing and monitoring the integrity of the Company’s financial reporting process, compliance with legal and regulatory requirements related to financial reporting and the quality of internal controls and external audit processes. The Audit Committee’s roles and responsibilities are set forth in a written charter, which is available on the Company’s website www.vrtx.com under “Investors—Corporate Governance—Governance Documents.” Among its duties, the Audit Committee is responsible for recommending to the Company’s Board of Directors that the Company’s financial statements be included in the Company’s Annual Report on Form 10-K. As a basis for that recommendation, the Audit Committee engaged in the following activities. First, the Audit Committee discussed with Ernst & Young LLP (“Ernst & Young”), the Company’s independent registered public accounting firm for 2017, those matters that Ernst & Young is required to communicate to and discuss with the Audit Committee by the Public Company Accounting Oversight Board (United States) Auditing Standard No. 16, *Communications with Audit Committees*, which included information regarding the scope and results of the audit. These communications and discussions are intended to assist the Audit Committee in overseeing the financial reporting and disclosure process. Second, the Audit Committee discussed with Ernst & Young the firm’s independence, and received from Ernst & Young the written disclosures and the letter concerning independence as required by Public Company Accounting Oversight Board Ethics and Independence Rule 3526 (Communication with Audit Committees Concerning Independence). This discussion and disclosure informed the Audit Committee of Ernst & Young’s relationships with the Company and was designed to assist the Audit Committee in considering Ernst & Young’s independence. Finally, the Audit Committee reviewed and discussed, with Ernst & Young and with the Company’s management, the Company’s audited consolidated balance sheet as of December 31, 2017, and the Company’s consolidated statements of operations, comprehensive income (loss), shareholders’ equity and noncontrolling interest, and cash flows for the year ended December 31, 2017, including the notes thereto.

Management of the Company is responsible for the consolidated financial statements and reporting process, including: establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rule 13a-15(e)); establishing and maintaining internal control over financial reporting (as defined in Exchange Act Rule 13a-15(f)); evaluating the effectiveness of disclosure controls and procedures; evaluating the effectiveness of internal control over financial reporting; and evaluating any change in internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, internal control over financial reporting. The independent registered public accounting firm is responsible for expressing an opinion on the conformity of these consolidated financial statements with accounting principles generally accepted in the United States, as well as expressing an opinion on the effectiveness of internal control over financial reporting.

During 2017, management tested and evaluated the Company’s system of internal control over financial reporting in response to the requirements set forth in Section 404 of the Sarbanes-Oxley Act of 2002 and related regulations. At the conclusion of the process, management provided the Audit Committee with a report on the effectiveness of the Company’s internal control over financial reporting, which the Audit Committee reviewed. The Audit Committee also reviewed the report of management contained in the Company’s Annual Report on Form 10-K for the year ended December 31, 2017 filed with the Securities and Exchange Commission, as well as Ernst & Young’s Reports of Independent Registered Public Accounting Firm included in the Company’s Annual Report on Form 10-K. The latter reports relate to Ernst & Young’s audit of (i) the consolidated financial statements and (ii) the effectiveness of internal control over financial reporting.

Based on (i) discussions with Ernst & Young concerning the audit and the consolidated financial statements, (ii) the independence discussions, (iii) discussions with the Company’s management concerning the consolidated financial statements, and (iv) such other matters deemed relevant and appropriate by the Audit Committee, the Audit Committee recommended to the Company’s Board of Directors that the consolidated financial statements be included in the Company’s Annual Report on Form 10-K for the year ended December 31, 2017. This report is provided by the following independent directors, who comprise the Audit Committee:

Terrence C. Kearney (Chair)

Yuchun Lee

Bruce I. Sachs

Item 5 Advisory Vote to Approve Named Executive Officer Compensation

Our compensation program is designed to attract, retain and motivate talented and experienced individuals across all areas of our business and to align the interests of our executive officers with the interests of our shareholders as we seek to create value through the discovery, development and commercialization of transformative medicines.

In 2017, we received support from 83% of our shareholders on our say-on-pay proposal, and we believe all of our ten largest shareholders supported this proposal. We believe this support is consistent with our long-term shareholders' understanding of our business model and the long-term value we are creating. We plan on continuing a high level of engagement with our shareholders regarding executive compensation. In 2017, we held discussions regarding executive compensation with shareholders representing approximately 75% of our outstanding stock.

Our focus is and continues to be maintaining the strong link between our compensation programs and our ability to continue to develop transformative medicines while delivering sustained company performance, with approximately 90% of our NEO compensation linked to performance. Our board of directors and MDCC reviewed our compensation programs and made the following key decisions with respect to 2017 compensation:

- We maintained the same compensation program that we implemented in 2016, which we believe closely ties pay with performance and has contributed to our short- and long-term successes
- The company's exceptional performance in 2017, resulted in a leading rating (a company rating of 148 out of a potential 150) for 2017 and annual cash bonuses near the high end of the range for 2017, commensurate with this performance
- Our CEO's salary has been unchanged at \$1.3 million since 2014 and is aligned with the median CEO pay of our peer companies
- We continued utilization of a mix of equity that consists of performance stock units that vest solely upon achievement of rigorous performance goals, stock options that only have value if our stock price appreciates and time-vesting restricted stock units that reward stock price appreciation but also serve as a retention tool

Our executive compensation program, including our performance and the compensation earned by our named executive officers, is discussed in greater detail in the *Compensation Discussion and Analysis* section beginning on page 45 of this proxy statement. In that section, we discuss our executive compensation program and policies and explain the compensation decisions relating to our named executive officers for 2017, which resulted in significant decreases in the amounts reported in comparison to prior years. Our focus remains on maintaining the strong link between our compensation programs and our ability to continue to develop transformative medicines while delivering sustained revenues and earnings growth.

Based upon a vote of shareholders at the 2017 annual meeting of shareholders, following our board's recommendation for an annual advisory vote to approve executive compensation, we are presenting the following proposal, which gives you as a shareholder the opportunity to endorse or not endorse our 2017 executive compensation program by voting for or against the following resolution:

RESOLVED, that the shareholders approve, on an advisory basis, the compensation of our named executive officers, as disclosed in the Compensation Discussion and Analysis section, the Compensation and Equity Tables and the related narrative executive compensation disclosures contained in this proxy statement.

While the vote on this resolution is advisory in nature, and therefore will not bind us to take any particular action, our MDCC and board intend to consider carefully the shareholder vote resulting from the proposal in making future decisions regarding our executive compensation program.

Our board of directors recommends that you vote **FOR** the approval of the resolution set forth above. The affirmative vote by the holders of a majority of the votes cast in person or by proxy on this matter is required for the approval of this proposal.

Item 6 Shareholder Proposal Regarding Report on Drug Pricing

We expect the following shareholder proposal will be presented for consideration at the 2018 annual meeting of shareholders. Our board of directors recommends a vote AGAINST the shareholder proposal for the reasons set forth following the proposal.

THE SHAREHOLDER PROPOSAL

Trinity Health, 766 Brady Avenue, Apartment 635, Bronx, NY 10462, the owner of at least \$2,000 worth of shares of our common stock as of December 5, 2017 and the Sisters of the Humility of Mary, Villa Maria Community Center, Villa Maria, Pennsylvania 16155, the owner of 190 shares of our common stock as of December 27, 2017, have given notice that one or both of them intends to present for action at the 2018 annual meeting of shareholders the following resolution:

RESOLVED that shareholders of Vertex Pharmaceuticals (“Vertex”) ask the Board of Directors to report to shareholders by December 31, 2018, at reasonable cost and omitting confidential or proprietary information, on the risks to Vertex from rising pressure to contain U.S. prescription drug prices, including the likelihood and potential impact of those risks as applied to Vertex, the steps Vertex is taking to mitigate or manage those risks and the Board’s oversight role. The report should address risks created by payer cost-effectiveness analysis, patient access concerns, outcomes-based pricing, and price sensitivity of prescribers, payers and patients.

SUPPORTING STATEMENT

Prescription drug pricing is an urgent and high-visibility public policy issue. National media outlets tell stories of patients delaying treatment or ending up homeless due to drug costs. (E.g., <http://www.npr.org/sections/health-shots/2017/03/15/520110742/as-drug-costs-soar-people-delay-or-skip-cancer-treatments>; <https://www.consumerreports.org/drugs/cure-for-high-drug-prices/>) Outrage greeted Turing Pharmaceuticals’ massive increase in the price of an older AIDS drug and Mylan’s skyrocketing EpiPen price tag. (<http://money.cnn.com/2016/08/25/news/economy/daraprim-aids-drug-high-price/index.html>)

In a 2017 Kaiser Family Foundation poll, “lowering the cost of prescription drugs” was identified as a top health care priority for the President and Congress by over 60% of Democrats and Republicans, and 58% of independents. (<https://www.kff.org/report-section/kaiser-health-tracking-poll-late-april-2017-the-future-of-the-aca-and-health-care-the-budget-rx-drugs/>) In October 2017, California began requiring companies to notify regulators when they intend to raise the price of a drug by 16% or more over two years and explain why the increase is necessary. (<http://www.npr.org/sections/health-shots/2017/10/04/551013546/california-bill-would-compel-drugmakers-to-justify-price-hikes>)

In July, Vertex increased the price of its combination drug Orkambi by five percent, costing \$273,000 before discounts. (<https://www.bizjournals.com/boston/news/2017/07/13/vertex-inks-another-reimbursement-deal-in-europe.html>) Some business analysts have noted that the pricing practices of rare disease drug manufacturers may be facing more pushback as some payers are limiting coverage of high-cost medicines from other pharmaceutical companies.

As an example, the *Toronto Globe and Mail* reported that the “Canadian Agency for Drugs and Technologies has recommended, on two occasions, against public funding for Orkambi, saying there is not enough evidence of a significant clinical benefit weighed against the cost of the twice-a-day tablet regime”. (<https://www.theglobeandmail.com/news/british-columbia/provinces-reject-price-negotiations-for-orkambi-cystic-fibrosis-drug/article37069868/>)

The disclosure requested by this Proposal will allow shareholders to better assess the risks created by Vertex’s pricing strategy in the current environment. We urge shareholders to vote for this proposal.

YOUR COMPANY’S RESPONSE

Our board of directors recommends a vote AGAINST the shareholder proposal requesting a report on the risks to our company from rising pressure to contain U.S. prescription drug prices.

We are committed to creating transformative drugs for patients with serious diseases, and we believe that each of our approved products is an excellent example of the benefit that we can deliver to patients, providers and families of those affected by CF. Our goal is to ensure access to our medicines, return value to our shareholders and fuel the development of additional transformative medicines for the future.

KALYDECO, ORKAMBI and SYMDEKO are the only medicines that address the underlying cause of CF and KALYDECO and ORKAMBI have shown broad and sustained systemic benefits to patients with CF. The price of our products reflects many factors, including the relative benefit it provides to patients, the substantial time and cost it took to develop, the small number of patients eligible for treatment with each product and our ongoing commitment to invest in additional medicines for patients with CF and other diseases. The price balances the need for patient access, while garnering a fair return for our shareholders and ensuring sufficient investment in the discovery and development of future transformative medicines.

As part of our commitment to providing patients with access to our medicines, we have a comprehensive product support program that includes financial assistance for eligible patients. We provide one-on-one support to help patients with health insurance understand and navigate their health plans and the majority of our patients incur low out of pockets costs. Additionally, we provide co-pay assistance for eligible commercially insured patients that enroll in our product support program. For patients without health insurance who meet certain income and other eligibility criteria, we provide products for no charge.

We are in a high risk/high return industry. A very small percentage of the potential medicines investigated by biotechnology companies make it through the arduous research, development and regulatory process to be approved for patient use by the FDA, and only a small percentage of these approved medicines bring in enough revenue to recoup the average cost of development. As a result, the very few drug candidates that receive FDA approval and become commercially successful must support the entire research and development enterprise. Since our incorporation in 1989, the vast majority of our expenses have been related to our research and development efforts, with a small portion of our expenses allocated to sales and marketing. We have spent approximately \$11 billion for research and development for drug candidates for the treatment of CF, as well as several other disease areas, including HCV infection and HIV infection.

With respect to specific disclosure of the risks intended to be captured in the report requested by the proponent, we believe we have made adequate reference in our periodic reports under the Securities Exchange Act of 1934, as amended. For example, our annual report on Form 10-K, filed with the SEC on February 15, 2018, includes prominent risk factors referencing these risks, including a risk factor entitled “Government and other third-party payors seek to contain costs of health care through legislative and other means. If they fail to provide coverage and adequate reimbursement rates for our products, our revenues will be harmed.”

As such, we believe proponent’s requested report will not benefit our shareholders and will divert the time and attention of management and the board from our strategic initiatives and operations.

For all of the above reasons our board of directors recommends that you vote **AGAINST** the shareholder proposal regarding a report on drug pricing. The affirmative vote by the holders of a majority of the votes cast in person or by proxy on this matter is required for the approval of this proposal.

Item 7 Shareholder Proposal Regarding Lobbying

We expect the following shareholder proposal will be presented for consideration at the 2018 annual meeting of shareholders. Our board of directors recommends a vote AGAINST the shareholder proposal for the reasons set forth following the proposal.

THE SHAREHOLDER PROPOSAL

Friends Fiduciary Corporation, 1650 Arch Street, Suite 1904, Philadelphia, Pennsylvania 19103, an owner of at least 600 shares of our common stock as of December 13, 2017 has given notice that it intends to present for action at the 2018 annual meeting of shareholders the following resolution:

WHEREAS, we believe in full disclosure of our company's direct and indirect lobbying activities and expenditures to assess whether Vertex's lobbying is consistent with its expressed goals and in the best interests of shareholders.

RESOLVED, the shareholders of Vertex Pharmaceuticals Incorporated ("Vertex") request the preparation of a report, updated annually, disclosing:

1. Company policy and procedures governing lobbying, both direct and indirect, and grassroots lobbying communications.
2. Payments by Vertex used for (a) direct or indirect lobbying or (b) grassroots lobbying communications, in each case including the amount of the payment and the recipient.
3. Vertex's membership in and payments to any tax-exempt organization that writes and endorses model legislation.
4. Description of the decision making process and oversight by management and the Board for making payments described in section 2 and 3 above.

For purposes of this proposal, a "grassroots lobbying communication" is a communication directed to the general public that (a) refers to specific legislation or regulation, (b) reflects a view on the legislation or regulation and (c) encourages the recipient of the communication to take action with respect to the legislation or regulation. "Indirect lobbying" is lobbying engaged in by a trade association or other organization of which Vertex is a member.

Both "direct and indirect lobbying" and "grassroots lobbying communications" include efforts at the local, state and federal levels.

The report shall be presented to the Audit Committee or other relevant oversight committees and posted on Vertex's website.

SUPPORTING STATEMENT

We encourage transparency in the use of corporate funds to influence legislation and regulation, both directly and indirectly. Vertex spent \$2.7 million in 2015 and 2016 on federal lobbying (opensecrets.org). This figure does not include lobbying expenditures to influence legislation in states, where Vertex also lobbies but disclosure is uneven or absent. For example, Vertex had 120 lobbyists in 35 states in 2016 (<http://www.followthemoney.org/>), and spent \$306,346 on lobbying in California in 2015 and 2016. Vertex's lobbying on drug prices in Canada has attracted media attention ("Why One Expensive Drug Could Get B.C. OK, But Not Another," *Times Colonist*, November 24, 2017), as has its federal lobbying ("Drugmakers Dramatically Boosted Lobbying Spending in Trump's First Quarter," *Salon*, April 22, 2017).

Vertex is listed as a member of the Biotechnology Innovation Organization, which spent \$17.58 million on lobbying in 2015 and 2016. Vertex does not disclose its trade association memberships, nor payments and the portions used for lobbying.

Transparent reporting would reveal whether company assets are being used for objectives contrary to Vertex's long-term interests. We are concerned that Vertex's lack of lobbying disclosures, including lobbying done indirectly by trade associations and other organizations, and any potential negative publicity for opposing drug price initiatives, may present reputational risks for Vertex.

YOUR COMPANY' RESPONSE

Our board of directors recommends a vote AGAINST the shareholder proposal to prepare a report on our policies and activities with respect to lobbying.

We engage with public policymakers, where legal and appropriate, when we believe it will serve the best interests of our company, our shareholders, employees, patients and other stakeholders. The associations and coalitions to which we belong perform many valuable functions. Lobbying is not the primary focus of these entities, but it is an element of their role, and a portion of the dues that we and other members pay to such organizations may be partially used, in their sole discretion, to engage in certain lobbying activities. We do not direct how these funds are used. Accordingly, our board believes that additional disclosures regarding payments to these trade associations would not necessarily present an accurate reflection of our positions on certain public policy issues.

Our board acknowledges the interests of shareholders in information about our participation in the political process. However, our board believes that the proposal's additional detailed reporting obligation would be duplicative of existing disclosures and that it would impose an unnecessary administrative burden and expense on the company when sufficient disclosure already exists.

For all of the above reasons our board of directors recommends that you vote **AGAINST** the shareholder proposal regarding a report on lobbying activities. The affirmative vote by the holders of a majority of the votes cast in person or by proxy on this matter is required for the approval of this proposal.

COMPENSATION DISCUSSION AND ANALYSIS

Letter from Management Development and Compensation Committee to Our Shareholders

Dear Fellow Shareholder,

The Management Development and Compensation Committee's stewardship of Vertex's compensation programs is guided by Vertex's mission of developing transformative medicines for people with serious diseases and by so doing, creating superior value for our shareholders. Toward that end, we have designed the company's compensation programs to closely align management's incentives with Vertex's strategic long- and short-term goals and with the interests of Vertex's shareholders. This alignment has contributed to Vertex's accomplishments over the last several years as it has increased its revenues significantly each year, built its financial strength, advanced its pipeline and continued to execute its business strategy. These accomplishments have been recognized by the company's shareholders and have been reflected in the increasing value that the company's shareholders have attributed to the company. Vertex's market capitalization has increased by more than 400% from approximately \$7 billion in early 2012 to more than \$40 billion in early 2018. In 2017, Vertex was the number three performing stock on the S&P 500.

We take seriously our role in the governance of compensation programs and the importance of attracting and retaining critical executive talent as the company continues to expand and operate in an increasingly complex industry. The success of the company and the execution of Vertex's business strategy over the last several years has depended upon the stability and operational excellence of our senior executive team. We also carefully consider and incorporate the views expressed by the company's shareholders into our thinking, transitioning Vertex's equity program from a share-based program to a value-based approach in 2016, based on the progression of the company and input from shareholders.

In 2017, Vertex had a remarkable year as it became profitable, continued to increase revenues, managed operating expenses and advanced numerous programs as potential treatments for both CF and non-CF diseases, positioning itself for continued growth. This success in 2017 reflects both the company's exceptional execution in 2017 and the overall corporate strategy that the company's core management team has championed since 2012.

As a result of these exceptional accomplishments, our executives received higher cash bonuses for 2017 performance than they received for 2016 performance. In addition, our executives received above target payouts on the performance stock unit awards granted in early 2017 that were tied to Vertex CF product revenues. We believe these outcomes are aligned with our commitment to linking pay to performance. Looking ahead, we will continue to focus on maintaining the strong link between Vertex's compensation programs and its long- and short-term strategic objectives. Central to these objectives and continuing to develop transformative medicines to treat serious diseases while delivering sustained revenues and earnings growth is our ability to attract and retain a stable and highly-functioning senior executive team.

Sincerely,

Bruce I. Sachs (*Chair*)

Terrence C. Kearney

Elaine S. Ullian

William D. Young

Executive Summary

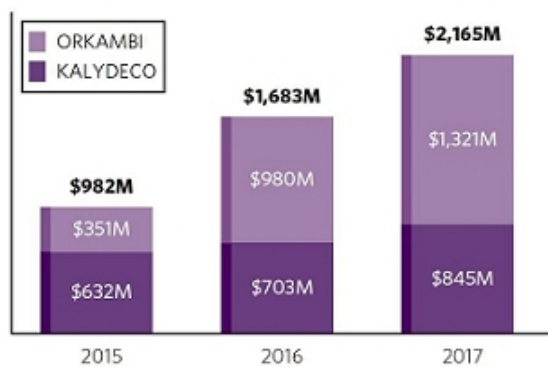
By any measure, 2017 was a remarkable year for Vertex as we continue to execute on our strategy of investing in cystic fibrosis scientific innovation to create transformative medicines for people with serious diseases. With near-30 percent growth in revenues and disciplined management of our operating expenses, we have established a foundation of financial strength to fuel our innovation engine and growth for the future. In CF, we continue to develop new and better medicines to treat more people with this devastating disease, and, with the announcement of the start of our triple combination regimen trials, are more confident than ever that we will be able to treat up to 90 percent of people with CF in the near future. Outside of CF, we have made significant progress in advancing our research and development efforts in other serious diseases, including pain, alpha-1 anti-trypsin deficiency and, with our partner CRISPR, sickle cell disease. With these advances, we have enhanced our proven track record of serially innovating for patients waiting for new therapies. As we enter 2018, we are financially strong and well positioned to grow revenues, deliver expanding operating margins, and deliver long-term shareholder value.

Financial Performance

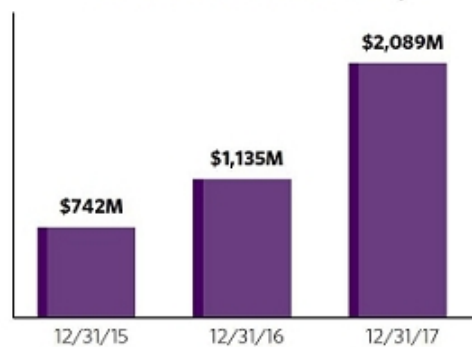
Our CF medicines, KALYDECO, ORKAMBI and SYMDEKO, which took more than 15 years to discover and develop, are now transforming the lives of eligible patients around the globe and driving our financial performance. In 2017, we increased our revenues, managed our operating expenses and established sustainable profitability on a GAAP and Non-GAAP basis for the first time.

- We exceeded our CF net product revenue guidance by \$265 million, or 14% (\$2.17 billion as compared to the mid-point of our CF net product revenue guidance of \$1.9 billion)
- Our CF net product revenues increased to \$2.17 billion, up 29% as compared to 2016, and we are positioned to further increase CF net product revenues by an additional 25% in 2018
- We increased our net cash position by approximately \$950 million, or 84%, to approximately \$2.1 billion, and we expect to continue generating substantial cash flows in 2018
- We went from a GAAP net loss of \$112 million in 2016 to GAAP net income of \$263 million in 2017
- Our non-GAAP net income increased to \$495 million, up \$283 million, or 134%, from 2016, driven by our increased net product revenues (a reconciliation of non-GAAP net income is provided in Appendix D)

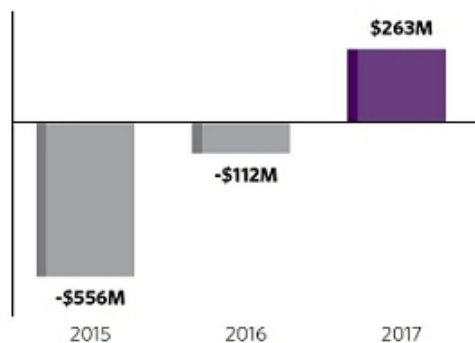
INCREASING CF NET PRODUCT REVENUES



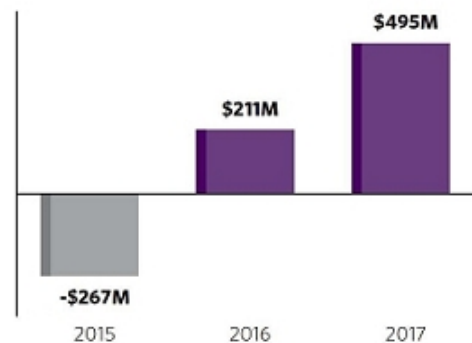
INCREASING FINANCIAL STRENGTH AND GENERATING SIGNIFICANT POSITIVE CASH FLOWS
(Cash, Cash Equivalents and Marketable Securities net of Debt)



GAAP NET INCOME (LOSS)

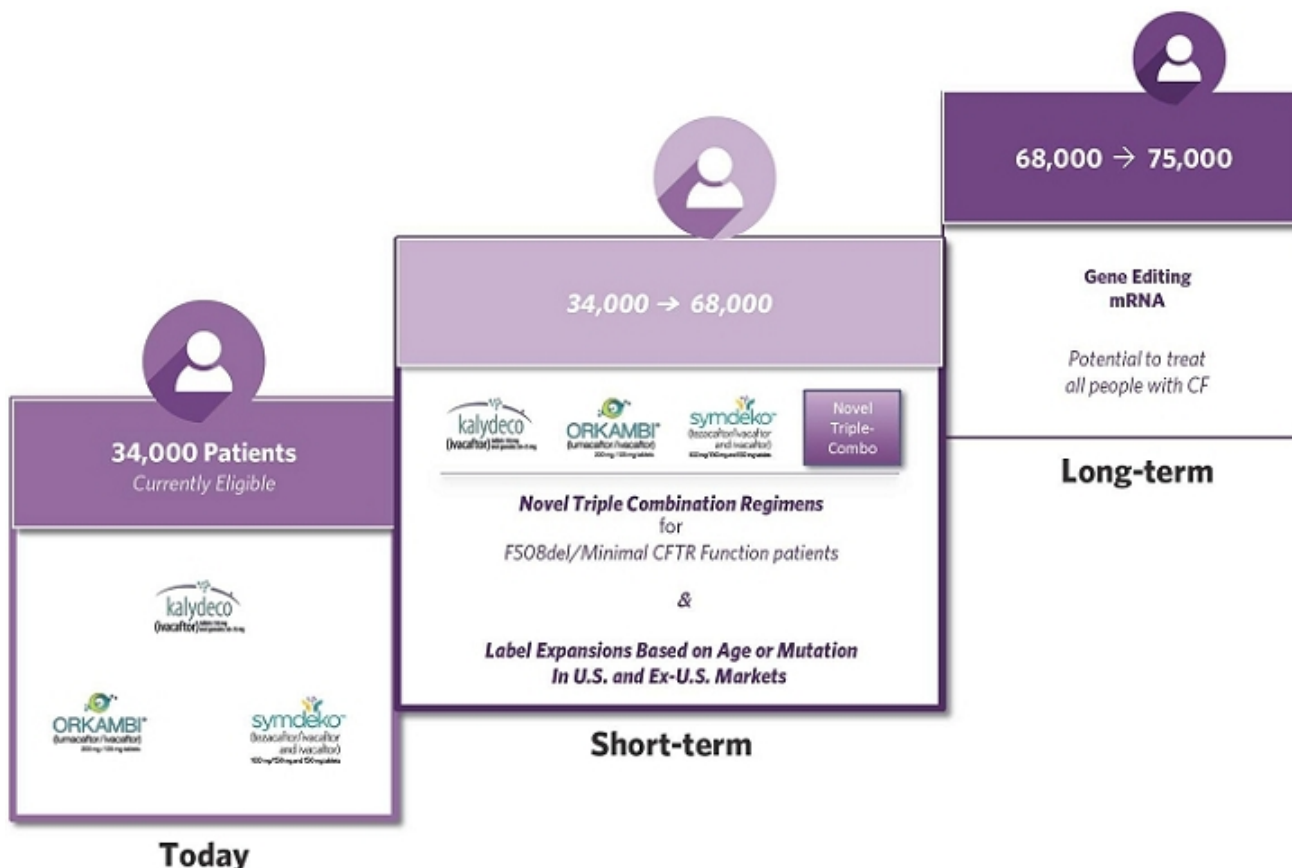


Non-GAAP NET INCOME (LOSS)



CF Pipeline

Advances in our pipeline and our strategic execution have moved us closer to our goal of delivering highly-effective treatments to all patients with CF. In January 2012, KALYDECO was first approved to treat approximately 1,000 patients with the G551D mutation. Since then, we have followed a focused strategy of developing new medicines for CF and expanding the number of patients eligible for our medicines, and today 34,000 patients around the world are eligible to receive one of our approved CF medicines.



Since the beginning of 2017, we:

- Obtained positive Phase 3 data for SYMDEKO (tezacaftor in combination with ivacaftor) in early 2017
- Achieved approval for SYMDEKO in the United States in February 2018
- Applied for European regulatory approval of tezacaftor in combination with ivacaftor in July 2017 with approval expected in the second half of 2018
- Obtained authorization to market ORKAMBI in the European Union for patients 6-11 years of age in January 2018
- Received approvals to market KALYDECO for approximately 1,500 additional CF patients in the United States with residual function mutations in May 2017 and August 2017
- Obtained positive Phase 3 data for KALYDECO for patients 1 to 2 years of age in December 2017
- Obtained highly-positive Phase 2 data for four triple combination regimens, each of which contained different next-generation correctors in combination with tezacaftor and ivacaftor, from mid-2017 through early 2018
- Accelerated initiation of the Phase 3 development program for VX-659 in combination with tezacaftor and ivacaftor, which started in February 2018
- Positioned ourselves to initiate a Phase 3 clinical development program for VX-445 in a triple combination regimen in mid-2018

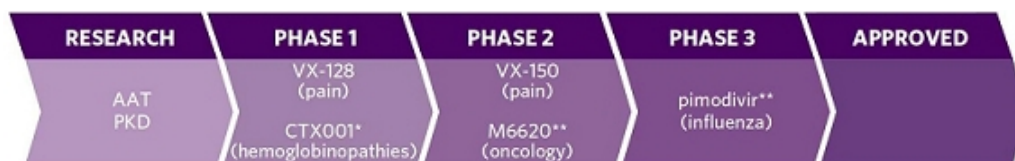


With the start of our triple combination regimen Phase 3 clinical trials, we believe we are well-positioned to treat up to 90% of CF patients with medicines that target the underlying cause of their disease.

Non-CF Pipeline

Over the last decade, we have demonstrated an ability to serially discover and develop multiple groundbreaking medicines in different diseases. In 2017, we and our collaborators have continued our serial innovation, advancing promising non-CF programs for important diseases, including pain, sickle cell disease, alpha-1 anti-trypsin deficiency, polycystic kidney disease and influenza. Specifically, since the beginning of 2017, we have:

- Obtained the first clinical proof-of-concept from a Phase 2 clinical trial evaluating a NaV1.8 inhibitor as a potential treatment for chronic pain in January 2017 (VX-150 is our lead non-opioid NaV1.8 inhibitor)
- Obtained clinical proof-of-concept from a second Phase 2 clinical trial of VX-150 as a potential treatment for acute pain in February 2018
- Initiated a Phase 1 clinical trial of VX-128, a second non-opioid sodium channel inhibitor, in December 2017
- Executed a co-development and co-commercialization agreement with CRISPR Therapeutics AG for beta-thalassemia and sickle cell disease
- Advanced through pre-clinical development CTX001 for beta-thalassemia and sickle cell disease pursuant to our collaboration with CRISPR Therapeutics AG. We expect to initiate Phase 1/2 clinical trials in 2018 to evaluate CTX001, which will be the first, or one of the first, clinical trials to evaluate a potential CRISPR/Cas9 drug candidate.
- Advanced our research program for alpha-1 anti-trypsin deficiency into late-stage pre-clinical development
- Janssen Pharmaceuticals, our collaborator, initiated Phase 3 development of pimodivir as a potential treatment for influenza
- Successfully outlicensed our oncology programs to Merck KGaA, Darmstadt, Germany

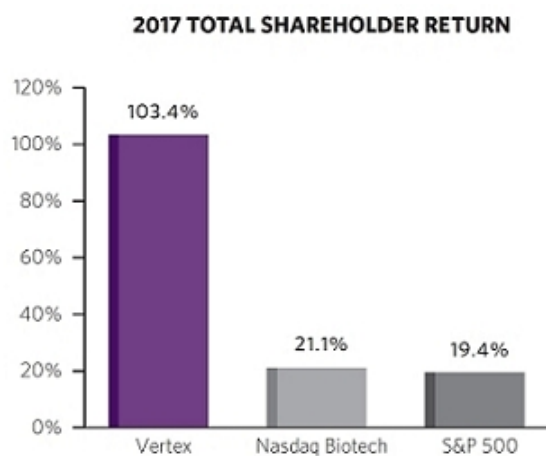


* We are co-developing CTX001 with CRISPR Therapeutics
 ** We have outlicensed pimodivir to Janssen Pharmaceuticals and M6620 to Merck KGaA

Increased Shareholder Value

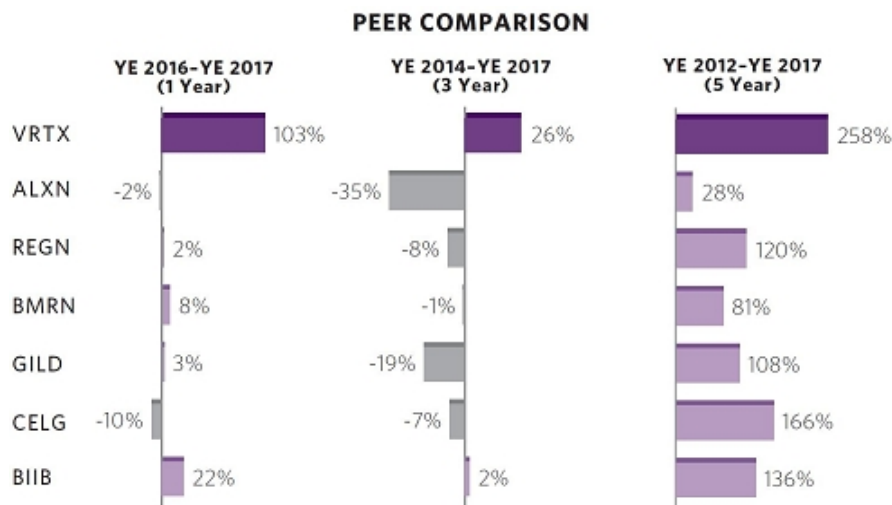
Driven by our exceptional financial performance and our pipeline success in 2017:

- Our stock price increased by more than 100% from \$73.67 per share to \$149.86 per share
- We were the third best performing stock among the approximately 500 mid- and large-cap companies that make up the S&P 500 index

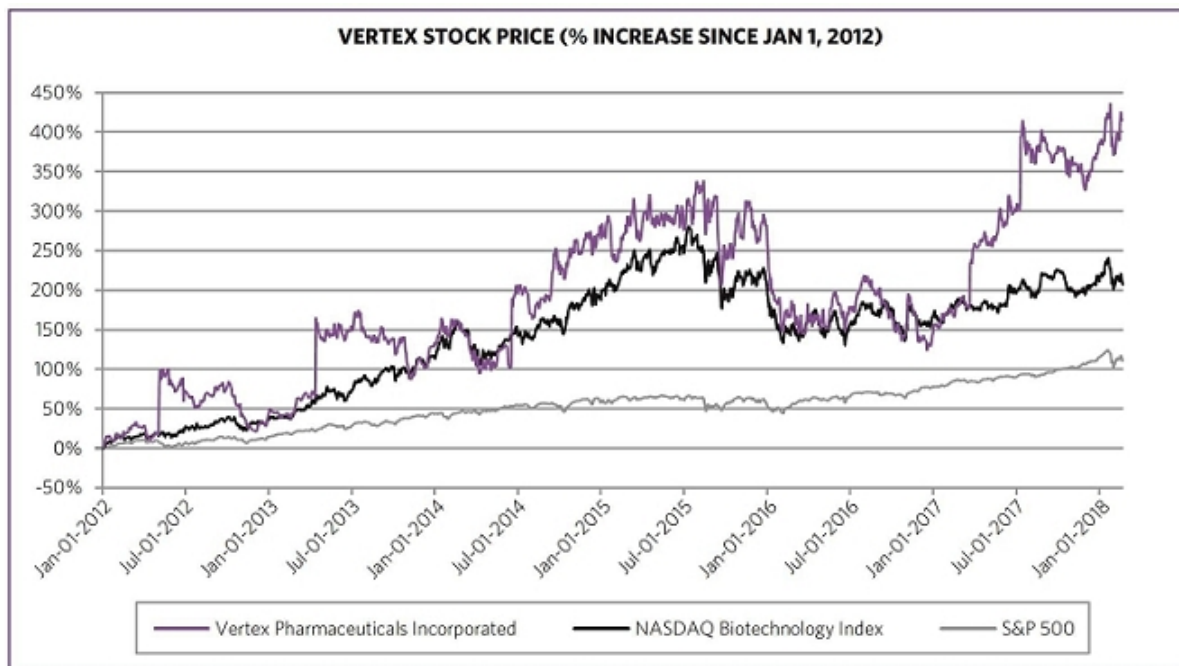


Although our performance in 2017 was remarkable, biotechnology companies are best measured over the longer-term, as opposed to in one year increments. As result of executing on a clear and focused vision that balanced short-term and long-term goals, we have taken Vertex from a market capitalization of less than \$10 billion in early 2012 when KALYDECO was first approved to over \$40 billion in early 2018, creating significant value for our shareholders.

The following chart shows our total shareholder return during the 1-year, 3-year and 5-year periods ending December 31, 2017 compared to the following members of our peer group: Alexion, Regeneron, Biomarin, Gilead, Celgene and Biogen. These peers are the companies we consider most similar to our company based on their business model (see page 54).

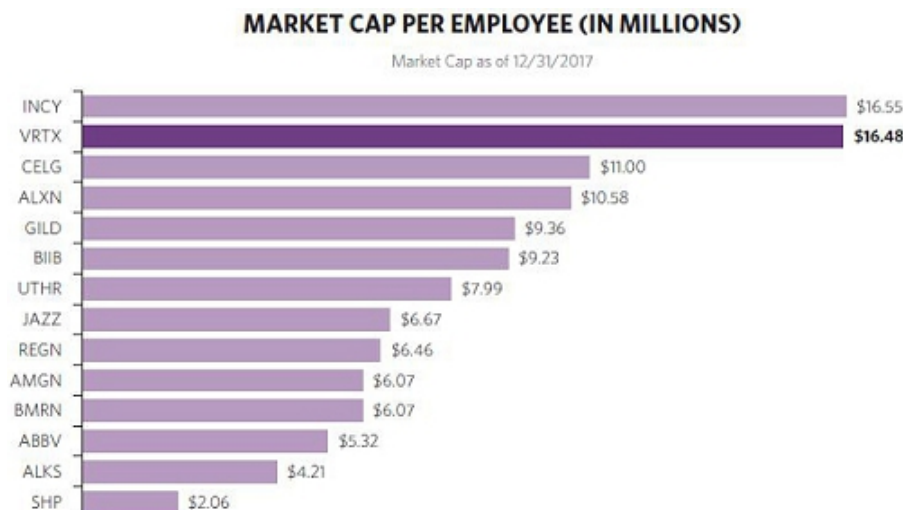


The following chart shows our total shareholder return from the beginning of 2012 when KALYDECO was first approved through February 2018.



Value Creation and Business Model

We are committed to creating value while utilizing a business model that focuses our investment on research and development and limits our operating expenses. As a result of this strategy, over the last six years the number of our employees has grown by approximately 15% from 2,000 to 2,300, while our market capitalization has increased more than five fold. The following chart shows our market capitalization per employee compared to our Peer Group.



Key Compensation Decisions

Our focus has been and continues to be on maintaining the strong link between our compensation programs and our ability to continue to develop transformative medicines while delivering sustained company performance. **Our compensation program is highly performance-based with approximately 90% of our NEO compensation tied to performance.** Retention of our talented core of executives is likewise critical, as their outstanding performance over the last six years has led to the advancement of the company and the significant shareholder value that has been created.

The key recent decisions that our MDCC and board of directors made are as follows:

- **Program Design:** We maintained the same compensation program that we implemented in 2016, which we believe closely ties pay with performance and has contributed to our short- and long-term successes.
- **Base Salary:** Our CEO's salary has been unchanged at \$1.3 million since 2014. His annual salary is aligned with the median CEO pay of our Peer Group. In 2017, we evaluated and increased the base salary of two of our other executive officers by 7% to 9% based on a review of base salaries of peers and in recognition of their roles and contributions to the company.
- **Annual Cash Bonus:** The company's exceptional performance in 2017, as described above, resulted in a leading rating (a company rating of 148 out of a potential 150) for 2017 and annual cash bonuses near the high end of the range for 2017, commensurate with this performance.
- **Long-Term Equity Program:**
 - We continued utilization of a mix of equity that consists of performance stock units that vest solely upon achievement of rigorous performance goals, stock options that only have value if our stock price appreciates and time-vesting restricted stock units that reward stock price appreciation but also serve as a retention tool.
 - In early 2017, the MDCC established financial and non-financial metrics for the PSUs, with payout earned based on achievement of these metrics. 50% of the PSUs were tied to CF net product revenues in 2017, while the remaining 50% are tied to specific clinical and research milestones over a three-year period.
 - In February 2018, the MDCC certified our 2017 CF net product revenue (which exceeded the mid-point of our CF net product revenue guidance by more than \$250 million) at the maximum level of performance established at the beginning of 2017, resulting in 200% of the target shares for our 2017 financial PSU being earned, with vesting in three equal installments in February 2018, 2019 and 2020. By comparison, in February 2017, the MDCC certified a payout of 66.5% of the target shares for our 2016 financial PSUs.

2016 Program Changes

In 2016, we substantially changed our equity compensation program, which decreased the value of compensation provided in the form of stock options, reduced the value of compensation delivered in the form of time-vested restricted stock, and introduced PSUs. As a result of these changes, the grant date fair-value of our named executive officers' total equity compensation under the annual program decreased by approximately 40% in each of 2018, 2017 and 2016 as compared to 2015 as set forth in the chart below, which sets forth the fair value of equity compensation received by Dr. Leiden, our chief executive officer and president, and Mr. Smith, our chief operating officer. The values provided for 2018 are based on equity grants made in February 2018 based on 2017 performance.

LTI PROGRAM CHANGE HAS RESULTED IN DECREASED EQUITY AWARD VALUES FOR NEOs



■ The values of equity-based awards are based on our methodology for determining the grant-date fair value, including underlying assumptions for calculating these values as set forth in Note N to our consolidated financial statements included in our 2017 Annual Report on Form 10-K.

Dilution

Since our inception, we have compensated all eligible employees using a mix of cash and equity. The broad-based nature of our equity compensation program is an important element of our overall employee compensation program and reflects our philosophy that it is important for all of our employees to approach their jobs with a long-term commitment and perspective. Over the last several years, we have modified our equity compensation programs. These modifications are consistent with modifications other biotechnology companies have made as they matured from development-stage companies to commercial-stage companies with a strong financial profile. As a result of these changes, we granted on an absolute basis equity awards representing 41% fewer shares of common stock in 2017 as compared to 2012 and reduced our "burn rate" by approximately 50% from 3.6% in 2012 to 1.8% in 2017.

	2012 Equity Awards	2013 Equity Awards	2014 Equity Awards	2015 Equity Awards	2016 Equity Awards	2017 Equity Awards	% Change 2012 v 2017
Total Shares Subject to Equity Awards	7,525,000	6,276,000	5,629,000	5,035,000	4,887,000	4,470,000	(41)%
Burn Rate ⁽¹⁾	3.6%	2.8%	2.4%	2.1%	2.0%	1.8%	
Awards Canceled, Forfeited or Expired	1,644,000	2,622,000	1,628,000	1,573,000	928,000	1,107,000	
Net Dilution	5,881,000	3,654,000	4,001,000	3,462,000	3,959,000	3,363,000	
Net Burn Rate	2.8%	1.6%	1.7%	1.4%	1.6%	1.3%	

(1) "Burn rate" is defined as the number of equity awards granted in a specific year divided by the basic weighted average number of shares outstanding during that year.

Say-on-Pay

In 2017, we received support from 83% of our shareholders on our say-on-pay proposal, and we believe all of our ten largest shareholders supported this proposal. We believe this support is consistent with our long-term shareholders' understanding of our business model and the long-term value we are creating. We maintain a high level of engagement and plan on continuing a high level of engagement with our shareholders regarding executive compensation. In 2017, we held discussions regarding executive compensation with shareholders representing approximately 75% of our outstanding stock.

Compensation Governance Practices

We continue to implement and maintain leading practices in our compensation program, shareholder outreach and related areas.

What We Do	What We Don't Do
Caps on awards	No executive perquisites
Multiple performance factors	No supplemental pension benefits for executives
Range of awards; not all or nothing	No single-trigger vesting in connection with a change-in-control for equity awards
Compensation recoupment (clawback) policy	No hedging or pledging or speculative transactions in our securities by directors and executive officers
Balance of Short- and Long-term Incentives (through annual cash bonuses and equity awards)	No re-pricing of equity awards without shareholder approval
Anti-hedging policy	No payment of dividends on unvested performance shares or units
Executive and Non-Employee Director Stock Ownership Guidelines	
Policy against gross-ups	
Independent compensation consultant	
Robust shareholder outreach	

Compensation Philosophy and Compensation Decision-Making Process

This section discusses the principles underlying our policies and decisions with respect to the compensation of our “named executive officers” and all material factors we believe are relevant to an analysis of these policies and decisions. Our named executive officers for 2017 consist of: (i) our president and chief executive officer; (ii) our chief financial officer; (iii) our chief operating officer, who was our chief financial officer for a portion of 2017; and (iv) our other three most highly compensated employees who were serving as executive officers on December 31, 2017.

Detailed Discussion and Analysis

Our named executive officers, or NEOs, for 2017 were:

Name	Position
Jeffrey M. Leiden	Chairman, Chief Executive Officer and President
David M. Altshuler	Executive Vice President, Global Research and Chief Scientific Officer
Thomas Graney	Senior Vice President and Chief Financial Officer
Michael Parini	Executive Vice President and Chief Legal and Administrative Officer
Amit Sachdev	Executive Vice President and Chief Regulatory Officer
Ian F. Smith	Executive Vice President and Chief Operating Officer

Compensation Philosophy

Our MDCC regularly reviews the elements of the individual compensation packages for our CEO and executive officers to achieve the following primary objectives:

- attract, retain and motivate talented and experienced individuals across all areas of our business;
- align the interests of our executive officers with the interests of our shareholders as we seek to create value through the discovery, development and commercialization of transformative medicines; and
- ensure that the vast majority of compensation is performance-based.

Our NEOs have had long and varied careers and possess experiences and skills that make them extremely valuable members of our executive team and to our company as a whole. They have been instrumental in building Vertex into the company it is today, with a leadership position in the treatment of CF, a CF pipeline and non-CF pipeline that have been significantly advanced over the last several years, increasing revenues, and an established strong financial profile, all of which positions Vertex to achieve its strategic objectives in future years.

Our MDCC and our board of directors seek to connect the achievement of our strategic objectives with our compensation program in a number of ways, including through detailed and measurable company goals that underlie our annual cash bonuses and the performance goals that are included in our equity awards. Our company goals involve a mix of goals relating to revenues from our current products, achievement

of research and development objectives, our organizational capability and maintenance of our financial strength. These objectives are selected specifically because they are considered by our board to be objective milestones that our company must achieve if it is to maintain its significant revenue growth and sustain and increase profitability. Our MDCC and board expects to continue to seek to balance the use of financial metrics and research and development goals in order to motivate our executive team to increase revenues and manage operating expenses, while providing appropriate incentives for our management to continue to make appropriate investments in our business.

In determining compensation, we consider compensation paid to similar companies as reference points, but do not strictly benchmark or target compensation at any particular level. Rather, the MDCC retains flexibility to structure compensation based on good governance practices and our objectives of building our company and creating shareholder value.

Compensation Decision-Making Process

Role of MDCC and Chief Executive Officer in Setting Executive Compensation

The MDCC has responsibility for overseeing the design, development and implementation of the compensation program for our chief executive officer and other NEOs. The MDCC evaluates the performance of our chief executive officer and the performance of the other executive officers. Our chief executive officer and our human resources group, assist the MDCC in evaluating the performance of our other executive officers, including the named executive officers other than the chief executive officer. Our chief executive officer does not make any recommendations to the MDCC regarding his own compensation and does not participate in portions of MDCC meetings or meetings of the board of directors when his compensation is discussed and determined.

The members of the MDCC, each of whom is an independent director, together with the other independent directors, make final compensation decisions for the CEO's and other executive officers' compensation levels based on these assessments.

Role of Compensation Consultant

The MDCC (i) is directly responsible for the appointment and oversight of its compensation consultants, (ii) has the authority to determine the fees that we pay for services provided by such compensation consultants and (iii) prior to engaging any compensation consultant, considers applicable factors potentially affecting the independence of the compensation consultant, including the factors set forth in Nasdaq Marketplace Rule 5605(d)(3).

Annually, the MDCC has engaged a compensation consultant to conduct an analysis of all elements of compensation paid to our executive officers, including our NEOs, compared to similar elements paid to similarly situated executives at companies in our peer group and to provide a written report and presentation of findings at the meeting of the MDCC that occurs in July each year. In 2017, the MDCC selected Pearl Meyer to conduct and present this analysis to the MDCC.

Pearl Meyer only provides, and is compensated for, advice provided to us at the direction of the MDCC. The MDCC considered the following information provided to it by Pearl Meyer:

- Pearl Meyer's policies and procedures designed to prevent conflicts of interest;
- that fees paid by us to Pearl Meyer represent less than 1% of Pearl Meyer's total annual revenues;
- the absence of business and personal relationships between the compensation consultant and the MDCC or any of our executive officers; and
- that Pearl Meyer's partners, consultants and employees who provide services to the MDCC, and their immediate family members, do not own shares of our common stock.

Based on these, and other factors considered by the MDCC, the MDCC determined that Pearl Meyer's work did not raise a conflict of interest.

Use of Peer Group Companies

In order to make judgments about elements of executive compensation on a competitive basis, the MDCC and our board of directors considers information about the compensation practices of a representative group of companies with whom we compete for executive talent, or Peer Group. We conduct a detailed analysis to select companies for this Peer Group on the basis of similarity and complexity of business model. Selecting a peer group for our company is difficult because of the limited number of companies that are at a similar stage of development and our level of revenues. As a result, we use a mix of quantitative and qualitative factors in order to establish our peers, including the following:

Factor Considered	What We Look For
Similar industry	Biotechnology or pharmaceutical industry
Importance of medicines to patients and society	Transformative medicines for serious diseases; therapeutics for unmet needs
Recognized focus on innovation	Breakthrough Therapy designations, priority review and/or other markers indicating unmet need
Global operations	Significant operations outside the U.S.
Commercial operations	Marketing and selling approved medicines
Significant R&D investment	Greater than \$1B or 25% of revenue
Number of employees	Greater than 750 employees
Market capitalization and significance to broader economy	Market cap at least ¼ our size and/or inclusion on S&P 500 or NASDAQ 100
Labor market competitor	Companies we compete with for executive talent
Companies that use Vertex as a peer	Inclusion of Vertex in proxy reported peer group

We consider revenue but it is not a factor we emphasize because we do not believe revenue adequately reflects business model similarity or complexity in the biotechnology industry. A company with similar revenues may not have global or commercial operations like we have nor may it focus on innovative therapies, but rather on generic medicines, which we believe results in a different business model requiring less research and development investment. Moreover, companies with similar revenues may not focus on innovative therapies such as those designated as Breakthrough Therapies by the FDA, a designation which can expedite the development and review of medicines that are intended to treat serious conditions where preliminary clinical evidence indicates that the medicine may demonstrate substantial improvement over available therapy. As a result, we believe the factors listed above provide a better way to assess similarity versus a reliance on the combination of revenue and industry. We also note that it is unlikely for companies to align on all the factors listed above, so we look for companies meeting a majority of the criteria although we place greater weight on companies focused on innovation and importance of medicines to patients and society as we believe these are the key drivers of our business model. We also focus on market capitalization over revenue because we believe it is a better indicator of the complexity of a company's business model in our industry. On a regular basis, we review and revise the list of companies with the goal of maintaining a group of comparators comprised of at least twelve companies.

As a result of this analysis, and on the basis of the criteria listed above, the MDCC selected the following comparator companies for 2017, which were the same comparator companies that were used in 2016.

The Core Peers are the peers we consider most similar to us in terms of business model.

2017 Peer Companies	
Core Peers	Alexion Pharmaceuticals, Inc. Biogen Inc. Biomarin Pharmaceuticals Inc. Celgene Corporation Gilead Sciences, Inc. Regeneron Pharmaceuticals, Inc.
Other Peers	Abbvie Inc. Alkermes plc Amgen Inc. Jazz Pharmaceuticals plc Incyte Corporation Shire plc United Therapeutics Corporation

We believe, based on our discussions with major shareholders, that the Peer Group identified by our MDCC is consistent with our shareholders' views of our relevant peers in the biotechnology industry. In addition, the Peer Group companies have many of the business model characteristics that we seek in comparator companies as set forth in the following table.

Company Information		R&D Expense ⁽¹⁾		Operational Focus		Innovative and Importance of Medicines			Uses	Market Position	
Company	Industry	\$ (millions)	% of Revenue	Global	Commercial	Orphan/Unmet Clinical Need	Breakthrough Therapy Designations ⁽²⁾	Innovative Drugs in Last 7 Years ⁽³⁾	Vertex as Peer	Nasdaq 100	S&P 500
AbbVie	Biotech	\$ 4,982	18%	✓	✓	✓	4	4			✓
Alexion	Biotech	\$ 878	25%	✓	✓	✓	1	2		✓	✓
Alkermes	Biotech	\$ 413	46%	✓	✓	✓	0	1	✓		✓
Amgen	Biotech	\$ 3,562	16%	✓	✓	✓	1	5		✓	✓
Biogen	Biotech	\$ 2,254	22%	✓	✓	✓	0	4		✓	✓
BioMarin	Biotech	\$ 611	46%	✓	✓	✓	1	2	✓	✓	✓
Celgene	Biotech	\$ 4,295	33%	✓	✓	✓	0	4		✓	✓
Gilead	Biotech	\$ 3,512	13%	✓	✓	✓	4	7		✓	✓
Incyte	Biotech	\$ 1,345	88%	✓	✓	✓	0	2	✓	✓	✓
Jazz	Biotech	\$ 198	12%	✓	✓	✓	0	2	✓		✓
Regeneron	Biotech	\$ 2,075	38%	✓	✓	✓	2	4	✓	✓	✓
Shire	Pharma	\$ 1,743	11%	✓	✓	✓	0	4		✓	
United Therapeutics	Biotech	\$ 265	15%	✓	✓	✓	0	3	✓		
Vertex	Biotech	\$ 1,327	53%	✓	✓	✓	5	4		✓	✓

(1) R&D Expense and R&D Expense as a % of Revenue reflects the trailing data for the most recent four quarters as of 12/31/2017 per the S&P Capital IQ database.

(2) Per Center for Drug Evaluation and Research (CDER) Breakthrough Therapy Approvals report, which lists approvals for breakthrough therapy designated drugs.

(3) Innovative drugs in the last seven years include: VIEKIRA PAK, IMBRUVICA, VENCLEXTA and MAVYRET (Abbvie), STRENSIQ and KANUMA (Alexion), ARISTADA (Alkermes), BLINCYTO, XGEVA, PROLIA, KYPROLIS and PARSABIV (Amgen), TECFIDERA, ALPROLIX, SPINRAZA and ELOCTATE (Biogen), BRINEURA and VIMIZIM (BioMarin), IDHIFA, POMALYST, ABRAXANE and OTEZLA (Celgene), YESCARTA, SOVALDI, HARVONI, VEMLIDY, CAYSTON, ZYDELIG and BIKTARVY (Gilead), JAKAFI and OLUMIANT (Incyte), VYXEOS and DEFITELIO (Jazz), DUPIXENT, PRALUENT, EYLEA and ZALTRAP (Regeneron), MYDAYIS, FIRAZYR, NATPARA and GATTEX (Shire) and REMODULIN, ORENTRAM and UNITUXIN (United Therapeutics).

We do not strictly benchmark to a particular level of compensation relative to compensation levels at the Peer Group companies, but rather make a judgment about where each executive should fall in comparison with executives with similar responsibilities at the Peer Group companies. We believe this should mitigate concerns regarding our Peer Group including companies that have significantly higher revenues than our current revenues. The MDCC looks at Peer Group information to confirm that our compensation levels are competitive with those of the Peer Group companies and consistent with our compensation philosophy. In addition, the MDCC reviews broader industry specific executive compensation surveys published by Radford, Mercer SIRS and Willis Towers Watson, but does not make any material compensation decisions based on any particular company participants in such surveys.

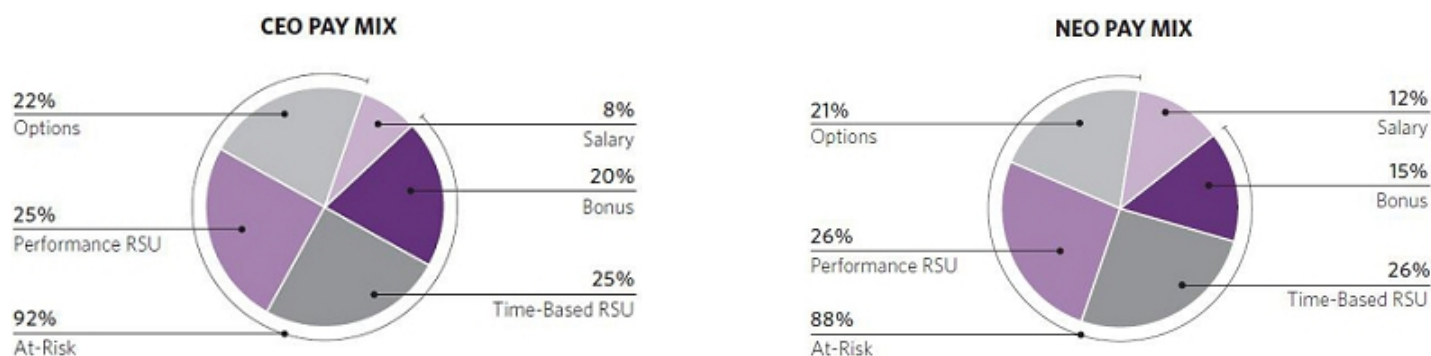
Elements of Annual Compensation

Our practice is to target total direct compensation including base salary, annual cash incentives targets, and long-term incentive targets at market competitive levels depending upon the NEOs responsibilities, expertise and experience. Our executive compensation program uses a mix of long-term equity compensation awards in the form of stock options and performance restricted stock unit awards and time-based restricted stock units to incent and reward those individuals who make the greatest contribution to our company performance over time. For the NEOs, this means compensation is primarily in the form of equity and directly tied to changes in shareholder value over time.

Each year we review the balance of elements of our executive compensation program to ensure that they are appropriately designed in light of our goals to align the program with our shareholders' interests, the competitive environment and our business strategy.

Compensation Program

As shown in the following charts, our compensation program places an emphasis on performance-linked compensation.



The charts above represent the actual values, and exclude the compensation of Mr. Graney, who joined the company in mid-2017.

Performance-Linked Value-Based Program

We have a performance-linked program that is consistent with programs implemented by our peers and allows us to attract, retain and motivate talented and experienced individuals across all areas of our business. We focus on performance-linked elements as follows:

Compensation Element	Performance-Link
Annual Cash Bonus	<ul style="list-style-type: none"> Annual bonus dependent on company performance factors and individual performance Potential range of bonus 0% to 225% of target bonus
Performance Restricted Stock Unit Awards	<ul style="list-style-type: none"> 50% of PSUs with range of shares issued 0% to 200% of target based on one year financial metric (vesting annually over 3 years) 50% of PSUs with range of shares issued 0% to 200% of target based on three-year non-financial metric (cliff-vesting after three years) Value of awards are fixed as percentage of target at grant and realized value varies based on increases or decreases in stock price
Stock Options	<ul style="list-style-type: none"> Grant date value of options granted based on individual performance Value of awards tied to potential increases in share price with no value to executive unless share price increases
Time-Based Restricted Stock Unit Awards	<ul style="list-style-type: none"> Value of shares granted based on individual performance from 0% to 150% Value of awards increases or decreases based on increases or decreases in stock price

More specifically:

- Performance Stock Units.** Our NEOs receive 35% of their annual target equity compensation in the form of PSUs. The PSUs vest, if at all, based half on financial goals and half on non-financial goals. The potential range of shares issuable pursuant to the performance stock unit awards range from 0% to 200% of the target shares based on financial and non-financial measures. For grants made over the last three years, fifty percent of PSUs that could be earned have a one-year performance period with the amount earned dependent upon Vertex's CF net product revenue performance and with vesting of the earned shares in three equal installments over a three-year period. The MDCC selected a one-year performance period because of the difficulty in forecasting financial metrics at our stage of growth beyond a one-year period. During the last three years, the remaining 50% of PSUs that could be earned have a three-year performance period with the amount earned dependent upon the achievement of multiple clinical development milestones (i.e., advancement of CF and non-CF therapies in the clinic) and with the earned shares cliff vesting at the end of the three-year performance period. The MDCC selected revenue and clinical development milestones because shareholders and analysts rely heavily on these metrics to understand the underlying condition and the performance of our business. In addition, achievement of these metrics would indicate successful execution toward our long-term strategic objectives of expanding our CF franchise and diversifying our product portfolio.
- Stock Options.** Our NEOs receive 30% of their annual target equity value in the form of stock options that vest over a four-year period. We use stock option awards because we believe stock options are performance-based and provide alignment with shareholders as executives are rewarded for corporate performance only if the stock price appreciates.
- Time-based Stock Units.** Our NEOs receive 35% of their annual target equity compensation in the form of restricted stock units that vest over a three-year period. We believe that with a majority of the annual long-term incentive award at risk based on our successful execution of our strategic objectives and on stock price appreciation, it is important to have a smaller portion of the annual award focused on retaining our key executive talent. As a result, we believe time-based restricted stock units encourage retention while also providing immediate alignment with our shareholders.

Base Salary

The MDCC recommends base salaries for each of our executive officers based on multiple factors, including a competitive market analysis on a position-by-position basis. Annually, the MDCC reviews tables showing a comparison of each executive's prior year base salary and cash bonus opportunity, measured at the target level, to salaries and cash bonuses reported for executives with similar responsibilities at comparable companies. We do not strictly benchmark to a particular level of compensation relative to compensation levels at the Peer Group companies, but rather make a judgment about where each executive should fall in comparison with executives with similar responsibilities at the Peer Group companies, taking into account the executive's general level of experience and capability, the significance of his or her job responsibilities to the achievement of our business strategy and company goals, and general performance over time, including demonstration of the values and desirable behaviors under our Values Into Practice Program. On the basis of that information, including compensation at Peer Group companies, and taking into consideration the executive's base salary for the previous year, the MDCC recommends an appropriate salary for each executive officer, subject to final approval by our independent directors. Our current base salaries for our named executive officers approximate the median base salaries for peer counterparts at companies in our Peer Group.

In July 2017, our board of directors increased Dr. Altshuler's base salary from \$575,000 to \$625,000 and Mr. Parini's base salary from \$675,000 to \$725,000 after a review of the base salaries of peers and in recognition of their role and contributions to the company. In mid-2017, Mr. Graney joined our organization and his compensation arrangement was the result of negotiations between us and Mr. Graney.

Name	2017 Base Salary	2018 Base Salary	Peer Ranking (Percentile)	% Change 2017 v 2018
Jeffrey M. Leiden	\$ 1,300,000	\$ 1,300,000	65th	0%
David Altshuler	\$ 575,000	\$ 625,000	40th	9%
Thomas Graney	\$ 550,000	\$ 550,000	25th	0%
Michael Parini	\$ 675,000	\$ 725,000	45th	7%
Amit Sachdev	\$ 540,750	\$ 540,750	70th	0%
Ian F. Smith	\$ 850,000	\$ 850,000	55th	0%

Company and Individual Ratings

Two of the principal elements of our executive compensation program - annual cash bonus and annual equity awards - are awarded in amounts determined on the basis of annual company and individual performance ratings.

Overview of Company Performance Rating & Achievement in 2017

At the beginning of each year, our board of directors, in consultation with our CEO, establishes company-wide goals for that year. Our performance against these goals is the most important factor considered by our board in assessing our corporate performance, but our board considers additional accomplishments and shortcomings and may increase or decrease the performance scores (although the company score may not exceed 150). Although the directors discuss and analyze our performance as a group, each director makes his or her own judgment about specific performance factors and accomplishment of the goals in reaching a conclusion.

For 2017, the board set company goals and assigned relative weights that reflected our operational, strategic and financial objectives for the year and the importance of these goals to our long-term goals of revenue growth and increasing profitability. Our 2017 weighted goals and the year-end score achieved by the company and assigned by the board are set forth in the following table:

Goal(s)	Maximum Score	Actual 2017 Performance Score
Marketed and Approval-Stage Products	60	50
<ul style="list-style-type: none"> ■ Increase ORKAMBI net product revenues through compliant marketing practices ■ Increase KALYDECO net product revenues through compliant marketing practices 		
Pipeline Growth	55	55
<ul style="list-style-type: none"> ■ Achieve proof of concept data for one or more triple combination therapies in F508del/Min patients ■ File regulatory applications for the approval of tezacaftor in combination with ivacaftor ■ Advance next-generation CFTR correctors ■ Advance multiple non-CF development and research programs 		
Organizational Development and Capability	20	20
<ul style="list-style-type: none"> ■ Fill critical positions with superior and diverse talent to support business growth ■ Improve infrastructure to support expanding business ■ Continue to ensure a strong compliance mindset and enterprise-wide risk management program 		
Financial Strength	15	15
<ul style="list-style-type: none"> ■ Increase revenues and manage operating expenses 		
Additional Accomplishments and Shortcomings (see page 58 of this proxy statement)		8
TOTAL	150	148

Our 2017 company performance score was 148 out of a potential of 150. Our 2018 company performance will be evaluated against the broad categories set forth above putting slightly more emphasis on Financial Strength (20 points in 2018 compared to 15 points in 2017) and slightly less on Organizational Development and Capability (15 points in 2018 compared to 20 points in 2017). These changes were made to align our annual incentive plan with our business goals for 2018.

Detailed Discussion of Company Performance Rating Factors and Achievements

Goals - Marketed and Approval-Stage Products

In 2017, total CF net product revenues of \$2.17 billion exceeded the mid-point of our initial total CF net product revenue guidance by \$265 million, or 14% (\$2.17 billion actual as compared to initial guidance of \$1.9 billion). This represented an increase in total CF net product revenues of 29% compared to total CF net product revenues in 2016. We expect additional increases in CF net product revenues in 2018.

ORKAMBI. In 2017, we exceeded the mid-point of our initial ORKAMBI net product revenue guidance by \$121 million (\$1.32 billion actual as compared to initial guidance of \$1.1 billion to \$1.3 billion) based on the strong performance of ORKAMBI in the United States, which more than offset weaker performance of ORKAMBI in Europe. ORKAMBI net product revenues increased by 35% from \$980 million in 2016 to \$1.32 billion in 2017.

KALYDECO. In 2017, we exceeded the mid-point of our initial KALYDECO net product revenue guidance by \$145 million (\$845 million actual as compared to initial guidance of \$690 million to \$710 million) as we continued to expand the number of patients eligible for KALYDECO, including through multiple label expansions providing CF patients in the United States with residual function mutations access to KALYDECO. KALYDECO net product revenues increased by 20% from \$703 million in 2016 to \$845 million in 2017.

For marketed and approval-stage products goals, our board assigned the company a score of 50 out of 60, due to our achieving our goals with respect to total CF net product revenues including exceeding our goals with respect to both ORKAMBI and KALYDECO net product revenues, which more than offset weaker than expected performance of ORKAMBI in Europe.

Goals - Pipeline Growth (Late and Early-Stage)

In 2017, we made significant progress that moved us closer to achieving our goal of delivering highly effective medicines to all patients with CF. Specifically, we:

- Obtained positive Phase 3 data for tezacaftor in combination with ivacaftor in early 2017
- Positioned ourselves to achieve approval for SYMDEKO in the United States in February 2018

- Applied for European regulatory approval of tezacaftor in combination with ivacaftor in July 2017 with approval expected in the second half of 2018
- Positioned ourselves to obtain authorization to market ORKAMBI in the European Union for patients 6-11 in January 2018
- Received approvals to market KALYDECO for approximately 1,500 additional CF patients in the United States with residual function mutations in 2017
- Obtained positive Phase 3 data for KALYDECO for patients 1 to 2 years of age in December 2017
- Obtained highly-positive Phase 2 data for four triple combination regimens, each of which contained different next-generation correctors, in combination with tezacaftor and ivacaftor
- Accelerated initiation of Phase 3 development program for VX-659 in combination with tezacaftor and ivacaftor to February 2018
- Positioned ourselves to initiate a Phase 3 clinical development program for VX-445 in a triple combination regimen in mid-2018

In 2017, we advanced promising programs in a variety of disease. Specifically, we:

- Obtained the first proof-of-concept from a Phase 2 clinical trial evaluating a Nav1.8 inhibitor as a potential treatment for chronic pain in January 2017 (VX-150 is our lead non-opioid Nav1.8 inhibitor)
- Initiated a Phase 1 clinical trial of VX-128, a second non-opioid sodium channel inhibitor, in December 2017
- Executed a co-development and co-commercialization agreement with CRISPR Therapeutics AG
- Advanced CTX001, which is one of the first gene editing programs to utilize CRISPR/Cas9, and is being developed pursuant to our collaboration with CRISPR Therapeutics AG, through pre-clinical development to enable expected Phase 1/2 clinical trials in 2018
- Advanced our research program for alpha-1 anti-trypsin deficiency into late-stage pre-clinical development
- Janssen Pharmaceuticals, our collaborator, initiated Phase 3 development of pimodivir as a potential treatment for influenza
- Successfully outlicensed our oncology programs to Merck KGaA, Darmstadt, Germany

On the basis of the accomplishments in advancing our research and development programs and, in particular, the advancement of next-generation correctors allowing us to begin Phase 3 development of our next-generation triple combination regimens in early 2018, our board assigned the company a score of 55 out of 55 for our pipeline growth goal.

Goals - Organizational Development and Capability

Talent and expertise. Strengthened our organizational capabilities by attracting, developing and retaining the key talent necessary to operate our business, including filling 16 of 17 critical hires with superior talent and expanding our leadership and management training programs. During 2017, we continued to focus on diversity in our hiring and 63% of our critical hires at the vice president or above level were diverse on a gender/ethnic basis.

Systems. Continued improvement of infrastructure to support an increasingly complex organization, including enhancing policies, software platforms and business processes. In 2017, we installed a financial management platform providing significant improvements in our consolidation and reporting processes, launched a global customer relationship management platform and selected and began implementation of an enterprise-wide learning management system.

Compliance. Continued to promote effective governance, communication and training to support our company-wide compliance and risk management programs.

To reflect the improvements to our organizational structure, processes and systems achieved in 2017, our board assigned the company a score of 20 out of 20 for our organizational development and capability goals.

Goals - Financial Strength

We exceeded all of our financial strength goals in 2017. We increased revenues and managed our operating expenses allowing us to strengthen our balance sheet and end 2017 with cash, cash equivalents and marketable securities of \$2.1 billion while decreasing the amount of outstanding debt under our revolving credit agreement from \$300.0 million to zero.

As a result of our success in increasing our financial strength by managing our operating expenses and securing a strong cash position, our board assigned the company a score of 15 out of 15 for our financial strength goals.

Additional Factors (accomplishments and/or shortcomings)

In connection with determining our 2017 company rating, our board of directors made positive and negative adjustments based on factors not anticipated in the company's original goals. The positive adjustments were primarily related to our success in accelerating the development of our next-generation corrector program by almost a year, our successful business development activities, including our acquisition of Concert Pharmaceuticals, Inc. and advancing our collaboration with CRISPR, and the exceptional performance of our U.S. commercial team. These additional accomplishments were partially offset by delays we experienced in our clinical trial of tezacaftor in combination with ivacaftor in gating patients and delays in implementing our leadership development program. Overall, the board of directors increased our company rating by eleven points for positive additional accomplishments, which was offset by a three point downward adjustment related to additional negative factors, which resulted in an overall positive net eight point adjustment.

2017 Individual Performance Ratings - Overview

The MDCC evaluates executives' individual performance on a "results-based, values-tempered" basis, which takes into account not only "what" was accomplished, but "how" it was accomplished. The results-based component evaluates the executive officer's performance in his or her individual role and as a leader of our company in achieving our objectives. The possible individual results-based performance ratings are "not building," "building," "strong" or "leading." "The values-tempered component of the individual evaluations builds upon our company core values: "uncompromising commitment to patients;" "innovation is our lifeblood;" "fearless pursuit of excellence" and "we wins" and are based on whether the decisions made by the executives were consistent with these values and what is in the best interests of the company in the long term. Under our Values Into Practice program, we expect all employees to demonstrate our company core values in all aspects of job performance. We further expect that our executives will be stewards of our core values, and the performance ratings assigned to them incorporate our board's assessment of the strength of their leadership with respect to, and demonstration of, values-based behavior. This evaluation results in ratings of "not demonstrating," "living the values" or "exemplary demonstration." The possible individual performance ratings under this program are as set forth in the following table:

		Results Evaluation			
		Not Building Consistency	Building Consistency	Strong	Leading
Values Evaluation	Exemplary Values Demonstration	N/A	Strong (80-120%)	Leading (120-150%)	Leading Exemplary (150%)
	Living the Values	Not Building (0%)	Building (50-80%)	Strong (80-120%)	Leading (120-150%)
	Inconsistent Demonstration	Not Building (0%)	Not Building (0%)	Building (50-80%)	N/A

The 2017 results-based rating recommendation for each NEO, other than our CEO, is the combined result of the MDCC members' observations and a review of the executive's role in the accomplishment of the corporate goals and recommendations provided to the MDCC by our chief executive officer made on the basis of his independent assessment of each executive officer's performance. The MDCC and Dr. Leiden discussed the recommendations at length, on both an individual-by-individual basis, and on a comparative basis. Upon completion of these discussions, the MDCC finalized its recommendation for the results-based rating for each executive, taking into account Dr. Leiden's recommendations, factors considered in the discussions and the opinions of MDCC members based on the executive's contributions and the MDCC members' interactions with the executive. When considering the more subjective values-based rating, the MDCC also discussed Dr. Leiden's recommendations, giving Dr. Leiden's recommendations greater weight when determining the values-based rating than when determining the results-based rating, because the values-based rating is pertinent to the executive's daily interactions in carrying out his or her duties. Furthermore, the MDCC believes that, in his role as CEO, Dr. Leiden had greater visibility than the MDCC members into the quality of these interactions. Taking into account all of the factors raised in the discussion and the assigned individual performance rating, the MDCC assigns an individual performance factor for each NEO within the ranges set forth above. While the individual ratings are not 100% objective, we view them as critical factors indicative of management success and crucial to achieving the more objective goals discussed above.

2017 Actual Individual Ratings for Named Executive Officers

Dr. Jeffrey Leiden Chairman, President and CEO	2017 Rating:	Leading Exemplary
	2018 Salary:	\$ 1,300,000
	2017 Bonus:	\$ 3,463,200
	LTI Equity Grants (Feb 2018):	\$ 14,000,000

On the basis of the MDCC's recommendation, our independent directors rated Dr. Leiden's overall performance for 2017 as "leading exemplary" with an individual performance factor of 150%. The performance rating for Dr. Leiden combined a "leading" results-based rating with an "exemplary demonstration" values-based rating. The rating derived principally from his leadership of our executive team as we executed our strategy for 2017, which included:

- The over-achievement of our financial goals by significantly increasing total CF net product revenues, significantly strengthening our balance sheet, expanding our operating margins, and returning us to profitability
- The advancement of our CF programs, and in particular the acceleration of our next-generation corrector programs by almost a year, the multiple label expansion for KALYDECO and progress toward approval of SYMDEKO
- The advancement of our non-CF programs, and in particular our novel pain compounds and our gene editing programs
- The excellent performance of our research organization in advancing multiple programs toward the clinic, including in pain, alpha-1 anti-trypsin deficiency and sickle-cell disease
- Leadership in determining our corporate strategy and executing our business goals, accelerating key programs and promptly addressing strategic challenges
- Mentoring, developing and retaining our outstanding senior leadership team
- Enhancing Vertex's corporate reputation through, among other activities, patient engagement, corporate giving and diversity and inclusion initiatives
- Coordinating, as the chair of our board, clear, open and constructive communication between our board and management regarding key business and strategic issues
- Exhibiting outstanding personal and leadership qualities and embodying Vertex's core values in enabling the successful stewardship of our company over the last year

Dr. David M. Altshuler EVP, Global Research and Chief Scientific Officer	2017 Rating:	Leading
	2018 Salary:	\$ 625,000
	2017 Bonus:	\$ 638,250
	LTI Equity Grants (Feb 2018):	\$ 3,750,000

The MDCC recommended and the board adopted an overall rating of "leading" for Dr. Altshuler based on a results-based rating of "strong" and a values-based rating of "exemplary" with an individual performance factor of 138%. Dr. Altshuler's rating derived from his leadership of the research organization, including the following:

- Implementing a research strategy that augments our strength in identification of small molecule drugs by focusing research on validated targets addressing the underlying cause of disease and utilizing lab assays designed to predict clinical efficacy
- Advancing multiple research programs, including:
 - CTX001, an investigational gene editing treatment, that we are co-developing with CRISPR Therapeutics AG for beta-thalassemia and sickle cell disease
 - VX-128, a non-opioid sodium channel inhibitor, that entered Phase 1 clinical trials in late 2017
 - Advancing multiple additional next-generation CFTR correctors into late-stage research
- Advancing our collaborations in nucleic acid therapies with CRISPR and Moderna
- Leading the efforts to identify new medicines by combining transformative insights into the causal human biology of serious diseases with innovative approaches to therapeutics, including with respect to our programs in alpha-1 anti-trypsin deficiency and polycystic kidney disease

Thomas Graney SVP, Chief Financial Officer	2017 Rating:	Strong
	2018 Salary:	\$ 550,000
	2017 Bonus:	\$ 110,392
	LTI Equity Grants (Feb 2018):	\$ 2,000,000

The MDCC recommended and the board adopted an overall rating of "strong" for Mr. Graney, who joined us in September 2017, based on a results-based rating of "strong" and a values-based rating of "living the values" with an individual performance factor of 100%. Mr. Graney's rating derived from:

- Assuming responsibility for the finance and accounting organizations
- Leading a strategic review of our investments in ex-U.S. markets
- Leadership roles in various business development projects

Michael Parini	2017 Rating:	Leading
EVP, Chief Legal and Administrative Officer	2018 Salary:	\$ 725,000
	2017 Bonus:	\$ 788,655
	LTI Equity Grants (Feb 2018):	\$ 3,750,000

The MDCC recommended and the board adopted an overall rating of “leading” for Mr. Parini based on a results-based rating of “strong” and a values-based rating of “exemplary demonstration” with an individual performance factor of 147%. Mr. Parini’s rating derived from:

- Assuming responsibility for several key functions, including the human resources, quality and corporate communications groups in addition to continuing his stewardship of the legal and compliance department
- Expanding and enhancing our human resources and corporate communications functions
- Leading our recruiting efforts, which resulted in us filling 16 of 17 critical positions
- Leading the successful communication of numerous key clinical and regulatory milestones
- Leading several important corporate initiatives, including the establishment of our 10-year, \$500 million corporate giving commitment and the advancement of our diversity and inclusion efforts
- Overseeing successful efforts to complete the acquisition of VX-561, a deuterated version of ivacaftor, from Concert Pharmaceuticals following a second request issued by the Federal Trade Commission
- Resolving several legal cases on terms favorable to the company

Amit Sachdev	2017 Rating:	Leading/Exemplary
EVP, Chief Regulatory Officer	2018 Salary:	\$ 540,750
	2017 Bonus:	\$ 600,233
	LTI Equity Grants (Feb 2018):	\$ 4,500,000

The MDCC recommended and the board adopted an overall rating of “leading exemplary” for Mr. Sachdev based on a results-based rating of “leading” and a values-based rating of “exemplary demonstration” with an individual performance factor of 150%. Mr. Sachdev’s rating derived principally from his leadership of the regulatory and governmental affairs organizations with respect to the following:

- Leading the global regulatory group as they efficiently and successfully pursued multiple approvals for our medicines in U.S. and ex-U.S. markets
- Successfully implementing the U.S. and European regulatory strategies for tezacaftor in combination with ivacaftor resulting in U.S. approval of SYMDEKO in February 2018 and positioning us for approval of tezacaftor in combination with ivacaftor in Europe in the second half of 2018
- Obtaining approval for KALYDECO as a treatment for patients with residual function mutations in the United States based on a novel approach to broadening the label based on *in vitro* data and supported by more than five years of real-world clinical data that demonstrate KALYDECO’s strong safety and efficacy profile

Ian Smith	2017 Rating:	Leading
EVP, Chief Operating Officer	2018 Salary:	\$ 850,000
	2017 Bonus:	\$ 1,339,770
	LTI Equity Grants (Feb 2018):	\$ 3,750,000

The MDCC recommended and the board adopted a “leading” rating for Mr. Smith based on a results-based rating of “strong” and a values-based rating of “exemplary demonstration” with an individual performance factor of 142%. Mr. Smith’s rating was due to his overall contributions to the execution of our strategy. More specifically, Mr. Smith was responsible for:

- Successfully managing many important functions, including our finance/accounting, business development, information systems and investor relations groups
- Managing operating expenses, which together with increased CF net product revenues, allowed us to end 2017 with cash, cash equivalents and marketable securities of \$2.1 billion while decreasing the amount outstanding on our revolving credit agreement from \$300.0 million to zero
- Successfully overseeing the construction of our new San Diego research facility
- Leading our business development group to a successful year, including:
 - Acquiring VX-561 from Concert Pharmaceuticals, Inc.
 - Executing a co-development and co-commercialization agreement with CRISPR Therapeutics AG for CTX001
 - Outlicensing our oncology programs to Merck KGaA for \$230 million upfront and potential future royalties
- Implementing information technology and infrastructure systems to support our rapid growth

Annual Cash Bonus

The cash bonus for each executive (referred to in the *Summary Compensation Table* on page 68 of this proxy statement as “Non-Equity Incentive Plan Compensation”) is calculated by multiplying the executive officer’s target bonus by both the company performance factor and the individual performance factor, in accordance with the following formula in 2017:

Target Cash Bonus		X	Performance Factors			=	Cash Bonus
Base Salary	X	X	Individual Incentive Target	Company Performance Factor	Individual Performance Factor	=	Annual Cash Bonus Award
			(expressed as a percentage of base salary)	(expressed as a percentage of the target bonus)	(expressed as a percentage of the target bonus)		
			45% to 120% based on role	0%-150%	0-150%		

The individual incentive targets were established, and are reviewed annually, by the MDCC based on available data about Peer Group company compensation. Dr. Leiden’s individual incentive target of 120% has remained unchanged since 2012. Mr. Smith’s individual incentive target was increased from 50% to 75% in 2016 when he was promoted to Chief Operating Officer. The individual incentive targets for Dr. Altshuler, Mr. Parini and Mr. Sachdev are 50%. The individual incentive target for Mr. Graney is 45%. The resulting target annual bonuses approximate the median target annual bonuses for comparable executives at peer companies.

Company performance factors are determined annually and range from 0% to 150%. The possible individual ratings and corresponding individual performance factor ranges for our executive officers in 2017 are set forth in the table below:

Individual Rating	Individual Performance Factor
Not Building	0%
Building	50%-80%
Strong	80%-120%
Leading	120%-150%
Leading/Exemplary	140%-150%

On the basis of the factors described above, our independent directors approved, upon the MDCC’s recommendation, individual performance factors and annual bonus awards for each of the NEO on account of 2017 performance, as set forth in the table below.

Name	2017 Target Bonus		Company Performance Factor		Individual Performance Factor		Proration Factor		2017 Performance Cash Bonus
Jeffrey M. Leiden	\$ 1,560,000	x	148%	x	150%	x	100%	=	\$ 3,463,200
David Altshuler	\$ 312,500	x	148%	x	138%	x	100%	=	\$ 638,250
Thomas Graney	\$ 247,500	x	148%	x	100%	x	30%	=	\$ 110,392
Michael Parini	\$ 362,500	x	148%	x	147%	x	100%	=	\$ 788,655
Amit Sachdev	\$ 270,375	x	148%	x	150%	x	100%	=	\$ 600,233
Ian F. Smith	\$ 637,500	x	148%	x	142%	x	100%	=	\$ 1,339,770

Annual Equity Awards

Value-Based Guidelines for Annual NEO Equity Grants

Under our program our NEOs were eligible for awards with the following target values based on 2017 performance:

	Not Building	Building	Strong	Leading	Leading/Exemplary
CEO	\$ —	\$ 5,500,000	\$11,000,000	\$12,500,000	\$14,000,000
EVP	\$ —	\$ 1,500,000	\$ 3,000,000	\$ 3,750,000	\$ 4,500,000
SVP	\$ —	\$ 1,000,000	\$ 2,000,000	\$ 2,500,000	\$ 3,000,000

The number of shares subject to the time-vested restricted stock units and performance stock units is based on the fair value of our common stock on the date of grant. The number of shares subject to the stock options is based on an estimate of the fair value of the stock options pursuant to the Black-Scholes option pricing model based on information available as of the grant date.

February 2018 Grants Based on 2017 Performance

In February 2018, our independent directors approved, upon the MDCC's recommendation, individual performance factors and equity awards for 2017 performance for each of the NEOs, as set forth in the table below.

Name	Individual Performance Rating	Performance-Based RSU (35%)	Options (30%)	Time-based RSU (35%)	Total Equity Value
Jeffrey M. Leiden	Leading Exemplary	\$ 4,900,000	\$ 4,200,000	\$ 4,900,000	\$ 14,000,000
David Altshuler	Leading	\$ 1,312,500	\$ 1,125,000	\$ 1,312,500	\$ 3,750,000
Thomas Graney	Strong	\$ 700,000	\$ 600,000	\$ 700,000	\$ 2,000,000
Michael Parini	Leading	\$ 1,312,500	\$ 1,125,000	\$ 1,312,500	\$ 3,750,000
Amit Sachdev	Leading Exemplary	\$ 1,575,000	\$ 1,350,000	\$ 1,575,000	\$ 4,500,000
Ian F. Smith	Leading	\$ 1,312,500	\$ 1,125,000	\$ 1,312,500	\$ 3,750,000

(1) Estimates for value of equity-based awards granted in February 2018 for 2017 performance are based on our methodology for determining the grant-date fair value, including underlying assumptions for calculating these values as set forth in Note N to our consolidated financial statements included in our 2017 Annual Report on Form 10-K and are subject to adjustment.

The terms of the equity granted in 2018 are as follows:

- Stock Options.** Stock options are granted at fair market value on the date of grant and vest over four years.
- Performance Stock Units.** The PSUs vest, if at all, based half on financial and half on non-financial goals. The potential range of shares issuable pursuant to the performance stock unit awards range from 0% to 200% of the target shares based on financial and non-financial measures. Fifty percent of PSUs that could be earned have a one-year performance period with the amount actually earned dependent upon Vertex's net product revenue performance and with vesting of the earned shares in three equal installments over a three-year period. The remaining 50% of PSUs that could be earned have a three-year performance period with the amount actually earned dependent upon the achievement of multiple clinical development milestones (i.e., advancement of CF and non-CF therapies in the clinic) and with the earned shares cliff vesting at the end of the three-year performance period.
- Time-based Stock Units.** The time-based restricted stock units vest over a three-year period, subject to continued service.

Performance Units Company Target and Results Table

We have granted one-year financial based performance restricted stock unit awards and three-year non-financial based restricted stock unit awards each year since 2016.

The final performance multipliers for the 2016 and 2017 financial-based performance restricted stock unit awards were determined by the MDCC and applied to the target units granted to determine the actual units earned and eligible to vest. The following chart shows the pre-established financial goals and the actual results for the financial-based performance restricted stock unit awards granted in 2016 and 2017:

Award Year	Company Goal	Threshold	Target	Max	Results	Payout
2016	2016 CF Net Product Revenues	\$ 1.65 billion	\$ 1.75 billion	\$ 1.90 billion	\$ 1.68 billion	66.5%
2017	2017 CF Net Product Revenues	\$ 1.50 billion	\$ 1.70 to 1.85 billion	\$ 2.05 billion	\$ 2.17 billion	200.0%

Consistent with our philosophy of aligning compensation with performance:

- In 2016, a year in which we achieved or exceeded our goals with respect to KALYDECO net product revenues, but missed our goals with respect to ORKAMBI net product revenues, the payouts on our one-year financial restricted stock unit awards were significantly below target and nearly fell below the threshold levels at which point there would have been no payout on those awards; and
- In 2017, a year in which we substantially exceeded our KALYDECO net product revenues and ORKAMBI net product revenues expectations and exceeded the high end of our CF net product revenues guidance by more than \$100 million, the payout on our one-year financial PSU awards achieved the maximum level.

The performance multiple for the 2016 and 2017 non-financial based performance restricted stock unit awards will be determined in the first quarter of 2019 and 2020, respectively, based on performance over the relevant three-year performance period. The non-financial goals contained in our 3-year performance restricted stock unit awards are not disclosed for competitive reasons and because the relevant performance periods are ongoing.

Other Compensation Arrangements

Benefits

Our executives are eligible to participate in all benefit programs on the terms made generally available to our employees, including medical insurance, dental insurance, payment of life insurance premiums, disability coverage, equity programs, including a career employment/retirement provision, and participation in our employee stock purchase plan. We have a defined contribution—a 401(k)—plan, in which our NEOs are eligible to participate. We make matching contributions to the 401(k) plan. The formula for determining the amount of our matching contributions is the same for our NEOs as for our other employees (and are subject to the same statutory maximum), but the actual contributions made to the accounts of our NEOs generally are at the top end of the range, due to the executives' higher salaries and correspondingly higher cash contribution levels. We do not provide any other retirement benefits to our executive officers.

Employment Agreements and Post-Termination Compensation and Benefits

The initial compensation terms for newly hired members of our executive team are the result of negotiations between us, in consultation with the MDCC and our board of directors, and the executive being recruited. In general, each newly hired executive team member enters into an employment agreement and a change of control agreement and is awarded a stock option grant and/or a restricted stock unit award, and in some cases a cash sign-on bonus, reimbursement of moving expenses, and other benefits. We also enter into employment and change of control agreements with executives who are promoted to our executive team, on the basis of standard terms and conditions that have been recommended by our MDCC and approved by our board for such circumstances. We have entered into agreements providing for severance and change of control payments with each of the members of our executive team, including all of the NEOs, because we believe that they are a fair and effective way to allow our executives to maintain focus on our business in the face of market and other volatility in our industry.

In general, each employment arrangement provides for cash severance and continuation of certain employee benefits in the event that an executive's employment is terminated by us without cause or is terminated by the executive for good reason. We use a "double trigger" with respect to benefits that are to be provided in connection with a change of control. A change of control does not itself trigger benefits; rather, benefits are paid only if the employment of the executive is terminated by us other than for cause, death or disability, or by the executive for good reason, during a specified period before or after a change of control. We believe a "double trigger" benefit maximizes shareholder value because it prevents a windfall to executives in the event of a change of control in which the executive retains significant responsibility as defined in his or her individual agreement, while still providing our executives appropriate incentives to cooperate in negotiating any change of control that may put their jobs at risk.

In addition to the benefits that only accrue in connection with a change of control, our agreements with our executive officers provide benefits if we terminate their employment with us without cause or they terminate their employment with us for good reason, as such terms are defined in the applicable agreement with the executive officer. A further discussion of the terms and projected payments under each of our agreements with our named executive officers is set forth below under the heading *Employment Contracts and Change of Control Arrangements*.

Tax Considerations

We would like our compensation program to be reasonably cost and tax effective. To the extent consistent with our other goals, we seek to preserve corporate tax deductions, while maintaining the flexibility to approve compensation arrangements that we believe are in the best interests of the company and our shareholders. The approach does not always result in full tax deductibility.

Compensation Practices

Equity Grant Practices

The exercise price for each stock option awarded to our executive officers under our equity compensation program is equal to the fair market value of our common stock on the date of grant, which under our equity plans is the average of the high and low price for our common stock on the date of grant. Our board of directors generally grants annual equity awards to named executive officers at a board meeting scheduled in advance for early February. Scheduling decisions are made without regard to anticipated earnings or other major announcements by the company.

Newly hired employees, including executive officers, are sometimes granted options and/or restricted stock units effective on the first day of employment, with the options having an exercise price set at the average of the high and low price for our common stock on the employment start date. The employees' start dates are scheduled without regard to anticipated earnings or other major announcements by the company.

In the past, the MDCC has recommended that our board make an additional, off-cycle equity award to an executive officer or group of officers in order to achieve one or more of the objectives of our executive compensation program. Supplemental grants have been made on an ad hoc basis, when warranted in the judgment of the MDCC and our board. No such supplemental grants of equity compensation were made in 2017. Our MDCC and board do not currently anticipate making supplemental grants in 2018, but retain the discretion to do so if warranted in their judgment.

Compensation Recoupment ("Clawback") Policy

We have adopted a recoupment or clawback policy providing that, if our board of directors determines that an executive officer engaged in fraud or intentional misconduct that resulted in an incorrect determination that an incentive compensation performance goal had been achieved, the board may take appropriate action to recover from such executive officer any compensation that resulted from such determination. The board may require repayment for any bonus, equity or incentive compensation awarded to an executive officer who engaged in the fraud or intentional misconduct to the extent it was based on such incorrect determination.

Stock Ownership Guidelines

We have stock ownership guidelines for our chief executive officer and NEOs and guidelines for our non-employee directors, as discussed in *Non-Employee Director Stock Ownership Guidelines* on page 28 of this proxy statement. The guidelines for our CEO and Executive Vice Presidents are set forth in the following table:

Employee	Minimum Shareholding Requirement
Chief Executive Officer	6X base salary or 150K shares of our common stock
Executive Vice Presidents	4X base salary

Individual holdings, and holdings of immediate family members, of (a) common stock, including unvested restricted stock, (b) restricted stock units and (c) shares held through our 401(k) plan count toward meeting these guidelines. Our chief executive officer and our executive vice presidents currently satisfy the individual holding requirements.

Anti-Hedging and Pledging Policy

We prohibit all of our directors and employees, including our named executive officers, from (i) short selling or hedging our securities, (ii) purchasing or selling derivative securities based on our securities and (iii) pledging our securities.

Risk Mitigation

Our MDCC reviews the risks and rewards associated with our compensation programs. The programs are designed with features that mitigate risk without diminishing the incentive nature of the compensation. We believe our compensation programs encourage and reward prudent business judgment and appropriate risk-taking over the short term and the long term. Our MDCC regularly evaluates the risks involved with our compensation programs and does not believe that any of our compensation programs create risks that are reasonably likely to have a material adverse effect on our company.

We believe that our annual cash bonus and long-term equity compensation programs, which account for most of our executive officers' compensation, contain appropriate risk mitigation factors, as summarized below:

What We Do	What We Don't Do
Caps on awards	No executive perquisites
Multiple performance factors	No supplemental pension benefits for executives
Range of awards; not all or nothing	No single-trigger vesting in connection with a change-in-control for equity awards
Compensation recoupment (clawback) policy	No hedging or pledging or speculative transactions in our securities by directors and executive officers
Balance of Short- and Long-term Incentives (through annual cash bonuses and equity awards)	No re-pricing of equity awards without shareholder approval
Anti-hedging policy	No payment of dividends on unvested performance shares or units
Executive and Non-Employee Director Stock Ownership Guidelines	
Policy against gross-ups	
Independent compensation consultant	
Robust shareholder outreach	

MANAGEMENT DEVELOPMENT AND COMPENSATION COMMITTEE REPORT

The Management Development and Compensation Committee has reviewed the Compensation Discussion and Analysis and discussed that analysis with management. Based on its review and its discussions with management, the Management Development and Compensation Committee recommended to Vertex's Board of Directors that the Compensation Discussion and Analysis be included in Vertex's proxy statement for its 2018 annual meeting of shareholders and incorporated by reference into Vertex's Annual Report on Form 10-K for the year ended December 31, 2017. This report is provided by the following directors who comprise the Management Development and Compensation Committee:

Bruce I. Sachs (Chair)
Terrence C. Kearney
Elaine S. Ullian
William D. Young

COMPENSATION AND EQUITY TABLES

Summary Compensation Table

The following table provides summary information concerning compensation earned by: (i) our president and chief executive officer; (ii) our chief financial officer; (iii) our chief operating officer, who was our chief financial officer for a portion of 2017; and (iv) our other three most highly compensated employees who were serving as executive officers on December 31, 2017. We refer to these officers collectively as our named executive officers.

Name and Principal Position	Year	Salary	Bonus	Stock Awards	Option Awards	Non-Equity Incentive Plan Compensation	All Other Compensation	Total
Jeffrey M. Leiden Chairman, President & CEO	2017	\$1,300,000	\$ —	\$8,750,114	\$ 3,700,877	\$ 3,463,200	\$ 13,110	\$17,227,301
	2016	\$1,300,000	\$ —	\$9,800,076	\$ 4,060,397	\$ 2,246,400	\$ 12,885	\$17,419,758
	2015	\$1,297,692	\$ —	\$7,038,885	\$16,286,939	\$ 3,463,200	\$ 13,110	\$28,099,826
David Altshuler EVP & Chief Scientific Officer	2017	\$ 596,731	\$ —	\$3,150,020	\$ 1,332,316	\$ 638,250	\$ 13,110	\$ 5,730,427
	2016	\$ 561,442	\$ —	\$2,625,152	\$ 1,087,620	\$ 500,250	\$ 12,885	\$ 4,787,349
	2015	\$ 528,846	\$250,000	\$9,078,750	\$ 1,964,534	\$ 552,628	\$ 13,110	\$12,387,868
Thomas Graney SVP & Chief Financial Officer	2017	\$ 154,423	\$150,000	\$1,500,140	\$ —	\$ 110,392	\$ 12,445	\$ 1,927,400
Michael Parini EVP & Chief Legal and Administrative Officer	2017	\$ 694,519	\$ —	\$3,150,020	\$ 1,332,316	\$ 788,655	\$ 13,110	\$ 5,978,620
	2016	\$ 517,846	\$250,000	\$1,689,672	\$ 4,731,100	\$ 499,867	\$ 41,779	\$ 7,730,264
Amit Sachdev EVP & Chief Regulatory Officer	2017	\$ 540,750	\$ —	\$2,625,016	\$ 1,110,263	\$ 600,233	\$ 10,001	\$ 4,886,263
	2016	\$ 540,750	\$ —	\$3,150,148	\$ 1,305,144	\$ 438,007	\$ 960	\$ 5,435,009
Ian F. Smith EVP & Chief Operating Officer	2017	\$ 848,077	\$ —	\$2,625,016	\$ 1,110,263	\$ 1,339,770	\$ 13,110	\$ 5,936,236
	2016	\$ 750,000	\$ —	\$3,150,148	\$ 1,305,144	\$ 562,500	\$ 12,885	\$ 5,780,677
	2015	\$ 701,796	\$ —	\$2,258,991	\$ 5,199,586	\$ 832,500	\$ 13,110	\$ 9,005,983

Bonus

Pursuant to applicable SEC rules, the annual cash bonuses earned by our named executive officers are set forth under the caption “Non-Equity Incentive Plan Compensation.” Other bonuses, such as sign-on bonuses, are listed separately under the caption “Bonus.”

Stock Awards and Options Awards

Pursuant to applicable SEC rules, the grant-date fair values of the equity awards granted in February 2017 for 2016 performance are included in 2017 compensation. Equity awards granted in February 2018 for 2017 performance are not reflected in the *Summary Compensation Table* above and will be included as 2018 compensation in next year's proxy statement. The amounts set forth under the captions “Stock Awards” and “Option Awards” in the table above represent the grant-date fair value of awards granted during the applicable fiscal year. Our methodology for determining the grant-date fair value, including underlying estimates and assumptions for calculating these values, is set forth in Note N to our consolidated financial statements included in our 2017 Annual Report on Form 10-K filed with the SEC on February 15, 2018.

The “Stock Awards” for 2017 consist of performance stock unit, or PSU, awards and time-vested restricted stock unit awards granted in February 2017 and a sign-on equity grant for Mr. Graney in September 2017. The “Stock Awards” for 2016 consist of PSU awards and time-vested restricted stock unit awards granted in February 2016 and a sign-on equity grant for Mr. Parini in January 2016. The “Stock Awards” for 2015 consist of performance-accelerated restricted stock, or PARS, awards granted in February 2015 and a sign-on equity grant for Dr. Altshuler in February 2015.

Non-Equity Incentive Plan Compensation—Annual Cash Bonus

The amounts set forth under the caption “Non-Equity Incentive Plan Compensation” in the table above represent annual cash bonuses for 2017, 2016 and 2015 performance, each of which was paid in the first quarter of the subsequent year. The cash bonus awards to the named executive officers for 2017 performance were determined as follows:

Name	Base Salary	Individual Incentive Target	2017 Target Bonus	Company Performance Factor	Individual Performance Factor	Proration Factor	2017 Performance Cash Bonus
Jeffrey M. Leiden	\$ 1,300,000	x 120%	= \$1,560,000	x 148%	x 150%	x 100%	= \$ 3,463,200
David Altshuler	\$ 625,000	x 50%	= \$ 312,500	x 148%	x 138%	x 100%	= \$ 638,250
Thomas Graney	\$ 550,000	x 45%	= \$ 247,500	x 148%	x 100%	x 30%	= \$ 110,392
Michael Parini	\$ 725,000	x 50%	= \$ 362,500	x 148%	x 147%	x 100%	= \$ 788,655
Amit Sachdev	\$ 540,750	x 50%	= \$ 270,375	x 148%	x 150%	x 100%	= \$ 600,233
Ian F. Smith	\$ 850,000	x 75%	= \$ 637,500	x 148%	x 142%	x 100%	= \$ 1,339,770

All Other Compensation

The amounts set forth under the caption “All Other Compensation” in the table for 2017 consist of:

Name	401(k) Match	Life Insurance Premiums	Total
Jeffrey M. Leiden	\$12,150	\$ 960	\$ 13,110
David Altshuler	\$12,150	\$ 960	\$ 13,110
Thomas Graney	\$12,150	\$ 295	\$ 12,445
Michael Parini	\$12,150	\$ 960	\$ 13,110
Amit Sachdev	\$ 9,041	\$ 960	\$ 10,001
Ian F. Smith	\$12,150	\$ 960	\$ 13,110

CEO Pay Ratio

The overall structure of our compensation and benefits programs are broadly similar across our organization, including a broad-based equity program pursuant to which all full-time employees receive equity, with differences reflecting the level of responsibility of the employees.

In 2017:

- The ratio of our CEO total compensation for Dr. Leiden to our median employee’s total compensation was 81:1
- Dr. Leiden’s total compensation equaled \$17.2 million
- The total compensation for Vertex’s median employee equaled \$211,511

The 2017 compensation for our CEO and median employee were calculated using the same methodology required by the SEC for reporting named executive officer compensation in the Summary Compensation Table.

Methodology

Our measure of compensation for the median employee was consistently applied and includes:

- Base salary (including any local allowances)
- Incentive pay (including cash bonuses, sales incentives and other variable pay programs)
- Grant date fair value of equity awards
- Any other cash awards or payments

We included all Vertex employees on October 1, 2017 located in five countries for the purposes of determining the median employee, which represented 95% of our employees globally (2,208 of our 2,323 employees global employees). As of October 1, 2017, we had 1,882 U.S. employees. We excluded 115 employees from 13 countries (Canada, France, Italy, Netherlands, Spain, Ireland, Sweden, Austria, Brazil, Denmark, Greece, Belgium and Portugal) under the SEC’s *de minimis* exception.

We used the following material assumptions in applying our methodology:

- **Annualized Pay.** Base pay was annualized for employees who worked a partial year.
- **Reasonable Estimates.** Variable pay programs are a significant component of our pay for performance philosophy. Reasonable estimates were used for employees whose participation in our annual cash incentives/bonuses and long-term incentives/equity awards were limited by their date of hire; provided that (i) no estimate was used for annual cash incentives/bonuses if an employee received any form of cash award upon hire and (ii) no estimate was used for long-term incentives/equity awards if an employee received an equity award upon hire.
- **Foreign Exchange Rates.** Foreign currencies were converted into U.S. dollars using the average monthly rates for the 12 month measurement period.

Option Exercises and Stock Vested for 2017

The following table sets forth the value realized by our named executive officers from options to purchase common stock exercised by the named executive officers during 2017 and shares of stock that vested during 2017. The value realized per share for options is based on the difference between the exercise price and the fair market value of the shares of common stock on the date the options were exercised. The value realized on vesting of stock awards is based on the fair market value of the shares on the vesting date.

Name	Option Awards		Stock Awards	
	Number of Shares Acquired on Exercise	Value Realized on Exercise	Number of Shares Acquired on Vesting	Value Realized on Vesting
Jeffrey M. Leiden	482,572	\$48,715,169	181,154	\$25,009,344
David Altshuler	45,775	\$ 3,201,515	6,403	\$ 568,330
Thomas Graney	—	\$ —	2,391	\$ 360,348
Michael Parini	17,614	\$ 1,215,588	3,450	\$ 290,835
Amit Sachdev	131,000	\$ 8,996,220	56,309	\$ 8,090,519
Ian F. Smith	239,013	\$18,549,751	93,034	\$13,644,357

Grants of Plan-Based Awards During 2017

The following table provides information with respect to grants of awards to each of our named executive officers during 2017. Pursuant to SEC rules, (i) the threshold, target and maximum amounts payable pursuant to our 2017 annual cash bonus program are set forth in columns three through five, (ii) the threshold, target and maximum number of shares that could vest pursuant to PSUs granted in 2017 are set forth in columns six through eight, (iii) the number of shares granted pursuant to other restricted stock unit awards in 2017, including a sign-on equity grant for Mr. Graney, is set forth in column nine and (iv) the number of shares subject to option awards granted in 2017 is set forth in column ten.

Name	Grant Date	Estimated Future Payouts Under Non-Equity Incentive Plan Awards			Estimated Future Payouts Under Equity Incentive Plan Awards (shares)			All Other Stock Awards: Number of Shares of Stock or Units (#)	All Other Option Awards: Number of Securities Underlying Options (#)	Exercise or Base Price of Option Awards (\$/Sh)	Closing Price of Stock on Grant Date (\$/Sh)	Grant-Date Fair Value of Stock and Option Awards (\$)
		Threshold (\$)	Target (\$)	Maximum (\$)	Threshold (#)	Target (#)	Maximum (#)					
Jeffrey M. Leiden		\$ 0	\$ 1,560,000	\$ 3,510,000								
	2/3/2017				0	25,284	50,568					\$ 2,187,572
	2/3/2017				0	25,283	50,566					\$ 2,187,485
	2/3/2017							50,567				\$ 4,375,057
	2/3/2017								103,550	\$ 86.52	\$ 86.73	\$ 3,700,877
David Altshuler		\$ 0	\$ 312,500	\$ 703,125								
	2/3/2017				0	9,102	18,204					\$ 787,505
	2/3/2017				0	9,102	18,204					\$ 787,505
	2/3/2017							18,204				\$ 1,575,010
	2/3/2017								37,278	\$ 86.52	\$ 86.73	\$ 1,332,316
Thomas Graney		\$ 0	\$ 74,589	\$ 167,825								
	9/13/2017							9,566				\$ 1,500,140
Michael Parini		\$ 0	\$ 362,500	\$ 815,625								
	2/3/2017				0	9,102	18,204					\$ 787,505
	2/3/2017				0	9,102	18,204					\$ 787,505
	2/3/2017							18,204				\$ 1,575,010
	2/3/2017								37,278	\$ 86.52	\$ 86.73	\$ 1,332,316
Amit Sachdev		\$ 0	\$ 270,375	\$ 608,344								
	2/3/2017				0	7,585	15,170					\$ 656,254
	2/3/2017				0	7,585	15,170					\$ 656,254
	2/3/2017							15,170				\$ 1,312,508
	2/3/2017								31,065	\$ 86.52	\$ 86.73	\$ 1,110,263
Ian F. Smith		\$ 0	\$ 637,500	\$ 1,434,375								
	2/3/2017				0	7,585	15,170					\$ 656,254
	2/3/2017				0	7,585	15,170					\$ 656,254
	2/3/2017							15,170				\$ 1,312,508
	2/3/2017								31,065	\$ 86.52	\$ 86.73	\$ 1,110,263

Annual Cash Bonus. The amounts in the "Estimated Possible Payouts Under Non-Equity Incentive Plan Awards" column represent the minimum threshold, target and maximum amounts that our named executive officers were eligible for pursuant to our 2017 annual cash bonus program. The amounts for Mr. Graney, who joined our company in September 2017, reflect the pro rata portion of the amount of his potential annual cash bonus in 2017. Actual amounts paid to each of the named executive officers under this program for 2017 performance are set forth in the *Summary Compensation Table* above.

PSU. The amounts in the "Estimated Future Payouts Under Equity Incentive Plan Awards" column represent the minimum threshold, target and maximum amounts that could vest pursuant to PSUs granted in 2017. These awards vest if, and only if, performance objectives are achieved, as described in the footnotes to the table *Outstanding Equity Awards at Fiscal Year-End for 2017* below.

Time-Based Restricted Stock Units. The amounts in the "All Other Stock Awards: Number of Shares of Stock or Units" column represent the number of time-based restricted stock units granted to the named executive officers in 2017 and a sign-on equity grant for Mr. Graney in September 2017. The number of time-based restricted stock units to these named executive officers were made in February 2017 on account of the executives' performances in 2016.

Options. In accordance with our stock and option plans, the exercise prices for the stock options granted to our named executive officers during 2017 were equal to the average of the high and the low prices of our common stock on the grant date. As a result, in 2017, the exercise prices of options granted to our named executive officers were lower than the grant-date closing price for the February 3, 2017 grants. In the future, we expect that options will continue to be granted with exercise prices equal to the average of the high and low prices of our common stock on the grant date, and that as a result the exercise prices are likely to be different from the closing price of our common stock on the grant date. Each stock option set forth in the table above was granted subject to vesting in 16 quarterly installments during the first four years of its ten-year term.

Outstanding Equity Awards at Fiscal Year-End for 2017

The following table provides information with respect to outstanding equity awards held by each of our named executive officers on December 31, 2017, based on the closing price of \$149.86 per share of our common stock on December 29, 2017:

Name	Option Awards				Number of Shares or Units of Stock That Have Not Vested (shares)	Market Value of Shares or Units of Stock That Have Not Vested	Stock Awards			
	Number of Securities Underlying Unexercised Options Exercisable (shares) ⁽¹⁾	Number of Securities Underlying Unexercised Options Unexercisable (shares) ⁽¹⁾	Option Exercise Price (per share)	Option Expiration Date ⁽²⁾			Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested (shares)	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested		
Jeffrey M. Leiden	Restricted Stock				32,250 ⁽²⁾	\$ 4,832,985				
	Time-based RSU									
					35,878 ⁽³⁾	\$ 5,376,677				
					50,567 ⁽⁴⁾	\$ 7,577,971				
	Performance-based RSU				11,930 ⁽⁵⁾	\$ 1,787,830				
									26,908 ⁽⁶⁾	\$ 4,032,433
									25,284 ⁽⁷⁾	\$ 3,789,060
							25,283 ⁽⁸⁾	\$ 3,788,910		
	Stock Options									
		55,313	0	\$ 45.11	2/4/2023					
		44,250	0	\$ 48.74	7/24/2022					
		199,687	13,313	\$ 77.31	2/4/2024					
		106,500	0	\$ 83.36	7/29/2023					
	19,415	84,135	\$ 86.52	2/2/2027						
	46,933	60,343	\$ 91.05	2/1/2026						
	86,531	19,969	\$ 96.87	7/14/2024						
	146,437	66,563	\$ 109.14	2/2/2025						
	59,906	46,594	\$ 131.89	7/20/2025						
David Altshuler	Restricted Stock				75,000 ⁽⁹⁾	\$ 11,239,500				
	Time-based RSU									
					9,611 ⁽³⁾	\$ 1,440,304				
					18,204 ⁽⁴⁾	\$ 2,728,051				
	Performance-based RSU				3,196 ⁽⁵⁾	\$ 478,953				
									7,208 ⁽⁶⁾	\$ 1,080,191
									9,102 ⁽⁷⁾	\$ 1,364,026
							9,102 ⁽⁸⁾	\$ 1,364,026		
	Stock Options									
		6,989	30,289	\$ 86.52	2/2/2027					
	1,796	16,164	\$ 91.05	2/1/2026						
	19,125	14,875	\$ 131.89	7/20/2025						
Thomas Graney	Time-based RSU				7,175 ⁽¹⁰⁾	\$ 1,075,246				

Name	Option Awards				Number of Shares or Units of Stock That Have Not Vested (shares)	Market Value of Shares or Units of Stock That Have Not Vested	Stock Awards	
	Number of Securities Underlying Unexercised Options Exercisable (shares) ⁽¹⁾	Number of Securities Underlying Unexercised Options Unexercisable (shares) ⁽¹⁾	Option Exercise Price (per share)	Option Expiration Date ⁽²⁾			Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested (shares)	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested
Michael Parini	Restricted Stock							
	Time-based RSU				10,350 ⁽¹¹⁾	\$ 1,551,051		
	Performance-based RSU				18,204 ⁽⁵⁾	\$ 2,728,051		
	Stock Options						9,102 ⁽⁷⁾	\$ 1,364,026
		0	30,289	\$ 86.52	2/2/2027		9,102 ⁽⁸⁾	\$ 1,364,026
		0	23,375	\$ 90.29	7/11/2026			
		29,750	38,250	\$ 122.45	1/3/2026			
Amit Sachdev	Restricted Stock				8,625 ⁽²⁾	\$ 1,292,543		
	Time-based RSU				11,533 ⁽³⁾	\$ 1,728,335		
	Performance-based RSU				15,170 ⁽⁴⁾	\$ 2,273,376		
	Stock Options				3,835 ⁽⁵⁾	\$ 574,713	8,649 ⁽⁶⁾	\$ 1,296,139
		18,672	2,578	\$ 77.31	2/4/2024		7,585 ⁽⁷⁾	\$ 1,136,688
		27,500	0	\$ 83.36	7/29/2023		7,585 ⁽⁸⁾	\$ 1,136,688
		5,824	25,241	\$ 86.52	2/2/2027			
		15,085	19,397	\$ 91.05	2/1/2026			
		22,343	5,157	\$ 96.87	7/14/2024			
		39,531	17,969	\$ 109.14	2/2/2025			
Ian F. Smith	Restricted Stock				10,350 ⁽²⁾	\$ 1,551,051		
	Time-based RSU				11,533 ⁽³⁾	\$ 1,728,335		
	Performance-based RSU				15,170 ⁽⁴⁾	\$ 2,273,376		
	Stock Options				3,835 ⁽⁵⁾	\$ 574,713	8,649 ⁽⁶⁾	\$ 1,296,139
		0	4,250	\$ 77.31	2/4/2024		7,585 ⁽⁷⁾	\$ 1,136,688
		5,824	25,241	\$ 86.52	2/2/2027		7,585 ⁽⁸⁾	\$ 1,136,688
		0	19,397	\$ 91.05	2/1/2026			
		0	6,375	\$ 96.87	7/14/2024			
		46,750	21,250	\$ 109.14	2/2/2025			
		19,125	14,875	\$ 131.89	7/20/2025			

(1) Unvested stock options are vesting in 16 quarterly installments during the first four years of their ten-year terms. The option expiration dates listed above reflect the final expiration date for each of the listed options. If the named executive officer's service with us is terminated, the options would expire, subject to certain exceptions, 90 days after the termination of service.

(2) Each of these restricted stock awards is a PARS award, which is subject to time-based vesting on February 3, 2019, the fourth anniversary of grant, subject to acceleration of vesting upon the achievement of specified performance objectives. The vesting accelerates for the shares upon (i) worldwide net ORKAMBI sales, excluding U.S. net ORKAMBI sales, for a 12-month period ending on a calendar quarter that is equal to or greater than \$500 million or (ii) completion of a pivotal clinical trial of a non-cystic fibrosis drug candidate that provides sufficient data to support a new drug application.

- (3) These time-based restricted stock unit awards vested as to one half of the shares on February 10, 2018 and the remaining shares vest on February 10, 2019.
- (4) These time-based restricted stock unit awards vested as to one third of the shares on February 10, 2018 and vests in two remaining annual installments on February 10, 2019 and 2020.
- (5) This performance stock unit award was based on the achievement of one-year financial performance metrics tied to our net product revenue for medicines for the treatment of cystic fibrosis during 2016. The remaining earned shares vest in two equal installments on each of February 10, 2018 and 2019. On February 3, 2017 our management development and compensation committee certified as to the level of performance-goal at 66.5% of the number of target shares.
- (6) This performance stock unit award is based on the achievement of three-year non-financial performance metrics. The awards provide for multiple clinical and research milestones, with a payout range of zero to 200%. The specific clinical and research milestones are not disclosed for competitive reasons. Performance against these goals will be certified by the MDCC in early 2019.
- (7) This performance stock unit award was based on the achievement of one-year financial performance metrics tied to our net product revenue for medicines for the treatment of cystic fibrosis during 2017 and with vesting of the earned shares in three equal installments on each of February 10, 2018, 2019 and 2020. On February 6, 2018 our management development and compensation committee certified as to the level of performance-goal at 200% of the number of target shares.
- (8) This performance stock unit award is based on the achievement of three-year non-financial performance metrics. The awards provide for multiple clinical and research milestones, with a payout range of zero to 200%. The specific clinical and research milestones are not disclosed for competitive reasons. Performance against these goals will be certified by the MDCC in early 2020.
- (9) This retention award vested in January 2018 based on achievement of positive EBITDA for the 12-month period ending September 30, 2017.
- (10) These time-based restricted stock unit awards comprise a sign-on equity award granted to Mr. Graney and vest in three remaining annual installments on each of September 30, 2018, 2019 and 2020.
- (11) This restricted stock award comprises a sign-on equity award granted to Mr. Parini and vested as to one third of the shares on January 4, 2018 and vests in two remaining annual installments on January 4, 2019 and 2020.

SUMMARY OF TERMINATION AND CHANGE OF CONTROL BENEFITS

The amounts shown in the following table are calculated based on the amounts that would have been payable by us had the listed named executive officer experienced an employment termination on December 31, 2017.

	Voluntary Termination or Retirement/ Termination for Cause	Separate From a Change of Control Involuntary Termination Other Than for Cause/ Termination by Executive With Good Reason	In Connection With a Change of Control Involuntary Termination Other Than for Cause/ Termination by Executive for Good Reason	Disability	Death
Jeffrey M. Leiden					
Cash Severance Benefits	\$ —	\$ 4,420,000	\$10,111,400	\$ 1,560,000	\$ 1,560,000
Continuation of Employee Benefits	—	40,328	40,328	—	—
Accelerated Vesting of Stock Options	—	11,559,710	14,449,638	7,887,746	14,449,638
Accelerated Vesting of Restricted Stock and Restricted Stock Units	—	24,948,693	31,185,866	14,602,533	31,185,866
TOTAL	\$ —	\$40,968,731	\$55,787,232	\$24,050,279	\$47,195,504
David Altshuler					
Cash Severance Benefits	\$ —	\$ 937,500	\$ 1,250,000	\$ —	\$ —
Continuation of Employee Benefits	—	26,885	26,885	—	—
Accelerated Vesting of Stock Options	—	—	3,136,414	—	3,136,414
Accelerated Vesting of Restricted Stock and Restricted Stock Units	—	—	19,695,051	—	19,695,051
TOTAL	\$ —	\$ 964,385	\$24,108,350	\$ —	\$22,831,465
Thomas Graney					
Cash Severance Benefits	\$ —	\$ 797,500	\$ 1,045,000	\$ —	\$ —
Continuation of Employee Benefits	—	26,885	26,885	—	—
Accelerated Vesting of Stock Options	—	—	—	—	—
Accelerated Vesting of Restricted Stock and Restricted Stock Units	—	—	1,075,246	—	1,075,246
TOTAL	\$ —	\$ 824,385	\$ 2,147,131	\$ —	\$ 1,075,246
Michael Parini					
Cash Severance Benefits	\$ —	\$ 1,087,500	\$ 1,450,000	\$ —	\$ —
Continuation of Employee Benefits	—	26,885	26,885	—	—
Accelerated Vesting of Stock Options	—	—	4,359,387	—	4,359,387
Accelerated Vesting of Restricted Stock and Restricted Stock Units	—	—	7,007,154	—	7,007,154
TOTAL	\$ —	\$ 1,114,385	\$12,843,426	\$ —	\$11,366,541
Amit Sachdev					
Cash Severance Benefits	\$ —	\$ 811,125	\$ 1,081,500	\$ —	\$ —
Continuation of Employee Benefits	—	26,636	26,636	—	—
Accelerated Vesting of Stock Options	—	2,919,447	4,198,807	—	4,198,807
Accelerated Vesting of Restricted Stock and Restricted Stock Units	—	6,923,971	9,438,483	—	9,438,483
TOTAL	\$ —	\$10,681,179	\$14,745,426	\$ —	\$13,637,290
Ian F. Smith					
Cash Severance Benefits	\$ —	\$ 2,125,000	\$ 2,125,000	\$ 1,381,250	\$ 1,381,250
Continuation of Employee Benefits	—	26,885	26,885	—	—
Accelerated Vesting of Stock Options	—	3,238,895	4,518,255	2,490,020	4,518,255
Accelerated Vesting of Restricted Stock and Restricted Stock Units	—	7,182,479	9,696,991	5,401,123	9,696,991
280G Excise Tax	—	—	—	—	—
TOTAL	\$ —	\$12,573,259	\$16,367,131	\$ 9,272,393	\$15,596,496

The amounts in the table above do not include any life insurance payments or disability insurance payments that the executive or the executive's estate may receive under existing insurance policies. The assumptions underlying the calculations in the table include:

- The value of each share subject to an option to purchase common stock that would be accelerated or continue to vest in the circumstances described below under *Employment Contracts and Change of Control Arrangements* equals \$149.86 per share (the closing price on the last trading day of 2017), minus the exercise price per share.
- The value of each share of restricted stock for which our repurchase right would lapse or restricted stock unit that would be accelerated or continue to vest, in each case in the circumstances described below, equals \$149.86 per share (the closing price on the last trading day of 2017).
- Appropriate provision for the continuation of all then-outstanding options would be made in connection with a change of control.
- Our board of directors would elect not to pay a pro rata portion of an executive's target bonus for the year of termination in cases where the executive's employment is terminated voluntarily by the executive (for any reason, including retirement) or for cause, under our policy that cash bonuses are payable only to employees who are otherwise eligible and who remain employed by us on the date of bonus payment, typically in February of the next year.
- Our board of directors would have assigned the same 2017 individual and company performance ratings on December 31, 2017 as they assigned in the first quarter of 2018.
- As of December 31, 2017, Dr. Leiden would not have received any benefits if he voluntarily retired. Under his amended employment agreement, Dr. Leiden is entitled to receive certain additional benefits upon retirement if (i) he were to provide 12 months notice or (ii) he retires at the end of the term of his employment agreement in March 2020.
- In addition to the amounts above, if Dr. Altshuler had been involuntarily terminated by us as of December 31, 2017, then 20% of his retention award would have vested on January 12, 2018. The value of the shares that would have vested pursuant to this provision was \$2,247,900 for Dr. Altshuler.

The actual amounts that the named executive officers could receive in the future as a result of a termination of employment would likely differ materially from the amounts set forth above as a result of, among other things, changes in our stock price, changes in their base salary, target bonus amounts and actual bonus amounts, and the vesting and grants of additional equity awards.

EMPLOYMENT CONTRACTS AND CHANGE OF CONTROL ARRANGEMENTS

We have entered into agreements and maintain plans that will require us to provide to our named executive officers cash compensation, benefits and/or acceleration of the vesting of equity awards in the event of termination of employment or service as a director under specified circumstances. The following summary descriptions of such agreements with our named executive officers are qualified by the complete terms and conditions set forth in each of the agreements. In addition to the agreements described below, outstanding options granted under our stock and option plans provide that, in the event of certain changes of control, either appropriate provision for the continuation of all then-outstanding options must be made, or the vesting of those options will be accelerated and they will become fully exercisable immediately prior to such change of control. As described below, the benefits that are to be provided in connection with a change of control are subject to a “double trigger.” A change of control does not itself trigger benefits; rather, benefits are paid only if the employment of the executive is terminated by us other than for cause, death or disability or by the executive for good reason during a specified period before or after a change of control. The following descriptions are qualified in the entirety by the agreements with the executive officers, which have been filed with the SEC.

In addition to the benefits described below, under programs applicable to all employees, if a named executive officer dies while an employee, his estate and/or beneficiaries would receive full acceleration of all outstanding equity awards.

Jeffrey M. Leiden

The terms and conditions of Dr. Leiden’s employment are governed by a written employment contract, which was amended and restated in November 2016, and expires on March 31, 2020. Dr. Leiden’s employment agreement provides that he is entitled to receive compensation as determined by our board of directors and is eligible to receive the benefits generally made available to our executives. In addition, Dr. Leiden has agreed not to engage in specified competitive activities for 18 months after his employment with us terminates.

If Dr. Leiden’s employment is terminated by us without cause or he terminates his employment for good reason he would be entitled to receive, subject to limited exceptions:

Severance Payment:	A) 100% of the sum of his (i) base salary at the time of termination and (ii) target bonus for the year in which his employment is terminated B) A pro-rated bonus for the year in which the termination occurs based on his target bonus for the year in which the termination occurs
Equity:	Outstanding options, restricted stock and restricted stock units unvested on the termination date would receive partial vesting based on his years of service as an employee or non-employee director. This percentage is currently 80% and increases by 10% of each full year of service. Options granted starting in 2014 would remain exercisable for a ten year term.
Employee Benefits:	Continuation of certain employee benefits for up to 18 months

If Dr. Leiden’s employment is terminated by us without cause or he terminates his employment for good reason, in each case, within two years after a change of control of Vertex, he would instead be entitled to receive:

Severance Payment:	A) 299% of the sum of his (i) base salary at the time of termination and (ii) target bonus for the year in which his employment is terminated B) A pro-rated bonus for the year in which the termination occurs
Equity:	Full vesting of all outstanding options, restricted stock awards and restricted stock unit awards.
Employee Benefits:	Continuation of certain employee benefits for up to 18 months

Severance payments to Dr. Leiden in connection with a change of control may be reduced to increase their value to Dr. Leiden if such payments would be subject to an excise tax under Section 4999 of the Code. Dr. Leiden’s employment agreement does not provide for a so-called Section 4999 excise tax “gross-up.”

If Dr. Leiden’s employment is terminated as a result of disability, he would be entitled to receive:

- a pro-rated bonus for the year of employment termination;
- vesting of options that would have vested during the 12 months following employment termination;
- for each restricted stock award that vests proportionally over time, vesting of all shares that would have vested in the 12 months following the employment termination;
- for each restricted stock award that cliff-vests on a specified date, vesting of shares pro rata over time on a daily basis from the date of grant through the date of employment termination; and
- for each RSU award, vesting of all shares that would have vested in the 12 months following the employment termination (using target or earned shares, as applicable, for performance-based awards), or, in the case of certain performance-based RSU awards, vesting of target shares pro-rata over time on a daily basis from the date of grant through the date of employment termination.

If Dr. Leiden dies while he is an employee, his estate and/or beneficiaries would receive a pro-rated bonus for the year of employment termination, as well as the full acceleration of his equity awards provided under our company-wide program.

Dr. Leiden is eligible for a company-wide program that started in 2014 which provides, for eligible employees, upon a voluntary termination with 12 months notice (including as a result of the expiration of the term of his employment agreement), additional vesting of outstanding equity based on years of service as an employee and non-employee director. Dr. Leiden currently would receive vesting of 80% of the unvested shares and this percentage will increase by 10% for each full year of service.

Ian F. Smith

The terms and conditions of Mr. Smith's employment are governed by a written employment contract, which was entered into in 2001, amended and restated in 2004 and amended in 2008. Mr. Smith's employment agreement provides that he is entitled to receive compensation as determined by our board of directors and is eligible to receive the benefits generally made available to our executives. In addition, Mr. Smith has agreed not to engage in specified competitive activities for a period of one year after the termination of his employment with us.

If Mr. Smith's employment is terminated without cause, or if he terminates his employment with us of his own initiative for good reason or we do not renew his agreement, other than in connection with a change of control as described below, he would be entitled to receive:

Severance Payment:	A) The sum of his (i) base salary at the time of termination and (ii) target bonus for the year in which his employment is terminated B) A pro rata portion of his target bonus for the year in which the termination occurs
Options:	Vesting of outstanding options that otherwise would have vested in the 18 months following termination
Restricted Stock:	Vesting of each outstanding restricted stock award that would otherwise have vested in the 18 months following the termination, treating each award that vests other than ratably as if it vests ratably over the term of the grant
Restricted Stock Units:	Vesting in full of each outstanding RSU award that would have otherwise vested in the 18 months following the termination (using target or earned shares, as applicable, for performance-based awards) or, in the case of certain performance-based RSU awards, vesting of target shares pro rata over time on a daily basis from the date of grant through the date that is 18 months following the termination
Employee Benefits:	Continuation of certain employee benefits for up to 12 months

If we terminate Mr. Smith's employment without cause or he terminates his employment with us for good reason, in each case, on a date within the 90 days prior to or the 12 months after a change of control he would be entitled to receive:

Severance Payment:	A) The sum of his (i) base salary at the time of termination and (ii) target bonus for the year in which his employment is terminated B) A pro rata portion of his target bonus for the year in which the termination occurs
Options:	Full vesting of all outstanding options
Restricted Stock:	Full vesting of all outstanding restricted stock awards
Restricted Stock Units:	Vesting in full of all outstanding RSU awards (using target or earned shares, as applicable, for performance-based awards)
Employee Benefits:	Continuation of certain employee benefits for up to 12 months
Tax Benefits:	Additional payments required to compensate him if payments made under the employment agreement result in certain adverse tax consequences including excise taxes under Section 4999 of the Code

If Mr. Smith's employment is terminated as a result of his disability, he would receive six months of severance pay, a pro rata portion of his target bonus for the year in which the termination occurred and 12 months' acceleration of outstanding stock options, restricted stock awards and RSU awards (using target or earned shares, as applicable, for performance-based RSU awards), other than certain performance-based RSU awards which provide for vesting of target shares pro-rata over time on a daily basis from the date of grant through the date that is 12 months following the termination. If Mr. Smith dies while he is an employee, his estate and/or beneficiaries would receive six months of severance pay and a pro-rated target bonus for the year of employment termination, as well as the full acceleration of his equity awards provided under our company-wide program.

Amit Sachdev

Employment Agreement

The terms and conditions of Mr. Sachdev's employment are governed by a written employment contract, which was amended and restated in February 2013. His employment agreement provides that he is entitled to receive compensation as determined by our board of directors and is eligible to receive the benefits generally made available to our executives. In addition, Mr. Sachdev has agreed not to engage in specified competitive activities for a period of one year after the termination of his employment with us.

Under his employment agreement, if (i) Mr. Sachdev's employment is terminated without cause or (ii) he terminates his employment with us for good reason within 30 days of the event giving rise to his right to terminate for good reason, subject to notice and cure provisions, he would be entitled to receive:

Severance Payment:	The sum of his (i) base salary at the time of termination and (ii) target bonus for the year in which his employment is terminated
Options:	Vesting of outstanding options that otherwise would have vested in the 18 months following termination
Restricted Stock:	Vesting of each outstanding restricted stock award that would otherwise have vested in the 18 months following the termination, treating each award that vests other than ratably as if it vests ratably over the term of the grant
Restricted Stock Units:	Vesting in full of each outstanding RSU award that would have otherwise vested in the 18 months following the termination (using target or earned shares, as applicable, for performance-based awards) or, in the case of certain performance-based RSU awards, vesting of target shares pro rata over time on a daily basis from the date of grant through the date that is 18 months following the termination
Employee Benefits:	Continuation of certain employee benefits for up to 12 months

Change of Control Agreement

We have a change of control agreement with Mr. Sachdev, which was amended and restated in February 2013. Under this agreement, if we terminate Mr. Sachdev's employment without cause on a date within the 90 days prior to or the 12 months after a change of control or he terminates his employment within 30 days of an event giving rise to a right to terminate for good reason, subject to notice and cure provisions, and the event occurs on a date within the 90 days prior to or the 12 months after a change of control, he would be entitled to receive:

Severance Payment:	A) The sum of his (i) base salary at the time of termination and (ii) target bonus for the year in which his employment is terminated B) A pro rata portion of his target bonus for the year in which the termination occurs
Options:	Full vesting of all outstanding options
Restricted Stock:	Full vesting of all outstanding restricted stock awards
Restricted Stock Units:	Vesting in full of all outstanding RSU awards (using target or earned shares, as applicable, for performance-based awards)
Employee Benefits:	Continuation of certain employee benefits for up to 12 months

Severance payments to Mr. Sachdev in connection with a change of control may be reduced to increase their value to Mr. Sachdev if such payments would be subject to an excise tax under Section 4999 of the Code. Mr. Sachdev's agreements do not provide for a so-called Section 4999 excise tax "gross-up."

Agreements with Other Named Executive Officers

Employment Agreements

The terms and conditions of Dr. Altshuler's, Mr. Parini's, and Mr. Graney's employment are governed by written employment contracts that were entered into at the time the respective officer joined our company. Each of these officer's employment agreement provides that he is entitled to receive compensation as determined by our board of directors and is eligible to receive the benefits generally made available to our executives. In addition, each officer has agreed not to engage in specified competitive activities for a period of one year after the termination of his employment with us.

Under each employment agreement, (i) if the officer's employment is terminated without cause or (ii) the officer terminates his employment with us for good reason within 30 days of the event giving rise to his right to terminate for good reason, subject to notice and cure provisions, he would be entitled to receive:

Severance Payment:	The sum of his (i) base salary at the time of termination and (ii) target bonus for the year in which his employment is terminated
Employee Benefits:	Continuation of certain employee benefits for up to 12 months

Change of Control Agreements

We have a change of control agreement with each of Dr. Altshuler, Mr. Parini, and Mr. Graney that were entered into at the time the respective officer joined our company. Under this agreement, if we terminate the employment of the officer without cause on a date within the 90 days prior to or the 12 months after a change of control or any of these individuals terminates his employment within 30 days of an event giving rise to a right to terminate for good reason, subject to notice and cure provisions, and the event occurs on a date within the 90 days prior to or the 12 months after a change of control, he would be entitled to receive:

Severance Payment:	A) The sum of his (i) base salary at the time of termination and (ii) target bonus for the year in which his employment is terminated B) A pro rata portion of his target bonus for the year in which the termination occurs
Options:	Full vesting of all outstanding options
Restricted Stock:	Full vesting of all outstanding restricted stock awards
Restricted Stock Units:	Vesting in full of all outstanding RSU awards (using target or earned shares, as applicable, for performance-based awards)
Employee Benefits:	Continuation of certain employee benefits for up to 12 months

Severance payments to the officer in connection with a change of control may be reduced to increase their value to the applicable officer if such payments would be subject to an excise tax under Section 4999 of the Code. The agreements with Dr. Altshuler, Mr. Parini, and Mr. Graney do not provide for a so-called Section 4999 excise tax "gross-up."

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth information regarding beneficial ownership of our common stock as of March 29, 2018, by:

- each shareholder known by us to be the beneficial owner of more than 5% of our common stock on that date;
- each of our directors;
- each named executive officer; and
- all directors and executive officers as a group.

Name and Address	Shares Beneficially Owned ⁽¹⁾	Percentage of Total ⁽²⁾
T. Rowe Price Associates, Inc. ⁽³⁾ 100 E. Pratt Street Baltimore, Maryland 21202	28,338,859	11.1%
BlackRock, Inc. ⁽⁴⁾ 55 East 52nd Street New York, New York 10055	19,409,073	7.6%
The Vanguard Group ⁽⁵⁾ 100 Vanguard Blvd. Malvern, Pennsylvania 19355	17,934,504	7.0%
FMR LLC ⁽⁶⁾ 245 Summer Street Boston, Massachusetts 02210	16,923,002	6.6%
Sangeeta N. Bhatia ⁽⁷⁾	16,932	*
Alan Garber ⁽⁷⁾	997	*
Terrence C. Kearney ⁽⁷⁾	77,184	*
Yuchun Lee ⁽⁷⁾	98,361	*
Jeffrey M. Leiden ⁽⁷⁾	831,162	*
Margaret G. McGlynn ⁽⁷⁾	66,492	*
Bruce I. Sachs ⁽⁷⁾	149,697	*
Elaine S. Ullian ⁽⁷⁾	88,074	*
William D. Young ⁽⁷⁾	85,309	*
David Altshuler ⁽⁷⁾	68,928	*
Thomas Graney ⁽⁷⁾	2,266	*
Michael Parini ⁽⁷⁾	51,216	*
Amit Sachdev ⁽⁷⁾	109,410	*
Ian F. Smith ⁽⁷⁾	133,692	*
All directors and executive officers as a group (17 persons) ⁽⁷⁾	1,922,471	*

* Less than 1%

(1) Beneficial ownership of shares for purposes of this proxy statement is determined in accordance with applicable SEC rules and includes shares of common stock as to which a person has or shares voting power and/or investment power, including dispositive power. The persons and entities named in the table have sole voting and investment power with respect to all shares shown as beneficially owned by them, except as noted below. Information with respect to persons other than directors and executive officers is based solely upon Schedules 13G and amendments thereto filed with the SEC in the first quarter of 2018.

(2) Percentage ownership is based on 254,879,018 shares of our common stock outstanding on March 29, 2018.

(3) Reflects the securities beneficially owned by clients of one or more investment advisers directly or indirectly affiliated with T. Rowe Price Associates, Inc. T. Rowe Price Associates, Inc. has sole voting power with respect to 9,764,572 of the shares.

(4) Reflects the securities beneficially owned by clients of one or more investment advisers directly or indirectly owned by BlackRock, Inc. BlackRock, Inc. has sole voting power with respect to 17,212,195 of the shares.

(5) Includes 282,502 shares beneficially owned by Vanguard Fiduciary Trust Company and 199,254 shares held by Vanguard Investments Australia, Ltd., each of which are a wholly-owned subsidiaries of The Vanguard Group, Inc. The Vanguard Group, Inc. has sole voting power with respect to 361,741 of the shares and sole dispositive power with respect to 17,530,294 of the shares.

(6) Reflects the securities beneficially owned, or that may be deemed to be beneficially owned, by FMR LLC, certain of its subsidiaries and affiliates, and other companies. FMR LLC has sole voting power with respect to 1,925,680 of the shares.

- (7) Includes shares that may be acquired upon the exercise of options exercisable within 60 days after March 29, 2018, unvested shares of restricted stock as of March 29, 2018, unvested restricted stock units vesting within 60 days of March 29, 2018 and deferred stock units as of March 29, 2018 issued pursuant to our Non-Employee Director Deferred Compensation Plan, as follows:

	Stock Options Exercisable Within 60 Days of March 29, 2018	Unvested Shares of Restricted Stock Awards as of March 29, 2018	Deferred Stock Units as of March 29, 2018
Sangeeta N. Bhatia	15,167	—	—
Alan Garber	997	—	—
Terrence C. Kearney	72,743	—	—
Yuchun Lee	95,702	—	—
Jeffrey M. Leiden	762,889	32,250	—
Margaret G. McGlynn	62,368	—	—
Bruce I. Sachs	132,368	—	6,119
Elaine S. Ullian	79,868	—	—
William D. Young	82,368	—	—
David Altshuler	38,042	—	—
Thomas Graney	652	—	—
Michael Parini	43,927	6,900	—
Amit Sachdev	87,688	8,625	—
Ian F. Smith	100,240	10,350	—
All directors and executive officers as a group (17 persons)	1,659,186	80,538	6,119

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Exchange Act requires directors, officers and persons who are beneficial owners of more than 10% of our common stock to file with the SEC reports of their ownership of our securities and of changes in that ownership. To our knowledge, based upon a review of copies of reports filed with the SEC with respect to the fiscal year ended December 31, 2017 and written representations by our directors and officers that no other reports were required with respect to their transactions, all reports required to be filed under Section 16(a) by our directors and officers and persons who were beneficial owners of more than 10% of our common stock were timely filed.

OTHER INFORMATION

Other Matters

The 2018 annual meeting of shareholders is called for the purposes set forth in the notice. Our board of directors does not know of any other matters to be considered by the shareholders at the 2018 annual meeting other than the matters described in the notice. However, the enclosed proxy confers discretionary authority on the persons named in the proxy card with respect to matters that may properly come before the annual meeting and that are not known to our board at the date this proxy statement was printed. It is the intention of the persons named in the proxy card to vote in accordance with their best judgment on any such matter.

Shareholder Proposals for the 2019 Annual Meeting and Nominations for Director

In order to be considered for inclusion in the proxy statement for our 2019 annual meeting of shareholders, shareholder proposals must be received by us no later than December 20, 2018. If we do not receive notice of a matter to be considered for presentation at the 2019 annual meeting of shareholders by March 4, 2019, our proxy holders will have the right to exercise discretionary voting authority with respect to the proposal without including information regarding the proposal in our proxy materials. Proposals should be sent to the attention of our corporate secretary at our offices at 50 Northern Avenue, Boston, Massachusetts 02210.

If a shareholder wishes to nominate a candidate for election to our board of directors at the 2019 annual meeting of shareholders, but is not eligible or does not elect to have such candidate included in the proxy statement for our 2019 annual meeting of shareholders, such nomination may be submitted to our corporate secretary no later than February 16, 2019, and must include:

- the name and address of the shareholder who intends to make the nomination and of the person or persons to be nominated;
- a representation that the shareholder is a holder of record of our stock entitled to vote at such meeting and intends to appear in person or by proxy at the meeting to nominate the person or persons specified in the notice;
- a description of all arrangements or understandings between the shareholder and each nominee and any other person or persons (naming such person or persons) pursuant to which the nomination or nominations are to be made by the shareholder;
- the other information regarding each nominee proposed by the shareholder that would be required to be included in a proxy statement filed pursuant to the proxy rules of the SEC; and
- the consent of each nominee to serve on our board of directors if so elected.

If a shareholder wishes to nominate a candidate for election to our board at the 2019 annual meeting of shareholders, and is eligible and elects to have such candidate included in the proxy statement for our 2019 annual meeting of shareholders pursuant to our proxy access by-law, such nomination must be submitted to our corporate secretary no later than February 16, 2019 and must include, in addition to the information set forth for above for other shareholder nominees, the information set forth in Section 8(e) of Article II of our by-laws.

Shareholder Communications to the Board

Generally, shareholders who have questions or concerns should contact our investor relations department at (617) 341-6100. However, any shareholder who wishes to address questions regarding our business directly with our board of directors, or any individual director, should direct his or her questions, in writing, in care of our corporate secretary, to our offices at 50 Northern Avenue, Boston, Massachusetts 02210. Under procedures approved by our board, including a majority of our independent directors, all substantive communications shall be reviewed by our corporate secretary and forwarded or reported to the chair of the corporate governance and nominating committee, the independent directors and/or our full board, as deemed appropriate, with the exception of those communications relating to ordinary or routine business affairs, personal grievances or matters as to which we tend to receive repetitive or duplicative communications.

Householding of Annual Meeting Materials

Some banks, brokers and other nominee record holders may be participating in the practice of “householding” proxy statements and annual reports. This means that only one copy of our proxy statement and annual report may have been sent to multiple shareholders in your household. We will promptly deliver a separate copy of these documents to you if you write or call our corporate secretary at the following address or phone number: 50 Northern Avenue, Boston, Massachusetts 02210, telephone (617) 341-6100. If you want to receive separate copies of the annual report and proxy statement in the future, or if you are receiving multiple copies and would like to receive only one copy for your household, you should contact your bank, broker, or other nominee record holder, or you may contact us at the above address and phone number.

Solicitation

We will bear the cost of soliciting proxies, including expenses in connection with preparing and mailing this proxy statement. We have retained MacKenzie Partners, Inc. to assist in the solicitation of proxies at an estimated cost of approximately \$20,000. Proxies also may be solicited by our directors and employees by mail, by telephone, in person or otherwise. Employees will not receive additional compensation for solicitation efforts. In addition, we will request banks, brokers and other custodians, nominees and fiduciaries to forward proxy material to the beneficial owners of common stock and to obtain voting instructions from the beneficial owners. We will reimburse those firms for their reasonable expenses in forwarding proxy materials and obtaining voting instructions.

Availability of Materials

Our Annual Report on Form 10-K for the fiscal year ended December 31, 2017 has been filed with the SEC and provides additional information about us. It is available on the internet at www.vrtx.com and is available in paper form (other than exhibits thereto) to beneficial owners of our common stock without charge upon written request to Investor Relations, 50 Northern Avenue, Boston, Massachusetts 02210. In addition, it is available to holders of record of our common stock at www.envisionreports.com/vrtx and to beneficial holders of our common stock at www.edocumentview.com/vrtx.

Forward Looking Statements

This proxy statement contains forward-looking statements as defined in the Private Securities Litigation Reform Act of 1995, including, without limitation, statements regarding our medicines, statements with respect to potential regulatory approval of our drug candidates and expected clinical development plans and timing, as well as statements with respect to Vertex’s potential future financial performance. While we believe the forward-looking statements contained in this proxy statement are accurate, these forward-looking statements represent our beliefs only as of the date of this proxy statement and there are a number of factors that could cause actual events or results to differ materially from those indicated by such forward-looking statements, including risks listed under Risk Factors in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017 and available through the company’s website at www.vrtx.com. We disclaim any obligation to update the information contained in this proxy statement as new information becomes available.

Appendix A Amendment to Restated Articles of Organization

ARTICLE 6

A. Amendment of By-Laws

To the extent and the manner provided in the By-Laws, the Board of Directors may make, amend, or repeal the By-Laws in whole or in part, except with respect to any provision thereof which by law or by the By-Laws requires action by the stockholders.

B. Meetings of Stockholders

To the extent and in the manner provided in the By-Laws, meetings of the stockholders may be held anywhere within the Commonwealth of Massachusetts or elsewhere in the United States.

C. Partnership Agreements

The Corporation may enter into partnership agreements (general or limited) and joint ventures with any person, firm, association, or corporation engaged in carrying on any business in which the Corporation is authorized to engage, or in connection with carrying out all or any of the purposes of the Corporation.

D. Liability of Directors

No director of the Corporation shall be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director; provided, however, that this provision shall not eliminate or limit the liability of a director to the extent provided by applicable law (i) for any breach of the director's duty of loyalty to the Corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of laws, (iii) under Section 61 or 62 of the Business Corporation Law, Chapter 156B, of the Commonwealth of Massachusetts, or (iv) for any transactions from which the director derived an improper personal benefit. No amendment to or repeal of this provision shall apply to or have any effect on the liability or alleged liability of any director of the Corporation for or with respect to any acts or omissions of such director occurring prior to such amendment or repeal.

E. Board of Directors

- Number, Election and Terms.** Subject to the rights of the holders of any series of Preferred Stock to elect directors who shall serve for such term and have such voting powers as shall be provided in Article 4 of these Articles, the Board of Directors shall consist of such number of persons as shall be provided in the Corporation's By-Laws. The Board of Directors currently is classified with respect to the time for which its members severally hold office by division into three classes, as nearly equal in number as possible. Each director shall hold office until the annual meeting for the year in which such director's term expires and until such director's successor shall be elected and qualified, subject to prior death, resignation, retirement or removal. At the 2017 annual meeting of stockholders of the Corporation, the successors to the directors whose terms expire at that meeting shall be elected to hold office for terms expiring at the 2020 annual meeting of stockholders; at the 2018 annual meeting of stockholders, the successors to the directors whose terms expire at that meeting shall be elected for terms expiring at the 2019 annual meeting of stockholders; and at the 2019 annual meeting of shareholders, the successors to the directors whose terms expire at that meeting shall be elected for terms expiring at the 2020 annual meeting of stockholders. Thereafter all directors shall be elected for terms expiring at the next annual meeting of stockholders and until their successors shall be elected and qualified, subject to prior death, resignation, retirement or removal. No director need be a stockholder.
- Nomination.** Advance notice of nominations for the election of directors, other than by the Board of Directors or a committee thereof, shall be given within the time and in the manner provided in the By-Laws.
- Newly Created Directorships and Vacancies.** Newly created directorships resulting from any increase in the number of directors and any vacancies on the Board of Directors resulting from death, resignation, disqualification, removal, or other cause shall be filled only by the affirmative vote of a majority of the remaining directors then in office, even though less than a quorum of the Board of Director. Each director chosen to fill a newly created directorship resulting from an increase in the number of directors shall be elected for a term expiring at the next annual meeting of stockholders and until such director's successor shall have been elected and qualified. Each director chosen to fill a vacancy on the Board of Directors resulting from death, resignation, disqualification, removal, or other cause shall hold office for the remainder of the full term of office of the director who is being succeeded and until such director's successor shall have been elected and qualified. No decrease in the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.

4. Removal of Directors. Any director may be removed from office by stockholder vote at any time, but only for cause, by the affirmative vote of the holders of a majority of the voting power of the then outstanding shares of capital stock of the Corporation entitled to vote generally in the election of directors, voting together as a single class. Any director may also be removed from office for cause by vote of a majority of the directors then in office.
5. Directors Elected by Holders of Preferred Stock. Whenever the holders of any class or series of Preferred Stock or of any other class or series of shares issued by the Corporation shall have the right, voting separately as a class or series, to elect one or more directors under specified circumstances, the election, term of office, filling of vacancies, and other features of such directorships shall be governed by the terms of these Articles applicable to such class or series, and none of the provisions of this Part E shall apply with respect to directors so elected.
6. ~~Amendment, Repeal, etc. Notwithstanding any other provision of these Articles to the contrary, the affirmative vote of the holders of at least 80% of the voting power of the then outstanding shares of capital stock of the Corporation entitled to vote generally in the election of directors, voting together as a single class, shall be required to alter, amend, adopt any provision inconsistent with, or repeal this Part E or any provision thereof.~~

Appendix B Amended and Restated By-Laws of Vertex Pharmaceuticals Incorporated

ARTICLE I

Stockholders

Section 1. Annual Meeting. The annual meeting of the stockholders shall be held on the second Monday of May in each year, or on such other date within six months after the end of the fiscal year of the Corporation as the Board of Directors shall fix, at such time as shall be fixed by the Board of Directors in the call of the meeting. Purposes for which an annual meeting is to be held, in addition to those prescribed by law, by the Articles of Organization, or by these By-Laws, may be specified by the Board of Directors in the notice of the meeting.

Section 2. Special Meeting in Lieu of Annual Meeting. If no annual meeting has been held in accordance with the foregoing provisions, a special meeting of the stockholders may be held in lieu thereof. Any action taken at such special meeting shall have the same force and effect as if taken at the annual meeting, and in such case all references in these By-Laws to the annual meeting of the stockholders shall be deemed to refer to such special meeting. Any such special meeting shall be called as provided in Section 3 of this Article 1.

Section 3. Special Meetings. A special meeting of the stockholders may be called at any time by the Chairman of the Board, the President, or by the Board of Directors. A special meeting of the stockholders shall also be called by the Clerk (or, in the case of the death, absence, incapacity, or refusal of the Clerk, by any other officer) upon written application of one or more stockholders who hold at least forty percent in interest of the capital stock entitled to vote at the meeting. Each call of a meeting shall state the place, date, hour, and purposes of the meeting.

Section 4. Place of the Meetings. All meetings of the stockholders shall be held at such place, either within or without The Commonwealth of Massachusetts, within the United States as shall be fixed by the Board of Directors in the notice of the meeting. Any adjourned session of any meeting of the stockholders shall be held within the United States at the place designated in the vote of adjournment.

Section 5. Notice of Meeting. A written notice of each meeting of stockholders, stating the place, date, hour and purposes of the meeting, shall be given at least seven days before the meeting to each stockholder entitled to vote thereat and to each stockholder who, by law, by the Articles of Organization, or by these By-Laws, is entitled to notice. Such notice shall be given by the Clerk or an Assistant Clerk or by an officer designated by the Board of Directors. Whenever notice of a meeting is required to be given to a stockholder under any provision of the Business Corporation Law of the Commonwealth of Massachusetts or of the Articles of Organization or these By-Laws, a written waiver thereof, executed before or after the meeting by such stockholder or his attorney thereunto authorized and filed with the records of the meeting, shall be deemed equivalent to such notice.

Section 6. Quorum of Stockholders. At any meeting of the stockholders, a quorum shall consist of a majority in interest of all stock issued and outstanding and entitled to vote at the meeting, except when a larger quorum is required by law, by the Articles of Organization, or by these By-Laws. Stock owned directly or indirectly by the Corporation, if any, shall not be deemed outstanding for this purpose.

Section 7. Adjournment of Meetings. Any meeting of the stockholders may be adjourned (a) prior to the time the meeting has been convened, by the Board of Directors, or (b) after the meeting has been convened, by a majority of the votes properly cast upon the question, whether or not a quorum is present at the meeting, and the meeting may be held as adjourned without further notice.

Section 8. Action by Vote. When a quorum is present at any meeting, (a) upon any question other than an election of a director, a majority of the votes properly cast shall decide the question, except when a larger vote is required by law, by the Articles of Organization, or by these By-Laws, (b) in an uncontested election, votes properly cast in favor of election of a director exceeding the votes properly withheld in such election shall effect the election of a director, and (c) in a contested election, a plurality of the votes properly cast for election shall effect the election of a director. An election of directors shall be considered contested if, as of the record date for the applicable meeting, there are more nominees for election than positions on the board of directors to be filled by election at the meeting. All other elections of directors shall be considered uncontested.

Section 9. Voting. Stockholders entitled to vote shall have one vote for each share of stock held by them of record according to the records of the Corporation, unless otherwise provided by the Articles of Organization. No ballot shall be required for any vote for election to any office unless requested by a stockholder present or represented at the meeting and entitled to vote in such election. The Corporation shall not, directly or indirectly, vote any share of its own stock.

Section 10. Proxies. To the extent permitted by law, stockholders entitled to vote may vote either in person or by written proxy. Unless otherwise specified or limited by their terms, such proxies shall entitle the holders thereof to vote at any adjournment of such meeting but shall not be valid after the final adjournment of such meeting.

Section 11. Action by Consent. Any action required or permitted to be taken at any meeting of the stockholders may be taken without a meeting, but only if all stockholders entitled to vote on the matter consent to the action in writing and the written consents are filed with the records of meetings of stockholders. Such consents shall be treated for all purposes as a vote taken at a meeting.

ARTICLE II

Board of Directors

Section 1. Number and Elections. Subject to the rights of the holders of Preferred Stock to elect one or more additional directors under specified circumstances as provided in Article 4 of the Articles of Organization, the Board of Directors shall consist of not less than three nor more than eleven persons, the exact number to be fixed from time to time by the Board of Directors pursuant to a resolution adopted by a majority vote of the directors then in office. The directors shall be elected in the manner provided in the Articles of Organization, by such stockholders as have the right to vote thereon.

Section 2. Nominations. Nominations for the election of directors may be made by the Board of Directors or a committee appointed by the Board of Directors or by any stockholder entitled to vote in the election of directors generally. However, any stockholder entitled to vote in the election of directors generally may nominate one or more persons for election as directors at a meeting only if written notice of such stockholder's intent to make such nomination or nominations has been given, either by personal delivery or by mailing it, postage prepaid, to the Clerk of the Corporation not later than (a) with respect to an election to be held at an annual meeting of stockholders, ninety (90) days prior to the anniversary date of the immediately preceding annual meeting, and (b) with respect to an election to be held at a special meeting of stockholders for the election of directors, the close of business on the tenth day following the date on which notice of such meeting is first given to stockholders. Each such notice shall set forth (i) the name and address of the stockholder who intends to make the nomination and of the person or persons to be nominated; (ii) a representation that the stockholder is a holder of record of stock of the Corporation entitled to vote at such meeting and intends to appear in person or by proxy at the meeting to nominate the person or persons specified in the notice; (iii) a description of all arrangements or understandings between the stockholder and each nominee and any other person or persons (naming such person or persons) pursuant to which the nomination or nominations are to be made by the stockholder; (iv) such other information regarding each nominee proposed by such stockholder as would be required to be included in a proxy statement filed pursuant to the proxy rules of the Securities and Exchange Commission; and (v) the consent of each nominee to serve as a director of the Corporation if so elected. The presiding officer of the meeting may refuse to acknowledge the nomination of any person not made in compliance with the foregoing procedure.

Section 3. Newly Created Directorships and Vacancies. Newly created directorships and vacancies on the Board of Directors shall be filled as provided in the Articles of Organization.

Section 4. Removal of Directors. Directors may be removed from office only as provided in the Articles of Organization.

Section 5. Directors Elected by Holders of Preferred Stock. Whenever the holders of any class or series of Preferred Stock or of any other class or series of shares issued by the Corporation shall have the right, voting separately as a class or series, to elect one or more directors under specified circumstances, the election, term of office, filling of vacancies, and other features of such directorships shall be governed by the terms of the Articles of Organization applicable thereto, and none of the provisions of Sections 1 to 4 of this Article II shall apply with respect to directors so elected.

Section 6. Resignations. Any director, member of a committee, or officer may resign at any time by delivering his resignation in writing to the Chairman of the Board, the President, the Clerk, or to a meeting of the Board of Directors. Such resignation shall be effective upon receipt unless specified to be effective at some other time.

Section 7. Powers. Except as reserved to the stockholders by law, by the Articles of Organization, or by these By-Laws, the business of the Corporation shall be managed by the Board of Directors who shall have and may exercise all the powers of the Corporation.

Section 8. Proxy Access for Director Nominations.

(a) Information to be Included in the Corporation's Proxy Materials. Whenever the Board of Directors solicits proxies with respect to the election of directors at an annual meeting of stockholders (following the 2016 annual meeting of stockholders), subject to the provisions of this Section 8, the Corporation shall include in its proxy statement for such annual meeting, in addition to any persons nominated for election by the Board of Directors or a committee appointed by the Board of Directors, the name, together with the Required Information (as defined below), of any person to be nominated for election to the Board of Directors by a stockholder pursuant to Section 2 of this Article II (a "Stockholder Nominee") if (i) the stockholder of record who intends to make the nomination qualifies as, or is acting on behalf of, an Eligible Stockholder (as defined in Section 8(c) of this Article II), (ii) the Eligible Stockholder expressly elects, in a written statement accompanying the notice required by Section 2 of this Article II (a "Nomination Notice"), to have its Stockholder Nominee included in the Corporation's proxy materials pursuant to this Section 8 and (iii) all of the other requirements set forth in this Section 8 and in Section 2 of this Article II are satisfied. For purposes of this Section 8, the "Required Information" that the Corporation will include in its proxy statement is (A) the information provided to the Clerk of the Corporation concerning the Stockholder Nominee and the Eligible Stockholder that is required to be disclosed in the Corporation's proxy statement pursuant to Section 14 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the rules and regulations promulgated thereunder, and (B) if the Eligible Stockholder so elects, a Supporting Statement (as defined in Section 8(g) of this Article II). For the avoidance of doubt, nothing in this Section 8 shall limit the Corporation's ability to solicit against any Stockholder Nominee or include in its proxy materials the Corporation's own statements or other information relating to any Eligible Stockholder or Stockholder Nominee, including any information provided to the Corporation pursuant to this Section 8. Subject to the provisions of this Section 8, the name of any Stockholder Nominee included in the Corporation's proxy statement for an annual meeting of stockholders shall also be set forth on the form of proxy distributed by the Corporation in connection with such annual meeting.

- (b) **Permitted Number of Stockholder Nominees.** The maximum number of Stockholder Nominees that will be included in the Corporation's proxy materials with respect to an annual meeting of stockholders shall not exceed the greater of (i) two or (ii) 20% of the number of directors in office as of the last day on which a Nomination Notice may be delivered pursuant to Section 2 of this Article II (the "Final Proxy Access Date") or, if such amount is not a whole number, the closest whole number below 20% (such greater number, as it may be adjusted pursuant to this Section 8(b)), the "Permitted Number"). In the event that one or more vacancies for any reason occurs on the Board of Directors after the Final Proxy Access Date but before the date of the annual meeting and the Board of Directors resolves to reduce the size of the Board of Directors in connection therewith, the Permitted Number shall be calculated based on the number of directors in office as so reduced. In addition, the Permitted Number shall be reduced by (i) the number of individuals who will be included in the Corporation's proxy materials as nominees recommended by the Board of Directors pursuant to an agreement, arrangement or other understanding with a stockholder or group of stockholders (other than any such agreement, arrangement or understanding entered into in connection with an acquisition of stock from the Corporation by such stockholder or group of stockholders), together with the number of directors in office as of the Final Proxy Access Date who were either elected by the Board of Directors to fill a vacancy pursuant to such an agreement, arrangement or other understanding, or included in the Corporation's proxy materials as nominees recommended by the Board of Directors pursuant to such an agreement, arrangement or other understanding for any of the two preceding annual meetings of stockholders, and whose remaining terms extend beyond the upcoming annual meeting, and (ii) the number of directors in office as of the Final Proxy Access Date who were included in the Corporation's proxy materials as Stockholder Nominees pursuant to the immediately succeeding sentence) and whose remaining terms extend beyond the upcoming annual meeting. For purposes of determining when the Permitted Number has been reached, any individual requested by an Eligible Stockholder to be included in the Corporation's proxy materials pursuant to this Section 8 whose nomination is subsequently withdrawn or whom the Board of Directors decides to nominate for election to the Board of Directors shall be counted as one of the Stockholder Nominees. Any Eligible Stockholder requesting that more than one Stockholder Nominee be included in the Corporation's proxy materials pursuant to this Section 8 shall rank such Stockholder Nominees based on the order in which the Eligible Stockholder desires such Stockholder Nominees to be selected for inclusion in the Corporation's proxy materials in the event that the total number of Stockholder Nominees requested by Eligible Stockholders to be included in the Corporation's proxy materials pursuant to this Section 8 exceeds the Permitted Number. In the event that the number of Stockholder Nominees requested by Eligible Stockholders to be included in the Corporation's proxy materials pursuant to this Section 8 exceeds the Permitted Number, the highest ranking Stockholder Nominee who meets the requirements of this Section 8 from each Eligible Stockholder will be selected for inclusion in the Corporation's proxy materials until the Permitted Number is reached, going in order of the amount (largest to smallest) of shares of stock of the Corporation each Eligible Stockholder disclosed as owned in its Nomination Notice. If the Permitted Number is not reached after the highest ranking Stockholder Nominee who meets the requirements of this Section 8 from each Eligible Stockholder has been selected, then the next highest ranking Stockholder Nominee who meets the requirements of this Section 8 from each Eligible Stockholder will be selected for inclusion in the Corporation's proxy materials, and this process will continue as many times as necessary, following the same order each time, until the Permitted Number is reached. Notwithstanding anything to the contrary contained in this Section 8, the Corporation shall not be required to include any Stockholder Nominees in its proxy materials pursuant to this Section 8 for any meeting of stockholders for which the Corporation receives a Nomination Notice (whether or not subsequently withdrawn) and the stockholder by whom or on whose behalf the nomination is to be made does not expressly elect, in a written statement accompanying the Nomination Notice, to have its Stockholder Nominee included in the Corporation's proxy materials pursuant to this Section 8.
- (c) **Eligible Stockholder.** An "Eligible Stockholder" is a stockholder or a group of no more than 20 stockholders (counting as one stockholder, for this purpose, any two or more funds that are part of the same Qualifying Fund Group (as defined below)) that (i) has Owned (as defined in Section 8(d) of this Article II) continuously for at least three years (the "Minimum Holding Period") a number of shares of stock of the Corporation that represents at least three percent of the voting power of the outstanding shares of stock as of the date the Nomination Notice is delivered to or mailed and received by the Clerk of the Corporation in accordance with Section 2 of this Article II (the "Required Shares") and (ii) continues to Own the Required Shares through the date of the annual meeting. A "Qualifying Fund Group" is any two or more funds that are (A) under common management and investment control, (B) under common management and funded primarily by the same employer or (C) a "group of investment companies" as such term is defined in Section 12(d)(1)(G)(ii) of the Investment Company Act of 1940, as amended. Whenever the Eligible Stockholder consists of a group of stockholders (including a group of funds that are part of the same Qualifying Fund Group), (1) each provision in this Section 8 that requires the Eligible Stockholder to provide any written statements, representations, undertakings, agreements or other instruments or to meet any other conditions shall be deemed to require each stockholder (including each individual fund within a Qualifying Fund Group) that is a member of such group to provide such statements, representations, undertakings, agreements or other instruments and to meet such other conditions (except that the members of such group may aggregate the shares that each member has Owned continuously for the Minimum Holding Period in order to meet the three percent Ownership requirement of the "Required Shares" definition) and (2) a breach of any obligation, agreement or representation under this Section 8 by any member of such group shall be deemed a breach by the Eligible Stockholder. No person may be a member of more than one group of stockholders constituting an Eligible Stockholder with respect to any annual meeting.
- (d) **Definition of Ownership.** For purposes of this Section 8, a stockholder shall be deemed to "Own" only those outstanding shares of stock of the Corporation as to which the stockholder possesses both (i) the full voting and investment rights pertaining to the shares and (ii) the full economic interest in (including the opportunity for profit from and risk of loss on) such shares; provided that the number of shares calculated in accordance with clauses (i) and (ii) shall not include any shares (A) sold by such stockholder or any of its affiliates in any transaction that has not been settled or closed, (B) borrowed by such stockholder or any of its affiliates for any purposes or purchased by such stockholder or any of its affiliates pursuant to an agreement to resell, or (C) subject to any option, warrant, forward contract, swap, contract of sale, or other derivative or similar instrument or agreement entered into by such stockholder or any of its affiliates, whether any such instrument or agreement

is to be settled with shares or with cash based on the notional amount or value of shares of outstanding capital stock of the Corporation, in any such case which instrument or agreement has, or is intended to have, the purpose or effect of (1) reducing in any manner, to any extent or at any time in the future, such stockholder's or its affiliates' full right to vote or direct the voting of any such shares or (2) hedging, offsetting or altering to any degree any gain or loss realized or realizable from maintaining the full economic ownership of such shares by such stockholder or affiliate. For purposes of this Section 8, a beneficial owner shall be considered a "stockholder" and shall "Own" shares held in the name of a nominee or other intermediary so long as such person retains the right to instruct how the shares are voted with respect to the election of directors and possesses the full economic interest in the shares. A stockholder's Ownership of shares shall be deemed to continue during any period in which (i) the stockholder has loaned such shares, provided that the stockholder has the power to recall such loaned shares on five business days' notice and includes with its Nomination Notice an agreement that it (A) will promptly recall such loaned shares upon being notified that any of its Stockholder Nominees will be included in the Corporation's proxy materials and (B) will continue to hold such shares through the date of the annual meeting, or (ii) the stockholder has delegated any voting power by means of a proxy, power of attorney or other instrument or arrangement that is revocable at any time by the stockholder. The terms "Owned," "Owning" and other variations of the word "Own" shall have correlative meanings. Whether outstanding shares of stock of the Corporation are "Owned" for these purposes shall be determined by the Board of Directors. For purposes of this Section 8, the term "affiliate" or "affiliates" shall have the meaning ascribed thereto under the General Rules and Regulations under the Exchange Act.

- (e) Information to be Included with a Nomination Notice. In addition to containing the information, representations and other documents required to be set forth in a Nomination Notice pursuant to Section 2 of this Article II, in order for a Stockholder Nominee to be eligible for inclusion in the Corporation's proxy materials pursuant to this Section 8, the Nomination Notice must also set forth or be accompanied by the following:
- (i) A written statement by the Eligible Stockholder setting forth and certifying as to the number of shares of stock it Owns and has Owned continuously for the Minimum Holding Period;
 - (ii) one or more written statements from the record holder of the Required Shares (and from each intermediary through which the Required Shares are or have been held during the Minimum Holding Period) verifying that, as of a date within seven calendar days prior to the date the Nomination Notice is delivered to or mailed and received by the Clerk of the Corporation in accordance with Section 2 of this Article II, the Eligible Stockholder Owns, and has Owned continuously for the Minimum Holding Period, the Required Shares, and the Eligible Stockholder's agreement to provide, within five business days following the later of the record date for the determination of stockholders certified to vote at the annual meeting and the date notice of the record date is first publicly disclosed, one or more written statements from the record holder and such intermediaries verifying the Eligible Stockholder's continuous Ownership of the Required Shares through the record date;
 - (iii) a copy of the Schedule 14N that has been or is concurrently being filed with the Securities and Exchange Commission as required by Rule 14a-18 under the Exchange Act;
 - (iv) a representation and agreement that the Eligible Stockholder (A) will continue to hold the Required Shares through the date of the annual meeting, (B) acquired the Required Shares in the ordinary course of business and not with the intent to change or influence control of the Corporation, and does not presently have such intent, (C) has not nominated and will not nominate for election to the Board of Directors at the annual meeting any person whom it has not requested be included in the Corporation's proxy materials pursuant to this Section 8, (D) has not engaged and will not engage in, and has not and will not be a "participant" in another person's, "solicitation" within the meaning of Rule 14a-1(l) under the Exchange Act in support of the election of any individual as a director at the annual meeting other than its Stockholder Nominee(s) or a nominee of the Board of Directors, (E) has not distributed and will not distribute to any stockholder of the Corporation any form of proxy for the annual meeting other than the form distributed by the Corporation, (F) has complied and will comply with all laws and regulations applicable to solicitations and the use, if any, of soliciting material in connection with the annual meeting and (G) has provided and will provide facts, statements and other information in all communications with the Corporation and its stockholders that are or will be true and correct in all material respects and do not and will not omit to state a material fact necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading;
 - (v) an undertaking that the Eligible Stockholder agrees to (A) assume all liability stemming from any legal or regulatory violation arising out of the Eligible Stockholder's communications with the stockholders of the Corporation or out of the information provided to the Corporation by or on behalf of the Eligible Stockholder, (B) indemnify and hold harmless the Corporation and each of its directors, officers and employees individually against any liability, loss or damages in connection with any threatened or pending action, suit or proceeding, whether legal, administrative or investigative, against the Corporation or any of its directors, officers or employees arising out of any nomination of any person for election to the Board of Directors submitted by or on behalf of the Eligible Stockholder or any solicitation or other activity in connection therewith, and (C) file with the Securities and Exchange Commission any solicitation or other communication with the stockholders of the Corporation relating to the meeting at which its Stockholder Nominee(s) will be nominated, regardless of whether any such filing is required under Regulation 14A of the Exchange Act or whether any exemption from filing is available for such solicitation or other communication under Regulation 14A of the Exchange Act;
 - (vi) a written representation and agreement from each Stockholder Nominee that such Stockholder Nominee (A) is not and will not become a party to (1) any agreement, arrangement or understanding with, and has not given any commitment or assurance to, any person or entity as to how such Stockholder Nominee, if elected as a director of the Corporation, will act or vote on any issue or question (a "Voting Commitment") that has not been disclosed to the Corporation in such representation and agreement or (2) any Voting Commitment that could limit or interfere with such person's ability to comply, if elected as a director of the Corporation, with such person's fiduciary duties under applicable law, (B) is not and will not become a party to any agreement, arrangement or understanding with any person or

entity other than the Corporation with respect to any direct or indirect compensation, reimbursement or indemnification in connection with such person's nomination or service or action as a director that has not been disclosed to the Corporation in such representation and agreement, (C) would be in compliance, if elected as a director of the Corporation, and will comply with the Corporation's code of business conduct and ethics, corporate governance guidelines, stock ownership and trading policies and guidelines and any other policies or guidelines of the Corporation applicable to directors and (D) will make such other acknowledgments, enter into such agreements and provide such information as the Board of Directors requires of all directors, including promptly submitting all completed and signed questionnaires required of the Corporation's directors;

- (vii) if the Eligible Stockholder consists of a group of stockholders, the designation by all group members of one member of the group that is authorized to receive communications, notices and inquiries from the Corporation and to act on behalf of all members of the group with respect to all matters relating to the request under this Section 8 (including withdrawal of the nomination); and
 - (viii) if two or more funds that are part of the same Qualifying Fund Group are intended to be counted as one stockholder for purposes of qualifying as an Eligible Stockholder, documentation reasonably satisfactory to the Corporation that demonstrates that the funds are part of the same Qualifying Fund Group.
- (f) Additional Required Information. In addition to the information required pursuant to Section 8(e) of this Article II or any other provision of these By-Laws, the Corporation may require (i) any proposed Stockholder Nominee requested to be included in the Corporation's proxy materials to furnish any other information (A) that may reasonably be requested by the Corporation to determine whether the Stockholder Nominee would be independent under the Independence Standards (as defined in Section 8(i) of this Article II), (B) that could be material to a reasonable stockholder's understanding of the independence, or lack thereof, of such Stockholder Nominee or (C) that may reasonably be requested by the Corporation to determine the eligibility of such Stockholder Nominee to be included in the Corporation's proxy materials pursuant to this Section 8 or to serve as a director of the Corporation, and (ii) any Eligible Stockholder to furnish any other information that may reasonably be requested by the Corporation to verify the Eligible Stockholder's continuous ownership of the Required Shares for the Minimum Holding Period and through the date of the annual meeting.
 - (g) Supporting Statement. The Eligible Stockholder may, at its option, provide to the Clerk of the Corporation, at the time the Nomination Notice is provided, a written statement, not to exceed 500 words, in support of its Stockholder Nominee(s)' candidacy (a "Supporting Statement"). Only one Supporting Statement may be submitted by an Eligible Stockholder (including any group of stockholders together constituting an Eligible Stockholder) in support of its Stockholder Nominee(s). Notwithstanding anything to the contrary contained in this Section 8, the Corporation may omit from its proxy materials any information or Supporting Statement (or portion thereof) that it, in good faith, believes would violate any applicable law, rule or regulation.
 - (h) Correction of Defects; Updates and Supplements. In the event that any information or communications provided by or on behalf of an Eligible Stockholder or a Stockholder Nominee to the Corporation or its stockholders ceases to be true and correct in all material respects or omits to state a material fact necessary to make the statements made, in light of the circumstances under which they were made, not misleading, such Eligible Stockholder or Stockholder Nominee, as the case may be, shall promptly notify the Clerk of the Corporation of any such defect and of the information that is required to correct any such defect. Without limiting the foregoing, an Eligible Stockholder must provide immediate notice to the Corporation if the Eligible Stockholder ceases to Own any of the Required Shares prior to the date of the annual meeting. For the avoidance of doubt, no notification, update or supplement provided pursuant to this Section 8(h) shall be deemed to cure any defect in any previously provided information or communications or limit the remedies available to the Corporation relating to any such defect (including the right to omit a Stockholder Nominee from its proxy materials pursuant to this Section 8).
 - (i) Stockholder Nominee Eligibility. Notwithstanding anything to the contrary contained in this Section 8, the Corporation shall not be required to include in its proxy materials, pursuant to this Section 8, a Stockholder Nominee (j) who would not be an independent director under the rules and listing standards of the United States securities exchanges upon which the capital stock of the Corporation is listed or traded, any applicable rules of the Securities and Exchange Commission, or any publicly disclosed standards used by the Board of Directors in determining and disclosing the independence of the Corporation's directors (collectively, the "Independence Standards"), (ii) whose election as a member of the Board of Directors would cause the Corporation to be in violation of these By-Laws, the Articles of Organization, the rules and listing standards of the United States securities exchanges upon which the capital stock of the Corporation is listed or traded, or any applicable law, rule or regulation, (iii) who is or has been, within the past three years, an officer or director of a competitor, as defined in Section 8 of the Clayton Antitrust Act of 1914, (iv) who is a named subject of a pending criminal proceeding (excluding traffic violations and other minor offenses) or has been convicted in such a criminal proceeding within the past 10 years, (v) who is subject to any order of the type specified in Rule 506(d) of Regulation D promulgated under the Securities Act of 1933, as amended, or (vi) who shall have provided any information to the Corporation or its stockholders that was untrue in any material respect or that omitted to state a material fact necessary to make the statements made, in light of the circumstances in which they were made, not misleading.
 - (j) Omission and Removal of Stockholder Nominees. Notwithstanding anything to the contrary set forth herein, if (i) a Stockholder Nominee and/or the applicable Eligible Stockholder breaches any of its representations, agreements or undertakings or fails to comply with any of its obligations under this Section 8 or Section 2 of this Article II, or (ii) a Stockholder Nominee otherwise becomes ineligible for inclusion in the Corporation's proxy materials pursuant to this Section 8 or dies, becomes disabled or otherwise becomes ineligible or unavailable for election at the annual meeting, in each case as determined by the Board of Directors or the presiding officer of the annual meeting, then (A) the Corporation may omit or, to the extent feasible, remove the information concerning such Stockholder Nominee and the related Supporting Statement from its proxy materials and otherwise communicate to its stockholders that such Stockholder Nominee will not be eligible for election at the annual meeting and, (B) the Corporation shall not be required to include in its proxy materials any successor or replacement nominee proposed by the applicable Eligible Stockholder or any other Eligible Stockholder.

- (k) Restrictions on Re-Nominations. Any Stockholder Nominee who is included in the Corporation's proxy materials for a particular annual meeting of stockholders but either (i) withdraws from or becomes ineligible or unavailable for election at the annual meeting, or (ii) does not receive at least 10% of the votes cast in favor of such Stockholder Nominee's election, will be ineligible to be included in the Corporation's proxy materials pursuant to this Section 8 for the next two annual meetings of stockholders.
- (l) General. This Section 8 provides the exclusive method for a stockholder to include nominees for election to the Board of Directors in the Corporation's proxy materials.

Section 9. Other Committees. The Board of Directors may, by vote of a majority of the directors then in office, elect from their number other committees and may delegate to any such committee or committees some or all of the powers of the Board of Directors except those powers which by law, by the Articles of Organization, or by these By-Laws they are prohibited from delegating. Except as the Board of Directors may otherwise determine, each committee may make rules for the conduct of its business, but unless otherwise provided by the Board of Directors or such rules, its business shall be conducted as nearly as may be in the same manner as is provided by these By-Laws for the conduct of business by the Board of Directors. The Board of Directors shall have the power to rescind any vote, resolution, or other action of any committee, provided that the rights of third parties shall not be impaired by such rescission.

Section 10. Regular Meetings. A regular meeting of the Board of Directors shall be held without call or notice immediately after and at the same place as the annual meeting of the stockholders. Other regular meetings of the Board of Directors may be held without call or notice at such places and at such times as the Board of Directors may, from time to time, determine, provided that notice of the first regular meeting following any such determination shall be given to absent directors.

Section 11. Special Meetings. Special meetings of the Board of Directors may be held at any time and at any place designated in the call of the meeting, when called by the Chairman of the Board, the President, or by two or more directors.

Section 12. Notice of the Meetings. It shall be sufficient notice to a director of a meeting of the Board of Directors (i) to send notice by mail at least forty-eight (48) hours before the meeting, addressed to such directors at his usual or last known business or residence address, (ii) to send notice by electronic mail (to the electronic mail address designated by such director) at least twenty-four (24) hours before the meeting, or (iii) to give notice to such director in person or by telephone at least twenty-four (24) hours before the meeting. A director may waive any notice before or after the date and time of the meeting. The waiver shall be in writing, signed by the director entitled to the notice, or in the form of an electronic transmission by the director to a representative of the Corporation, and filed with the minutes or corporate records. A director's attendance at or participation in a meeting waives any required notice to him or her of the meeting unless the director at the beginning of the meeting, or promptly upon his or her arrival, objects to holding the meeting or transacting business at the meeting and does not thereafter vote for or assent to action taken at the meeting. Neither notice of a meeting nor a waiver of a notice need specify the purposes of the meeting.

Section 13. Quorum of Directors. At any meeting of the Board of Directors, a majority of the directors then in office shall constitute a quorum. Any meeting may be adjourned from time to time by a majority of the votes cast upon the question, whether or not a quorum is present, and the meeting may be held as adjourned without further notice.

Section 14. Action by Vote. When a quorum is present at any meeting, a majority of the directors present may take any action, except when a larger vote is required by law, by the Articles of Organization, or by these By-Laws.

Section 15. Action by Written Consent. Unless the Articles of Organization otherwise provide, any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting if all the directors or members of the committee as the case may be, consent to the action. The action must be evidenced by one or more consents describing the action taken, in writing, signed by each director or delivered to the Corporation by electronic transmission, and included in the minutes or filed with the corporate records reflecting the action taken. Such consents shall be treated for all purposes as a vote taken at a meeting.

Section 16. Participation Through Communications Equipment. Unless otherwise provided by law or the Articles of Organization, members of the Board of Directors or of any committee thereof may participate in a meeting of such Board or committee, as the case may be, through conference telephone or similar communications equipment by means of which all persons participating in the meeting can hear each other at the same time, and participation by such means shall constitute presence in person at a meeting.

Section 17. Compensation of Directors. The Board of Directors may provide for the payment to any of the directors, other than officers or employees of the Corporation, of a specified amount for services as a director or member of a committee of the Board, or of a specified amount for attendance at each regular or special Board or committee meeting or of both, and all directors shall be reimbursed for expenses of attendance at any such meeting; provided, however, that nothing herein contained shall be construed to preclude any director from serving the Corporation in any other capacity and receiving compensation therefor.

ARTICLE III

Officers and Agents

Section 1. Enumeration; Qualification. The officers of the Corporation shall be a President, a Treasurer, a Secretary, who may also be referred to in these By-Laws as the Clerk, and such other officers, including, without limitation, a Chairman of the Board, one or more Vice Presidents, Assistant Treasurers, and Assistant Clerks as the Board of Directors from time to time may in their discretion elect or appoint. In addition,

the Corporation shall have such other agents as may be appointed by management in accordance with these By-Laws. The Chairman of the Board shall be a director. The President need not be a director. Any two or more offices may be held by the same person.

Section 2. Powers. Subject to law, to the Articles of Organization, and to the other provisions of these By-Laws, each officer shall have, in addition to the duties and powers herein set forth, such duties and powers as are commonly incident to his office and such duties and powers as the Board of Directors may from time to time designate.

Section 3. Election. The Chairman of the Board, if any, the President, the Treasurer, and the Clerk shall be elected annually by the Board of Directors at their first meeting following the annual meeting of the stockholders. Other officers, if any, may be elected or appointed by the Board of Directors at said meeting or at any other time.

Section 4. Tenure. Except as otherwise provided by law, by the Articles of Organization, or by these By-Laws, the Chairman of the Board, if any, the President, the Treasurer, and the Clerk shall hold office until the first meeting of the Board of Directors following the next annual meeting of the stockholders and until their respective successors are chosen and qualified, and each other officer shall hold office for such term as may be designated in the vote electing or appointing him, or in each case until such officer sooner dies, resigns, is removed, or becomes disqualified.

Section 5. Chief Executive Officer. The Chief Executive Officer of the Corporation shall be the Chairman of the Board, the President, or such other officer as may from time to time be designated by the Board of Directors. If no such designation is made, the President shall be the Chief Executive Officer. The Chief Executive Officer shall, subject to the control of the Board of Directors, have general charge and supervision of the business of the Corporation and, except as the Board of Directors shall otherwise determine, shall preside at all meetings of the stockholders and of the Executive Committee. Unless otherwise determined by the Board of Directors, the Chief Executive Officer shall have the authority to appoint such agents, in addition to those officers enumerated in Section 2 of this Article III as being elected or appointed by the Board of Directors, as he shall deem appropriate and to define their respective duties and powers.

Section 6. Chairman of the Board. If a Chairman of the Board of Directors is elected, he shall preside at all meetings of the Board of Directors and shall have the duties and powers specified in these By-Laws and such other duties and powers as may be determined by the Board of Directors.

Section 7. President and Vice Presidents. The President shall have the duties and powers specified in these By-Laws and shall have such other duties and powers as may be determined by the Board of Directors.

The Vice Presidents shall have such duties and powers as shall be designated from time to time by the Board of Directors. Unless the Board of Directors otherwise determines, one Vice President shall be designated as the Chief Financial officer of the Corporation and, as such, shall be the chief financial and accounting officer of the Corporation and shall have the duties and powers commonly incident thereto.

Section 8. Treasurer and Assistant Treasurers. The Treasurer shall have general responsibility for the corporate treasury function, shall be in charge of its funds and valuable papers, books of account, and accounting records, and shall have such other duties and powers as may be designated from time to time by the Board of Directors.

Any Assistant Treasurer shall have such duties and powers as shall be designated from time to time by the Board of Directors or the Treasurer.

Section 9. Clerk and Assistant Clerks. The Clerk shall record all proceedings of the stockholders and Board of Directors in a book or series of books to be kept for that purpose, which book or books shall be kept as the principal office of the Corporation and shall be open at all reasonable times to the inspection of any stockholder. In the absence of the Clerk from any meeting of the stockholders or Board of Directors, an Assistant Clerk, or if there be none or he is absent, a temporary clerk chosen at the meeting, shall record the proceedings thereof in the aforesaid book.

Any Assistant Clerks shall have such other duties and powers as shall be designated from time by the Board of Directors or the Clerk.

ARTICLE IV

Capital Stock

Section 1. Stock Certificates. The Board of Directors may authorize the issue without certificates of some or all of the shares of any or all of the Corporation's classes or series of stock. Except to the extent the Board of Directors has determined to issue shares without certificates, a stockholder shall be entitled to a certificate stating the number and the class and the designation of the series, if any, of the shares held by him, in such form as shall, in conformity to law, be prescribed from time to time by the Board of Directors. Such certificate shall be signed by the President or a Vice President and by the Treasurer or an Assistant Treasurer. Such signatures may be facsimile if the certificate is signed by a transfer agent, or by a registrar, other than a director, officer, or employee of the Corporation. In case any officer who has signed or whose facsimile signature has been placed on such certificate shall have ceased to be such officer before such certificate is issued, it may be issued by the Corporation with the same effect as if he were such officer at the time of its issue.

Every certificate for shares of stock which are subject to any restriction on transfer pursuant to the Articles of Organization, these By-Laws, or any agreement to which the Corporation is a party shall have the existence of the restriction noted conspicuously on the certificate and shall also set forth on the face or back either a summary of the restriction or a statement of the existence of such restriction and a statement that the Corporation will, upon written request, furnish a copy thereof to the holder of such certificate without charge.

Every certificate issued when the Corporation is authorized to issue more than one class or series of stock shall set forth on its face or back either a summary of the preferences, voting powers, qualifications, and special and relative rights of the shares of each class and series authorized to be issued or a statement of the existence of such preferences, powers, qualifications, and rights and a statement that the Corporation will, upon written request, furnish a copy thereof to the holder of such certificate without charge.

Section 2. Lost Certificates. In the case of the alleged loss, destruction, or mutilation of a certificate of stock, a duplicate certificate may be issued in place thereof, upon such conditions as the Board of Directors may prescribe. When authorizing such issue of a new certificate, the Board may in its discretion require the owner of such lost, destroyed, or mutilated certificate, or his legal representative, to give the Corporation a bond, with or without surety, sufficient in the Board's opinion to indemnify the Corporation against any loss or claim that may be made against it with respect to the certificate alleged to have been lost, destroyed, or mutilated.

Section 3. Transfer of Shares. Subject to the restrictions, if any, stated or noted on the stock certificates, shares of stock may be transferred on the books of the Corporation by the surrender to the Corporation or its transfer agent of the certificate therefor properly endorsed or accompanied by a written assignment and power of attorney properly executed with necessary transfer stamps affixed, and with such proof of the authenticity of signature as the Board of Directors or the transfer agent of the Corporation may reasonably require. Except as may be otherwise required by law, by the Articles of Organization, or by these By-Laws, the Corporation shall be entitled to treat the record holder of stock as shown on its books as the owner of such stock for all purposes, including the payment of dividends and the right to receive notice and to vote with respect thereto, regardless of any transfer, pledge, or other disposition of such stock, until the shares have been transferred on the books of the stock, until the shares have been transferred on the books of the Corporation in accordance with the requirements of these By-Laws.

Section 4. Record Date and Closing Transfer Books. The Board of Directors may fix in advance a time, which shall not be more than sixty (60) days before the date of any meeting of stockholders or the date for the payment of any dividend or making of any distribution to stockholders or the last day on which the consent or dissent of stockholders may be effectively expressed for any purpose, as the record date for determining the stockholders having the right to notice of and to vote at such meeting and any adjournment thereof or the right to receive such dividend or distribution or the right to give such consent or dissent, and in such case only stockholders of record on such record date shall have such right, notwithstanding any transfer of stock on the books of the Corporation after the record date; or without fixing such record date the Board of Directors may for any such purposes close the transfer books for all or any part of such period.

If no record date is fixed and the transfer books are not closed, the record date for determining stockholders having the right to notice of or to vote at a meeting of stockholders shall be at the close of business on the date next preceding the day on which notice is given, and the record date for determining stockholders for any other purpose shall be at the close of business on the date on which the Board of Directors acts with respect thereto.

ARTICLE V

Indemnification

Section 1. Directors and Officers. The Corporation shall indemnify, and advance funds to pay for or reimburse the reasonable expenses incurred by, its directors and the officers that have been appointed by the Board of Directors (including persons who serve at its request as directors, officers, or trustees of another organization in which it has any interest, direct or indirect, as a shareholder, creditor, or otherwise or who serve at its request in any capacity with respect to any employee benefit plan) to the fullest extent permitted by law, and may indemnify, and advance funds to pay for or reimburse the reasonable expenses incurred by, such other employees and agents as are identified by the Board of Directors.

The right of indemnification hereby provided shall not be exclusive of or affect any other rights to which any director or officer may be entitled. As used in this section, the terms "director" and "officer" include their respective heirs, executors, and administrators, an "interested" director or officer is one against whom in such capacity the proceedings in question or another proceeding on the same or similar grounds is then pending or threatened, and a "disinterested" director is one against whom no such proceeding is then pending or threatened. Nothing contained in this section shall affect any rights to indemnification to which corporate personnel other than directors and officers may be entitled by contract or otherwise under law.

The Board of Directors may authorize the purchase and maintenance of insurance, in such amounts as the Board of Directors may from time to time deem appropriate, on behalf of any person who is or was a director or officer or agent of the Corporation, or who is or was serving at the request of the Corporation as a director, officer, or agent of another organization in which it has any interest, direct or indirect, as a shareholder, creditor, or otherwise, or with respect to any employee benefit plan, against any liability incurred by him in any such capacity, or arising out of his status as such, whether or not such person is entitled to indemnification by the Corporation pursuant to this Article V or otherwise and whether or not the Corporation would have the power to indemnify him against such liability.

ARTICLE VI

Miscellaneous

Section 1. Corporate Seal. The seal of the Corporation shall be in such form as the Board of Directors may from time to time determine.

Section 2. Fiscal Year. The fiscal year of the Corporation shall be such period as shall from time to time be determined by the Board of Directors.

Section 3. [Intentionally Omitted]

Section 4. Execution of Documents. Except as the Board of Directors may generally or in specific instances authorize the execution thereof in some other manner, all deeds, leases, transfers, contracts, checks, drafts, and other orders for the payment of money out of the funds of the Corporation, and all bonds, notes, debentures, guarantees, and other obligations or evidences or indebtedness of the Corporation shall be executed by the Chairman of the Board, the President, any Vice President, or the Treasurer.

Section 5. Voting of Securities. Except as the Board of Directors may generally or in specific instances direct otherwise, the Chairman of the Board, the President, any Vice President, or the Treasurer shall have the power, in the name and on behalf of the Corporation, to waive notice of, appoint any person or persons to act as proxy or attorney-in-fact of the Corporation (with or without power of substitution) to vote at, or attend and act for the Corporation at, any meeting of holders of shares or other securities of any other organization of which the Corporation holds shares or securities.

Section 6. Appointment of Auditor. The Board of Directors, or a committee thereof, shall each year select independent public accountants to report to the stockholders on the financial statements of the Corporation for such year. The selection of such accountants shall be presented to the stockholders for their approval at the annual meeting each year; provided, however, that if the shareholders shall not approve the selection made by the Board, the Board shall appoint other independent public accountants for such year.

ARTICLE VII

Amendments

~~Except as provided in the second paragraph of this Article VII, these~~ These By-Laws may be altered, amended, or repealed, and new By-Laws not inconsistent with any provision of the Articles of organization or applicable statute may be made either by the affirmative vote of a majority of the voting power of the then outstanding shares of capital stock of the Corporation entitled to vote generally in the election of directors, voting together as a single class, at any annual or special meeting of the stockholders called for the purpose, or (except with respect to any provision hereof which by law, the Articles of Organization, or these By-Laws requires action by the stockholders) by the affirmative vote of a majority of the Board of Directors then in office. Not later than the time of giving notice of the meeting of stockholders next following the making, amending, or repealing by the Board of Directors of any By-Law, notice thereof stating the substance of such change shall be given to all stockholders entitled to vote on amending the By-Laws. Any By-Law made, amended, or repealed by the Board of Directors may be altered, amended, repealed, or reinstated by the stockholders.

~~Notwithstanding anything contained in these By-Laws to the contrary, the affirmative vote of the holders of 80% of the voting power of the then outstanding shares of capital stock of the Corporation entitled to vote generally in the election of directors, voting together as a single class, shall be required to alter, amend, adopt any provision inconsistent with, or repeal any provision of Section 1, 2, 3, or 4 of Article II of these By-Laws or this Article VII.~~

Appendix C Amended and Restated 2013 Stock and Option Plan

1. DEFINITIONS

Unless otherwise specified or unless the context otherwise requires, the following terms, as used in this Vertex Pharmaceuticals Incorporated Amended and Restated 2013 Stock and Option Plan, have the following meanings:

Accounting Rules means Financial Accounting Standards Board Accounting Standards Codification Topic 718, or any successor provision.

Administrator means the Board of Directors and/or a committee of the Board of Directors to which the Board of Directors has delegated power to act on its behalf in administering this Plan in whole or in part.

Affiliate means a corporation that, for purposes of Section 424 of the Code, is a parent or subsidiary of the Company, direct or indirect.

Board of Directors means the Board of Directors of the Company.

Code means the United States Internal Revenue Code of 1986, as amended.

Common Stock means shares of the Company's common stock, \$.01 par value.

Company means Vertex Pharmaceuticals Incorporated, a Massachusetts corporation.

Employee means an employee of the Company or of an Affiliate (including, without limitation, an employee who is also serving as an officer or director of the Company or of an Affiliate), who is designated by the Administrator to be eligible to be granted one or more Stock Rights under the Plan.

Exchange Act means the Securities Exchange Act of 1934, as amended.

Fair Market Value of a share of Common Stock on a particular date shall be the mean between the highest and lowest quoted selling prices on such date (the "valuation date") on the securities market where the Common Stock is traded, or if there were no sales on the valuation date, on the next preceding date within a reasonable period (as determined in the sole discretion of the Administrator) on which there were sales. If there were no sales in such a market within a reasonable period, the Fair Market Value shall be as determined in good faith by the Administrator in its sole discretion. The Fair Market Value as determined in this paragraph shall be rounded down to the next lower whole cent if the foregoing calculation results in fractional cents.

Full Value Award means any Stock Grant or Stock-Based Award other than Options and Stock Appreciation Rights.

ISO means an option entitling the holder to acquire Shares upon payment of the exercise price that is intended to qualify as an incentive stock option under Section 422 of the Code.

Non-Employee Director means a member of the Board of Directors who is not an employee of the Company or any Affiliate.

Non-Qualified Option means an option entitling the holder to acquire Shares upon payment of the exercise price that is not an ISO.

Option means an ISO or Non-Qualified Option.

Participant means an Employee, Non-Employee Director, consultant or advisor of the Company or an Affiliate to whom one or more Stock Rights are granted under the Plan. As used herein, "Participant" shall include "Participant's Survivors" and a Participant's permitted transferees where the context requires.

Participant's Survivors means a deceased Participant's legal representatives and/or any person or persons who acquires the Participant's rights to a Stock Right by will or by the laws of descent and distribution.

Plan means this Vertex Pharmaceuticals Incorporated Amended and Restated 2013 Stock and Option Plan, as amended from time to time.

Restricted Stock Units means an unfunded and unsecured promise, denominated in shares of Common Stock, to deliver Common Stock or cash measured by the value of Common Stock in the future, subject to the satisfaction of specified performance or other vesting conditions.

Shares means shares of the Common Stock as to which Stock Rights have been or may be granted under the Plan or any shares of capital stock into which the Shares are changed or for which they are exchanged within the provisions of the Plan.

Stock Agreement means an agreement between the Company and a Participant delivered pursuant to the Plan with respect to a Stock Right, in such form as the Administrator shall approve.

Stock Appreciation Right means a right entitling the holder upon exercise to receive an amount (payable in cash or in shares of Common Stock of equivalent value) equal to the excess of the Fair Market Value of the shares of Common Stock subject to the right over the base value (i.e., the exercise price) from which appreciation under the Stock Appreciation Right is to be measured.

Stock-Based Award means Restricted Stock Units, Stock Appreciation Rights or any other grant by the Company under the Plan of an equity award, equity-based award or other award that is convertible into Common Stock that is not an Option or Stock Grant.

Stock Grant means a grant by the Company of Shares under the Plan that may or may not be subject to restrictions requiring that the Shares underlying the Stock Grant be redelivered or offered for sale to the Company if specified service or performance-based conditions are not satisfied.

Stock Right means an Option (including an ISO or a Non-Qualified Stock Option), Stock Grant, or Stock-Based Award.

Substitute Stock Rights means Stock Rights issued under the Plan in substitution for equity awards of an acquired company that are converted, replaced or adjusted in connection with the acquisition.

Termination of Service means that a Participant ceases to be an Employee, Non-Employee Director, consultant or advisor with the Company and its Affiliates (for any reason other than death). A change in a Participant's form of service (e.g., from Employee to Non-Employee Director, consultant or advisor) shall not be a Termination of Service hereunder. Notwithstanding the foregoing, in construing the provisions applicable to any Stock Right relating to the payment of "nonqualified deferred compensation" (subject to Section 409A of the Code) upon a termination or cessation of employment or service, references to termination or cessation of employment or service, separation from service, retirement or similar or correlative terms will be construed to require a "separation from service" (as that term is defined in Section 1.409A-1(h) of the Treasury Regulations, after giving effect to the presumptions contained therein) from the Company and from all other corporations and trades or businesses, if any, that would be treated as a single "service recipient" with the Company under Section 1.409A-1(h)(3) of the Treasury Regulations.

2. PURPOSES OF THE PLAN

The Plan is intended to encourage ownership of Shares by Employees, Non-Employee Directors and certain consultants and advisors to the Company in order to attract such persons, to induce them to work for the benefit of the Company or of an Affiliate and to provide additional incentive for them to promote the success of the Company or of an Affiliate. The Plan provides for the granting of Stock Rights to Employees, Non-Employee Directors, consultants and advisors of the Company.

3. SHARES SUBJECT TO THE PLAN

The number of Shares subject to this Plan as to which Stock Rights may be granted from time to time shall be equal to the sum of:

- a. 35,875,861 shares of Common Stock; and
- b. the number of shares subject to awards granted under the Company's Amended and Restated 2006 Stock and Option Plan (the "**2006 Plan**") which expire, terminate or are otherwise surrendered, cancelled, forfeited or repurchased by the Company at their original issuance price pursuant to a contractual repurchase right (subject, however, in the case of ISOs, to any limitations under the Code),

or the equivalent of such number of Shares after the Administrator, in its sole discretion, has interpreted the effect of any stock split, stock dividend, combination, recapitalization or similar transaction in accordance with Section 17 of this Plan. Subject to Section 17 of this Plan, and the provisions of the second paragraph of this Section 3, the number of Shares remaining subject to this Plan shall be reduced by (i) one Share for each Share subject to a Stock Right granted under this Plan that is not a Full Value Award and (ii) 1.66 Shares for each Share (each, a "**Full-Value Award Share**") subject to a Stock Right granted under this Plan that is a Full Value Award.

If an Option granted hereunder ceases to be outstanding, in whole or in part (other than by exercise), or if the Company shall reacquire (at no more than its original issuance price) any Shares issued pursuant to a Stock Grant, or if any Stock Right expires or is forfeited, cancelled or otherwise terminated or results in any Shares not being issued, the unissued Shares that were subject to such Stock Right shall again be available for issuance from time to time pursuant to this Plan; *provided, however*, that, the following Shares may not again be made available for issuance under the Plan: (i) Shares that are not issued or delivered because they are applied to the payment of the exercise or purchase price of any Stock Right or to satisfy the tax withholding requirements with respect to any Stock Right, (ii) the full number of Shares underlying any Stock Appreciation Right any portion of which is settled in Shares (and not only the number of Shares delivered in settlement of the Stock Right) and (iii) any Shares that have been repurchased by the Company using proceeds directly attributable to the exercise of Options. To the extent that Shares are returned to the Plan pursuant to this Section 3, (i) 1.66 Shares, for each Full Value Award Share granted under this Plan and (ii) one Share for all other Shares (including Shares returned from the 2006 Plan in accordance with clause (b) above), shall again be available for issuance from time to time pursuant to this Plan.

The maximum number of Shares that may be issued in satisfaction of ISOs is 27,875,861 Shares.

The Administrator may grant Substitute Stock Rights under the Plan. To the extent consistent with the requirements of Section 422 of the Code and the regulations thereunder (if applicable) and other applicable legal requirements (including applicable stock exchange requirements), Common Stock issued under Substitute Stock Rights will be in addition to and will not reduce the number of Shares available for Stock Rights under the Plan set forth in this Section 3, but, notwithstanding anything in this Section 3 to the contrary, if any Substitute Stock Right is settled in cash or expires, becomes unexercisable, terminates or is forfeited to or repurchased by the Company without the issuance of Common Stock, the Shares previously subject to such Stock Right will not be available for future grants under the Plan. The Administrator will determine the extent to which the terms and conditions of the Plan apply to Substitute Stock Rights, if at all, *provided, however*, that Substitute Stock Rights will not be subject to the last sentence of Section 6.1 or the per-Participant annual limits on grants of Stock Rights described in Section 13 below.

4. ADMINISTRATION OF THE PLAN

The Administrator shall administer the Plan. Subject to the provisions of the Plan, the Administrator is authorized to:

- a. Interpret the provisions of the Plan and of any Stock Right or Stock Agreement and to make all rules and determinations that it deems necessary or desirable for the administration of the Plan;
- b. Determine which Employees, Non-Employee Directors, consultants and advisors of the Company and its Affiliates shall be granted Stock Rights;
- c. Determine the number of Shares and exercise price for which a Stock Right shall be granted;
- d. Specify the terms and conditions upon which a Stock Right or Stock Rights may be granted;
- e. In its discretion, accelerate:
 - (i) the date of exercise of any installment of any Option; or
 - (ii) the date or dates of vesting of Shares, or lapsing of Company repurchase rights with respect to any Shares, under any Stock Rights; and
- f. In its discretion, extend the period during which an Option may be exercised (but not beyond the earlier of the expiration date of the Option and the 10th anniversary of the date the Option was granted);

provided, however, that all such interpretations, rules, determinations, terms and conditions shall be made and prescribed in the context of preserving the tax status under Section 422 of the Code of those Options which are designated as ISOs (unless the holder of any such Option otherwise agrees). Subject to the foregoing, the interpretation and construction by the Administrator of any provisions of the Plan or of any Stock Right granted under it shall be final.

The Administrator may employ attorneys, consultants, accountants or other persons, and the Administrator, the Company and its officers and directors shall be entitled to rely upon the advice, opinions or valuations of such persons. All actions taken and all interpretations and determinations made by the Administrator in good faith shall be final and binding upon the Company, all Participants, and all other interested persons. Neither the Administrator, nor the Company, nor any person acting on behalf of the Administrator or the Company shall be personally liable for any action, determination, or interpretation made in good faith with respect to this Plan or grants hereunder or for any acceleration of income or additional tax (including interest and penalties) asserted by reason of the failure of a Stock Right to satisfy the requirements of Section 422 of the Code, Section 409A of the Code or by reason of Section 4999 of the Code, or otherwise with respect to a Stock Right. Each member of the Administrator shall be indemnified and held harmless by the Company against any cost or expense (including counsel fees) reasonably incurred by him or her or any liability (including any sum paid in settlement of a claim with the approval of the Company) arising out of any act or omission to act in connection with this Plan unless arising out of such member's own fraud or bad faith. Such indemnification shall be in addition to any rights of indemnification the members of the Administrator may have as directors or otherwise under the by-laws of the Company, or any agreement, vote of shareholders or disinterested directors, or otherwise.

5. ELIGIBILITY FOR PARTICIPATION

The Administrator shall, in its sole discretion, select the individuals to be the Participants in the Plan; *provided, however*, that each Participant must be an Employee, Non-Employee Director, consultant or advisor of the Company or of an Affiliate at the time a Stock Right is granted. Notwithstanding the foregoing, the Administrator may authorize the grant of a Stock Right to a person not then an Employee, Non-Employee Director, consultant or advisor of the Company or of an Affiliate; *provided, however*, that the actual grant of such Stock Right shall not be effective until such person becomes eligible to be a Participant. ISOs may be granted only to Employees. The granting of any Stock Right to any individual shall neither entitle that individual to, nor disqualify him or her from, participation in other grants of Stock Rights.

6. TERMS AND CONDITIONS OF OPTIONS

6.1 *General*. Each Option shall be set forth in writing in a Stock Agreement, duly executed by the Company and, to the extent required by law or requested by the Company, by the Participant. The Administrator may provide that Options be granted subject to such terms and conditions, consistent with the terms and conditions specifically required under this Plan, as the Administrator may deem appropriate including, without limitation, subsequent approval by the shareholders of the Company of this Plan or any amendments thereto. Each Stock Agreement shall state the exercise price (per share) of the Shares covered by each Option, the number of Shares to which it pertains, the date or dates on which it first is exercisable and the date after which it may no longer be exercised (subject to Sections 11 and 12 of this Plan). Options may vest or become exercisable in installments over a period of time, or upon the achievement of certain conditions or the attainment of stated goals or events. The exercise price per share of Shares covered by an Option (including both ISOs and Non-Qualified Options) shall not be less than one hundred percent (100%) of the Fair Market Value per share of the Common Stock on the date of grant.

6.2 *ISOs*. Each Option intended to be an ISO shall be issued only to an Employee. In addition to the provisions set forth in Section 6.1, ISOs shall be subject to the following terms and conditions, with such additional restrictions or changes as the Administrator determines are appropriate but not in conflict with Section 422 of the Code and relevant regulations and rulings of the Internal Revenue Service:

6.2.1 *ISO Exercise Price.* In addition to the limitation set forth in Section 6.1, the exercise price per share of the Shares covered by each ISO granted to a Participant who owns, directly or by reason of the applicable attribution rules in Section 424(d) of the Code, more than ten percent (10%) of the total combined voting power of all classes of stock of the Company or an Affiliate shall not be less than one hundred ten percent (110%) of the Fair Market Value on the date of grant.

6.2.2 *Term of ISO.* Each ISO shall expire not more than ten (10) years from the date of grant; *provided, however,* that an ISO granted to a Participant who owns, directly or by reason of the applicable attribution rules in Section 424(d) of the Code, more than ten percent (10%) of the total combined voting power of all classes of stock of the Company or an Affiliate shall expire not more than five (5) years from the date of grant.

6.2.3 *Annual Limit on Incentive Stock Options.* To the extent required for "incentive stock option" treatment under Section 422 of the Code, the aggregate Fair Market Value (determined as of the time of grant) of the Shares with respect to which ISOs granted under this Plan and any other plan of the Company or its Affiliate become exercisable for the first time by a Participant during any calendar year shall not exceed the aggregate threshold for ISOs established by the Code (\$100,000 as of January 1, 2018). To the extent that any Option exceeds this limit, it shall constitute a Non-Qualified Option.

6.3 *Non-Employee Directors' Options.* Each Non-Employee Director, upon first being elected or appointed to the Board of Directors, shall, in addition to any other Stock Rights as may be determined by the Board of Directors, be granted a Non-Qualified Option to purchase that number of Shares as shall be established for such Option grants from time to time by the Board of Directors. In addition, unless otherwise determined by the Board of Directors, on June 1 of each year, each Non-Employee Director shall, in addition to any other Stock Rights as may be determined by the Board of Directors, be granted a Non-Qualified Option to purchase that number of Shares as shall be established for such Option grants from time to time by the Board of Directors. If a Non-Employee Director ceases to be any of an Employee, Non-Employee Director, consultant or advisor of the Company, Options granted under this Section 6.3 shall remain exercisable to the extent such Options are exercisable on the date of such Termination of Service, for their full term, and the provisions of Sections 11 and 12 below shall not apply to any such Options.

6.4 *Term of Options.* No Option will be granted with a term in excess of ten (10) years.

7. TERMS AND CONDITIONS OF STOCK GRANTS

Each Stock Grant shall be set forth in a Stock Agreement, duly executed by the Company and, to the extent required by law or requested by the Company, by the Participant. The Stock Agreement shall be in the form approved by the Administrator, with such changes and modifications to such form as the Administrator, in its discretion, shall approve with respect to any particular Participant or Participants. The Stock Agreement shall contain terms and conditions that the Administrator determines to be appropriate. Each Stock Agreement shall state the number of Shares to which the Stock Grant pertains and the terms of any right of the Company to reacquire the Shares subject to the Stock Grant, including the time and events upon which such rights shall accrue and the purchase price therefor, and any restrictions on the transferability of such Shares.

8. TERMS AND CONDITIONS OF STOCK-BASED AWARDS

The Administrator shall have the right to grant Stock-Based Awards having such terms and conditions as the Administrator may determine, including, without limitation, the grant of Shares based upon certain conditions, the grant of securities convertible into Shares and the grant of Stock Appreciation Rights or Restricted Stock Units. The principal terms of each Stock-Based Award shall be set forth in a Stock Agreement, duly executed by the Company and, to the extent required by law or requested by the Company, by the Participant. The Stock Agreement shall be in a form approved by the Administrator and shall contain terms and conditions that the Administrator determines to be appropriate. No Stock Appreciation Right will be granted with a term in excess of ten (10) years. The base value (i.e., exercise price) of any Stock Appreciation Right shall not be less than one hundred percent (100%) of the Fair Market Value per share of the Common Stock on the date of grant.

9. EXERCISE OF OPTIONS AND STOCK APPRECIATION RIGHTS AND ISSUANCE OF SHARES

Options and Stock Appreciation Rights (or any part or installment thereof) shall be exercised by delivery to the Company, or its designee, of a notice of exercise in any form (which may be electronic) approved by the Company, together, in the case of an Option, with provision for payment of the full purchase price in accordance with this Section for the Shares as to which the Option is being exercised, and upon compliance with any other condition(s) set forth in the Stock Agreement.

Payment of the exercise price for the Shares as to which such Option is being exercised shall be made (a) in cash or by check acceptable to the Administrator, or (b) at the discretion of the Administrator, (i) through delivery of shares of Common Stock not subject to any restriction under any plan and having a Fair Market Value equal as of the date of exercise to the cash exercise price of the Option, (ii) in accordance with a cashless exercise program established with a securities brokerage firm, and approved by the Company, (iii) by any other means (excluding,

however, delivery of a promissory note of the Participant) that the Administrator determines to be consistent with the purpose of this Plan and applicable law, or (iv) by any combination of the foregoing. Notwithstanding the foregoing, the Administrator shall accept only such payment on exercise of an ISO as is permitted by Section 422 of the Code.

Following the exercise of an Option or Stock Appreciation Right, and, in the case of an Option, the payment of the exercise price, in each case in accordance with this Section 9, and the satisfaction of any tax withholding as contemplated by Section 21, the Company shall, as soon as is reasonably practicable, deliver the Shares as to which such Option or Stock Appreciation Right was exercised to the Participant (or to the Participant's Survivors, as the case may be). It is expressly understood that the Company may delay the delivery of the Shares in order to comply with any law or regulation that requires the Company to take any action with respect to the Shares prior to their issuance. The Shares shall, upon delivery, be fully paid, non-assessable Shares.

10. ASSIGNABILITY AND TRANSFERABILITY OF STOCK RIGHTS

By its terms, a Stock Right granted to a Participant shall not be transferable by the Participant other than by will or by the laws of descent and distribution or pursuant to a domestic relations order as defined by the Code or Title I of the Employee Retirement Income Security Act or the rules thereunder or as approved by the Administrator in its discretion and set forth in the applicable Stock Agreement; *provided, however*, that the Administrator shall not approve any transfer of a Stock Right for consideration. Except as provided in the preceding sentence or as otherwise permitted under a Stock Agreement, a Stock Right shall be exercisable, during the Participant's lifetime only by such Participant (or by his or her legal representative) and shall not be assigned, pledged or hypothecated in any way (whether by operation of law or otherwise) and shall not be subject to execution, attachment or similar process. Any attempted transfer, assignment, pledge, hypothecation or other disposition of any Stock Right or of any rights granted thereunder contrary to the provisions of this Plan, or the levy of any attachment or similar process upon a Stock Right, shall be null and void.

11. EFFECT ON STOCK RIGHTS OF TERMINATION OF SERVICE

11.1 Except as otherwise provided in the applicable Stock Agreement or as otherwise provided in Section 12, all Options and Stock Appreciation Rights held by a Participant, if any, immediately prior to the Participant's Termination of Service, to the extent then exercisable, will remain exercisable for ninety (90) days after the date of the Participant's Termination of Service, unless otherwise provided in the applicable Stock Agreement, but in no event after the expiration of the term of the Stock Right.

11.2 The provisions of this Section, and not the provisions of Section 12, shall apply to a Participant who subsequently dies after the Termination of Service. In the event of the death of a Participant within ninety (90) days after the Participant's Termination of Service, all Options and Stock Appreciation Rights held by the Participant, if any, immediately prior to such death, to the extent then exercisable, will remain exercisable for one (1) year after the date of the Participant's death, but in no event after the expiration of the term of the Stock Right.

11.3 Absence from work with the Company or an Affiliate because of temporary disability or a leave of absence for any purpose, shall not, during the period of any such absence in accordance with Company policies, be deemed, by virtue of such absence alone, a Termination of Service, except as the Administrator may otherwise expressly provide or except as otherwise provided by law.

11.4 Except as required by law or as set forth in a Participant's Stock Agreement and, in the case of any Stock Right that constitutes "non-qualified deferred compensation" subject to Section 409A of the Code, only to the extent consistent with Section 409A of the Code, Stock Rights granted under the Plan shall not be affected by any change of a Participant's status within or among the Company and any Affiliates, so long as the Participant continues to be an Employee, Non-Employee Director, consultant or advisor of the Company or any Affiliate.

12. EFFECT ON STOCK RIGHTS OF DEATH WHILE AN EMPLOYEE, DIRECTOR, CONSULTANT OR ADVISOR

Except as otherwise provided in a Participant's Stock Agreement, in the event of the death of a Participant while the Participant is an Employee, Non-Employee Director, consultant or advisor of the Company or of an Affiliate, (i) vesting of all unvested Shares subject to outstanding Stock Rights shall be accelerated and (ii) all Options and Stock Appreciation Rights held by the Participant, if any, immediately prior to such death, to the extent then exercisable, will remain exercisable for a period of one (1) year after the date of death of the Participant but in no event after the date of expiration of the term of the Stock Right.

13. ANNUAL LIMITS ON STOCK RIGHTS; PERFORMANCE AWARDS

13.1 *Annual Limits.* Notwithstanding anything in this Plan to the contrary, no Participant shall be granted Stock Rights under this Plan in any calendar year for more than an aggregate of 1,000,000 Shares (subject to adjustment pursuant to Section 17 to the extent consistent with Section 162(m) of the Code). For purposes of the foregoing limitation, each Share subject to a Stock Right shall be counted as one Share of

Common Stock (including each Share subject to a Full-Value Award). To the extent applicable, the foregoing provisions will be construed in a manner consistent with Section 162(m) of the Code, including, without limitation, where applicable, the rules under Section 162(m) of the Code pertaining to permissible deferrals of exempt awards.

13.2 *Performance Awards*. Stock Grants and Stock-Based Awards may be made subject to the achievement of performance goals pursuant to this Section 13.2 (“**Performance Awards**”). Grants of Performance Awards intended to qualify as “performance-based compensation” under Section 162(m) of the Code (“**Performance-Based Compensation**”) shall be made only by a “**Committee**” comprised solely of two or more directors eligible to serve on a committee making awards intended to qualify as “performance-based compensation” under Section 162(m) of the Code. For any Performance Award that is intended to qualify as Performance-Based Compensation, the Committee shall specify that the degree of granting, vesting and/or payout of the Performance Award shall be based on the relative or absolute attainment of one or any combination of the following objective performance measures: (i) revenue targets or revenue growth targets, (ii) achievement of specified milestones in the discovery, development or regulatory approval of one or more of the Company’s drug candidates, (iii) achievement of specified milestones in the commercialization of one or more of the Company’s products, (iv) achievement of specified milestones in the manufacturing of one or more of the Company’s products, (v) cost reduction or other expense control targets, (vi) personal management objectives, (vii) stock price targets (including, but not limited to, growth measures), (viii) total shareholder return, (ix) income per share, (x) operating efficiency measures, (xi) operating margin, (xii) gross margin, (xiii) return measures (including, but not limited to, return on assets, capital, equity or sales), (xiv) net or total revenue levels, (xv) productivity ratios, (xvi) operating income, (xvii) net operating profit, (xviii) net earnings or net income (before or after taxes), (xix) cash flow (including, but not limited to, operating cash flow, free cash flow and cash flow return on capital), (xx) earnings or operating income before interest, taxes, depreciation, amortization and/or stock-based compensation expense, (xxi) mergers, acquisitions or divestitures objectives, (xxii) market share, (xxiii) customer satisfaction, (xxiv) working capital targets, (xxv) budget objectives and (xxvi) achievement of other balance sheet or statement of operations objectives.

Each objective performance measure that is a financial measure may be determined pursuant to generally accepted accounting principles (“**GAAP**”) or on a non-GAAP basis, as determined by the Committee. Such objective performance measures may reflect absolute entity or business unit performance or a relative comparison to the performance of a peer group of entities, an index or indices or other external measure of the selected performance criteria and may be absolute in their terms or measured against or in relationship to other companies comparably, similarly or otherwise situated. The objective performance measures and any targets with respect thereto need not be based on an increase, a positive or improved result or the avoidance of loss.

The Committee may specify that such performance measures shall be adjusted to exclude or provide for appropriate adjustment for one or more of the following items: (A) asset impairments or write-downs; (B) litigation and governmental investigation expenses and judgments, verdicts or claim settlements; (C) the effect of changes in tax law, accounting principles or other laws, regulations or provisions affecting reported results; (D) the effect of exchange rates for non-U.S. dollar denominated net sales or goals based on operating profit, earnings or income; (E) accruals for reorganization and restructuring programs; (F) any non-GAAP adjustments as described in the Company’s earnings releases or in the management’s discussion and analysis of financial condition and results of operations appearing in the Company’s periodic reports; (G) items of income, gain, loss or expense attributable to the operations of any business acquired by the Company or any parent or subsidiary or of any joint venture established by the Company or any parent or subsidiary; (H) costs and expenses incurred in connection with mergers and acquisitions; (I) items of income, gain, loss or expense attributable to one or more business operations divested by the Company or any parent or subsidiary or the gain or loss realized upon the sale of any such divested business or the assets thereof; or (J) the effect of any change in the outstanding shares of Common Stock effected by reason of a stock split, stock dividend, stock repurchase, reorganization, recapitalization, merger, consolidation, spin-off, combination or exchange of shares or other similar corporate change or any distributions to the Company’s shareholders other than regular cash dividends.

Such performance measures: (1) may vary by Participant and may be different for different Stock Rights; (2) may be particular to a Participant or the department, branch, line of business, subsidiary or other unit in which a Participant works and may cover such performance period as may be specified by the Committee; and (3) shall be set by the Committee within the time period prescribed by, and shall otherwise comply with the requirements of, Section 162(m) of the Code.

With respect to any Performance Award that is intended to qualify as Performance-Based Compensation, the Committee may adjust downwards, but not upwards, the number of shares payable pursuant to such Performance Award, and the Committee may not waive the achievement of the applicable performance measures except in the case of the death or disability of the Participant or a change in control of the Company or as otherwise determined by the Committee.

The Committee shall have the power to impose such other restrictions on Performance Awards as it may deem necessary or appropriate to ensure that such Performance Awards satisfy all requirements for Performance-Based Compensation. Notwithstanding anything to the contrary in the Plan, except as otherwise determined by the Administrator or as permitted by Internal Revenue Service guidance, the provisions of this 13.2 that relate to Performance-Based Compensation shall not apply to Stock Rights granted on or after May 17, 2018 (the “**Amendment Date**”), provided, however, that the terms of this Section 13.2 and the terms of the Plan, as in effect on November 2, 2017, which were those same terms in effect as of immediately prior to the Amendment Date, shall continue to govern the terms of any Performance Awards and Stock Options granted prior to the Amendment Date. It is the intent of the Company that the amendment and restatement of the Plan on the Amendment Date not constitute a “material modification” of the Plan or Stock Rights granted under it prior to the Amendment Date within the meaning of Section 162(m) of the Code (and any Internal Revenue Service guidance issued thereunder) and the Plan shall be interpreted in accordance with the foregoing intent. In furtherance of the foregoing, the terms of the Plan, as amended and restated as of the Amendment Date, shall only apply to Stock Rights granted after the Amendment Date. Other than with respect to the second sentence of this paragraph,

references to “Section 162(m) of the Code” in this Section 13 shall refer to Section 162(m) of the Code as in effect prior to December 22, 2017, including the regulations thereunder and other applicable Internal Revenue Service guidance, whether promulgated or issued before or after December 22, 2017.

14. RIGHTS AS A SHAREHOLDER

No Participant to whom a Stock Right (other than a Stock Grant) has been granted shall have rights as a shareholder with respect to any Shares covered by such Stock Right, except as to Shares actually issued under the Plan.

15. EMPLOYMENT OR OTHER RELATIONSHIP

Nothing in this Plan or any Stock Agreement shall be deemed to prevent the Company or an Affiliate from terminating the employment, consultancy or director status of a Participant, or to prevent a Participant from terminating his or her own employment, consultancy or director status or to give any Participant a right to be retained in employment or other service by the Company or any Affiliate for any period of time. The loss of existing or potential profit from a Stock Right will not constitute an element of damages in the event of a termination of employment or service for any reason, even if the termination is in violation of an obligation of the Company or any Affiliate.

16. DISSOLUTION OR LIQUIDATION OF THE COMPANY

Upon the dissolution or liquidation of the Company (other than in connection with a transaction subject to the provisions of Section 17.2), all Stock Rights granted under this Plan which as of such date have not been exercised will terminate and become null and void; *provided, however*, that if the rights of a Participant or a Participant's Survivors have not otherwise terminated and expired, the Participant or Participant's Survivors will have the right immediately prior to such dissolution or liquidation to exercise any Stock Right to the extent that such Stock Right is exercisable as of the date immediately prior to such dissolution or liquidation. Upon the dissolution or liquidation of the Company, any outstanding Stock Rights shall immediately terminate unless otherwise determined by the Administrator or specifically provided in the applicable Stock Agreement.

17. ADJUSTMENTS

Upon the occurrence of any of the following events, a Participant's rights with respect to any outstanding Stock Right shall be adjusted as hereinafter provided, unless otherwise specifically provided in the Stock Agreement or in any employment agreement between a Participant and the Company or an Affiliate:

17.1 *Stock Dividends and Stock Splits.* If the shares of Common Stock shall be subdivided or combined into a greater or smaller number of shares or if the Company shall issue any shares of Common Stock as a stock dividend on its outstanding Common Stock, the number of shares of Common Stock subject to or deliverable upon the vesting or exercise of a Stock Right shall be appropriately increased or decreased, and appropriate adjustments shall be made in the purchase or exercise price per Share to reflect such event. The number of Shares subject to the limitation in Section 13.1 shall also be adjusted upon the occurrence of such events.

17.2 *Consolidations or Mergers.* In the event of a consolidation or merger in which the Company is not the surviving corporation or which results in the acquisition of substantially all the Company's outstanding stock by a single person or entity or by a group of persons and/or entities acting in concert, or in the event of the sale or transfer of substantially all the Company's assets (any of the foregoing, an “**Acquisition**”), all then outstanding Stock Rights (excluding any Shares subject to Stock Grants as to which all Company repurchase rights shall have lapsed) shall terminate unless assumed pursuant to clause (i) below; provided that either (i) the Administrator shall provide for the surviving or acquiring entity or an affiliate thereof to assume the outstanding Stock Rights or grant replacement Stock Rights in lieu thereof, any such replacement to be upon an equitable basis as determined by the Administrator, or (ii) if there is no such assumption or substitution, all outstanding Stock Rights shall become immediately and fully exercisable and all Company repurchase rights with respect to Stock Rights shall lapse, in each case immediately prior to the Acquisition, notwithstanding any restrictions or vesting conditions set forth therein.

17.3 *Recapitalization or Reorganization.* In the event of a recapitalization or reorganization of the Company (other than a transaction described in Section 17.2 above) pursuant to which securities of the Company or of another corporation are issued with respect to the outstanding shares of Common Stock, a Participant upon exercising a Stock Right shall be entitled to receive for the purchase price paid upon such exercise the securities he or she would have received if he or she had exercised such Stock Right immediately prior to such recapitalization or reorganization.

17.4 *Adjustments to Shares, Stock Grants and Stock-Based Awards.* Upon the happening of any of the events described in Sections 17.1, 17.2 or 17.3, or other change in the Company's capital structure that constitutes an equity restructuring within the meaning of the Accounting Rules, the maximum number of Shares specified in Section 3, the number of Shares subject to the limits in Section 13.1, any exercise price per Share of any Stock Right, any outstanding Stock-Based Award and the Shares subject to any Stock Grant, vested or unvested, shall be appropriately adjusted by the Administrator to reflect such events. The Administrator may also make adjustments of the type described above to take

into account distributions to stockholders other than those provided for in Sections 17.1, 17.2 or 17.3, or any other event, if the Administrator determines that adjustments are appropriate to avoid distortion in the operation of the Plan. The Administrator shall determine the specific adjustments to be made under this Section 17.4. References in the Plan to Shares will be construed to include any stock or securities resulting from an adjustment pursuant to this Section 17.4.

17.5 *Modification of ISOs.* Notwithstanding the foregoing, any adjustments made pursuant to Section 17.1, 17.2 or 17.3 with respect to ISOs shall be made only after the Administrator determines whether such adjustments would constitute a “modification” of such ISOs (as that term is defined in Section 424(h) of the Code) or would cause any adverse tax consequences for the holders of such ISOs. If the Administrator determines that such adjustments made with respect to ISOs would constitute a modification of such ISOs, it may refrain from making such adjustments, unless the holder of an ISO specifically consents in writing to such adjustment be made and such writing indicates that the holder has full knowledge of the consequences of such “modification” on his or her income tax treatment with respect to the ISO.

18. ISSUANCES OF SECURITIES

Except as expressly provided herein, no issuance by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number or price of Shares subject to Stock Rights. Except as expressly provided herein, no adjustments shall be made for dividends paid in cash or in property (including without limitation, securities) of the Company.

19. FRACTIONAL SHARES

No fractional share shall be issued under the Plan and the person exercising any Stock Right shall receive from the Company cash in lieu of any such fractional share equal to the Fair Market Value thereof.

20. DIVIDEND EQUIVALENTS

The Administrator may provide for the payment of amounts (on terms and subject to conditions established by the Administrator, including providing for the reinvestment of such amounts in the form of additional Stock Rights) in lieu of cash dividends or other cash distributions with respect to Common Stock subject to a Stock Right whether or not the holder of such Stock Right is otherwise entitled to share in the actual dividend or distribution in respect of such Stock Right; *provided, however*, that notwithstanding anything to the contrary in the Plan (a) any dividends or dividend equivalents relating to a Stock Right (other than an Option or Stock Appreciation Right) that, at the dividend payment date, remains subject to a risk of forfeiture (whether service-based or performance-based) shall be subject to the same risk of forfeiture as applies to the underlying Stock Right and (b) no dividends or dividend equivalents shall be payable with respect to Options or Stock Appreciation Rights unless and until such Options or Stock Appreciation Rights have vested and been exercised in accordance with their terms.

21. WITHHOLDING

The delivery, vesting and retention of Shares, cash or other property under a Stock Right are conditioned upon full satisfaction by the Participant of all tax withholding requirements with respect to the Stock Right. The Administrator shall prescribe such rules for the withholding of taxes with respect to any Stock Right as it deems necessary. The Administrator may withhold from the Participant's compensation or require that the Participant advance cash to the Company or an Affiliate the amount of such withholding and may hold back Shares from a Stock Right or permit a Participant to tender previously owned Shares in satisfaction of tax withholding requirements (but not in excess of the maximum withholding amount consistent with the award being subject to equity accounting treatment under the Accounting Rules). For purposes hereof, the Fair Market Value of any shares withheld for purposes of payroll withholding shall be determined in the manner provided in Section 1 above, as of the most recent practicable date prior to the date of grant, vesting, exercise or the date of a Disqualifying Disposition. If the Fair Market Value of the shares withheld is less than the amount of payroll withholdings required, the Participant may be required to advance the difference in cash to the Company or the Affiliate employer.

22. NOTICE TO COMPANY OF DISQUALIFYING DISPOSITION

Each Employee who receives an ISO must agree to notify the Company in writing immediately after the Employee makes a “Disqualifying Disposition” of any Shares acquired pursuant to the exercise of an ISO. A Disqualifying Disposition is any disposition (as defined in Section 424(c) of the Code) of such Shares before the later of (a) two years from the date the Employee was granted the ISO, or (b) one year after the date the Employee acquired Shares by exercising the ISO. If the Employee has died before such Shares are sold, the notice provisions of this Section 22 shall not apply.

23. EFFECTIVE DATE; TERMINATION OF THE PLAN

This Plan was amended and restated by the Board on April 13, 2017 and was further amended and restated by the Board on April 2, 2018, in each case subject to the approval of the Plan by the shareholders of the Company. The Plan, as amended and restated hereby, shall be effective as of the Amendment Date. The Plan will terminate on April 12, 2027. The Plan also may be terminated at an earlier date by vote of the Board of Directors. Termination of this Plan will not affect any Stock Rights granted or Stock Agreements executed prior to the effective date of such termination.

24. AMENDMENT OF THE PLAN; AMENDMENT OF STOCK RIGHTS

The Plan may be amended by the Board of Directors or the Administrator, including, without limitation, to the extent necessary to qualify any or all outstanding Stock Rights granted under the Plan or Stock Rights to be granted under the Plan for favorable federal income tax treatment (including deferral of taxation upon exercise) as may be afforded incentive stock options under Section 422 of the Code, and to the extent necessary to qualify the shares issuable upon exercise of any outstanding Stock Rights granted, or Stock Rights to be granted, under the Plan for listing on any national securities exchange or quotation in any national automated quotation system of securities dealers. Any amendments to the Plan will be conditioned upon stockholder approval only to the extent, if any, such approval is required by law (including the Code) or applicable stock exchange requirements, as determined by the Administrator. No modification or amendment of the Plan shall adversely and materially affect a Participant's rights under a Stock Right previously granted to the Participant, without such Participant's consent.

In its discretion, the Administrator may amend any term or condition of any outstanding Stock Right, provided: (i) such term or condition is not prohibited by the Plan; (ii) if the amendment is materially adverse to the Participant, such amendment shall be made only with the consent of the Participant or the Participant's Survivors, as the case may be; and (iii) any such amendment of any ISO shall be made only after the Administrator determines whether such amendment would constitute a "modification" of any Stock Right which is an ISO (as that term is defined in Section 424(h) of the Code) or would cause any adverse tax consequences for the holder of such ISO (in which case, the Participant's or Participant's Survivors' consent to such amendment shall be required). Notwithstanding the foregoing, unless such action is approved by the Company's shareholders, the Company may not (except for adjustments permitted under Section 17 of this Plan) (1) amend any outstanding Option or Stock Appreciation Right granted under the Plan to provide an exercise price per share that is lower than the then-current exercise price per share of such outstanding Option or Stock Appreciation Right; (2) cancel any outstanding Option or Stock Appreciation Right (whether or not granted under the Plan) and grant in substitution therefor new Stock Rights under the Plan covering the same or a different number of shares of Common Stock and having an exercise price per share lower than the then-current exercise price per share of the cancelled option or Stock Appreciation Right; or (3) cancel in exchange for a cash payment any outstanding Option or Stock Appreciation Right with an exercise price per share above the then-current Fair Market Value.

25. RECOVERY OF COMPENSATION

The Administrator may provide in any case that outstanding Stock Rights (whether or not vested or exercisable) and the proceeds from the exercise or disposition of Stock Rights or Common Stock acquired under Stock Rights will be subject to forfeiture and disgorgement to the Company, with interest and other related earnings, if the Participant to whom the Stock Right was granted violates (i) a non-competition, non-solicitation, confidentiality or other restrictive covenant by which he or she is bound, or (ii) any Company policy applicable to the Participant that provides for forfeiture or disgorgement with respect to incentive compensation that includes Stock Rights under the Plan. In addition, the Administrator may require forfeiture and disgorgement to the Company of outstanding Stock Rights and the proceeds from the exercise or disposition of Stock Rights or Common Stock acquired under Stock Rights, with interest and other related earnings, to the extent required by law or applicable stock exchange listing standards, including, without limitation, Section 10D of the Exchange Act, and any applicable Company policy. Each Participant, by accepting or being deemed to have accepted a Stock Right under the Plan, agrees to cooperate fully with the Administrator, and to cause any and all permitted transferees of the Participant to cooperate fully with the Administrator, to effectuate any forfeiture or disgorgement required hereunder. Neither the Administrator nor the Company nor any other person, other than the Participant and his or her permitted transferees, if any, will be responsible for any adverse tax or other consequences to a Participant or his or her permitted transferees, if any, that may arise in connection with this Section 25.

26. COMPLIANCE WITH SECTION 409A OF THE CODE

Without limiting the generality of Section 4 hereof, each Stock Right will contain such terms as the Administrator determines and will be construed and administered, such that the Stock Right either qualifies for an exemption from the requirements of Section 409A of the Code or satisfies such requirements.

Notwithstanding Section 24 hereof or any other provision of this Plan or any Stock Agreement to the contrary, the Administrator may unilaterally amend, modify or terminate the Plan or any outstanding Stock Right, including but not limited to changing the form of the Stock Right, if the Administrator determines that such amendment, modification or termination is necessary or advisable to avoid the imposition of an additional tax, interest or penalty under Section 409A of the Code.

If a Participant is deemed on the date of the Participant's Termination of Service to be a "specified employee" within the meaning of that term under Section 409A(a)(2)(B) of the Code, then, with regard to any payment that is considered nonqualified deferred compensation under Section 409A of the Code, to the extent applicable, payable on account of a "separation from service", such payment will be made or provided on the date that is the earlier of (i) the expiration of the six-month period measured from the date of such "separation from service" and (ii) the date of the Participant's death (the "**Delay Period**"). Upon the expiration of the Delay Period, all payments delayed pursuant to this Section 26 (whether they would have otherwise been payable in a single lump sum or in installments in the absence of such delay) will be paid on the first business day following the expiration of the Delay Period in a lump sum and any remaining payments due under the Stock Right will be paid in accordance with the normal payment dates specified for them in the applicable Stock Agreement.

For purposes of Section 409A of the Code, each payment made under this Plan will be treated as a separate payment.

With regard to any payment considered to be nonqualified deferred compensation under Section 409A of the Code, to the extent applicable, that is payable upon a change in control of the Company or other similar event, to avoid the imposition of an additional tax, interest or penalty under Section 409A of the Code, no amount will be payable unless such change in control constitutes a "change in control event" within the meaning of Section 1.409A-3(i)(5) of the Treasury Regulations.

27. AUTHORIZATION OF SUB-PLANS

The Board of Directors may from time to time establish one or more sub-plans under the Plan for purposes of satisfying applicable securities, tax or other laws of various jurisdictions. The Board of Directors shall establish such sub-plans by adopting supplements to the Plan containing (i) such limitations on the Board of Director's discretion under the Plan as the Board of Directors deems necessary or desirable or (ii) such additional terms and conditions not otherwise inconsistent with the Plan as the Board of Directors shall deem necessary or desirable. All supplements adopted by the Board of Directors shall be deemed to be part of the Plan, but each supplement shall apply only to Participants within the affected jurisdiction and the Company shall not be required to provide copies of any supplement to Participants in any jurisdiction that is not the subject of such supplement.

28. GOVERNING LAW

This Plan, Stock Rights under the Plan and all claims or disputes arising out of or based upon the Plan or Stock Rights under the Plan or relating to the subject matter hereof or thereof shall be construed and enforced in accordance with the laws of The Commonwealth of Massachusetts without giving effect to any choice or conflict of laws provision or rule that would cause the application of the domestic substantive laws of any other jurisdiction.

By accepting or being deemed to have accepted a Stock Right under the Plan, each Participant will be deemed to (a) have submitted irrevocably and unconditionally to the jurisdiction of the federal and state courts located within the geographic boundaries of the United States District Court for the District of Massachusetts for the purpose of any suit, action or other proceeding arising out of or based upon the Plan or any Stock Right; (b) agree not to commence any suit, action or other proceeding arising out of or based upon the Plan or a Stock Right, except in the federal and state courts located within the geographic boundaries of the United States District Court for the District of Massachusetts; and (c) waive, and agree not to assert, by way of motion as a defense or otherwise, in any such suit, action or proceeding, any claim that he or she is not subject personally to the jurisdiction of the above-named courts that his or her property is exempt or immune from attachment or execution, that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that the Plan or a Stock Right or the subject matter thereof may not be enforced in or by such court.

By accepting or being deemed to have accepted a Stock Right under the Plan, to the extent permitted by applicable law, each Participant waives any right to a trial by jury in any action, proceeding or counterclaim concerning any rights under the Plan and any Stock Right, or under any amendment, waiver, consent, instrument, document or other agreement delivered or which in the future may be delivered in connection therewith, and agrees that any such action, proceedings or counterclaim will be tried before a court and not before a jury. By accepting or being deemed to have accepted a Stock Right under the Plan, each Participant certifies that no officer, representative, or attorney of the Company has represented, expressly or otherwise, that the Company would not, in the event of any action, proceeding or counterclaim, seek to enforce the foregoing waivers. Notwithstanding anything to the contrary in the Plan, nothing herein is to be construed as limiting the ability of the Company and a Participant to agree to submit disputes arising under the terms of the Plan or any Stock Right made hereunder to binding arbitration or as limiting the ability of the Company to require any eligible individual to agree to submit such disputes to binding arbitration as a condition of receiving a Stock Right hereunder.

Appendix D Non-GAAP Financial Measures

In this proxy, our financial results are provided in accordance with accounting principles generally accepted in the United States (GAAP) and using certain non-GAAP financial measures. In particular, we include non-GAAP net income, which excludes (i) stock-based compensation expense, (ii) revenues and expenses related to business development transactions including collaboration agreements and asset acquisitions, (iii) revenues and expenses related to consolidated variable interest entities, including asset impairment charges and related income tax benefits and the effects of the deconsolidation of a variable interest entity and (iv) other adjustments. The use of non-GAAP financial results is provided as a complement to results provided in accordance with GAAP because management believes certain non-GAAP financial measures, such as non-GAAP net income, help indicate underlying trends in the company's business, are important in comparing current results with prior period results and provide additional information regarding the company's financial position. Management also uses non-GAAP financial measures to establish budgets and operational goals that are communicated internally and externally and to manage the company's business and to evaluate its performance. The company adjusts, where appropriate, for both revenues and expenses in order to reflect the company's operations. A reconciliation of GAAP net income to non-GAAP net income is included below.

	Twelve Months Ended December 31,		
	2017	2016	2015
GAAP net income (loss) attributable to Vertex	\$ 263,484	\$ (112,052)	\$ (556,334)
Stock-based compensation expense	290,736	237,705	231,025
Concert upfront and transaction expenses	165,057	—	—
Revenues and expenses related to VIEs	14,083	54,850	4,530
Other collaborative and transaction revenue and expenses	(255,747)	33,000	75,000
Other adjustments	16,947	(2,306)	(21,570)
NON-GAAP NET INCOME ATTRIBUTABLE TO VERTEX	\$ 494,560	\$ 211,197	\$ (267,349)



▼ PLEASE FOLD ALONG THE PERFORATION, DETACH AND RETURN THE BOTTOM PORTION IN THE ENCLOSED ENVELOPE. ▼



Proxy — Vertex Pharmaceuticals Incorporated

ANNUAL MEETING OF SHAREHOLDERS — May 17, 2018

THIS PROXY IS SOLICITED ON BEHALF OF THE BOARD OF DIRECTORS

The undersigned does hereby constitute and appoint Jeffrey M. Leiden, Ian F. Smith, Michael Parini and Michael J. LaCascia, and each of them, the attorney(s) and proxy of the undersigned, with full power of substitution, with all the powers that the undersigned would possess if personally present, to vote all stock of Vertex Pharmaceuticals Incorporated that the undersigned is entitled to vote at the Annual Meeting of Shareholders of Vertex Pharmaceuticals Incorporated to be held at 50 Northern Avenue, Boston, Massachusetts 02210, on Thursday, May 17, 2018 at 9:30 A.M. and at any postponements or adjournments thereof, hereby acknowledging receipt of the proxy statement for such meeting and revoking all previous proxies.

This proxy, when properly executed, will be voted as directed. If no direction is made, this proxy will be voted FOR each of the nominees and proposals 2 through 5, and AGAINST proposals 6 and 7 and, in the case of other matters that legally come before the meeting or any postponement or adjournment thereof, as said proxies may deem advisable.

Please vote, sign and date on the reverse side and return this proxy card promptly using the enclosed envelope.
