

LIGAND PHARMACEUTICALS INC
Form DEF 14A
April 24, 2019

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549
SCHEDULE 14A INFORMATION
(Rule 14a-101)
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:

☐ Preliminary Proxy Statement

☐ Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))

☒ Definitive Proxy Statement

☐ Definitive Additional Materials

☐ Soliciting Material under 240.14a-12

LIGAND PHARMACEUTICALS INCORPORATED

Name of Registrant as Specified In Its Charter

Name of Person(s) Filing Proxy Statement, if other than the Registrant

Payment of Filing Fee (Check the appropriate box):

☒ No fee required.

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Notice of Annual Meeting of Stockholders

Meeting Date Thursday, June 6, 2019

Time 8:30 a.m. (Pacific Time)

Location 3911 Sorrento Valley Boulevard, Suite 110
San Diego, CA 92121

Record Date Friday, April 10, 2019

Dear Stockholder:

The annual meeting of stockholders of Ligand Pharmaceuticals Incorporated ("Ligand" or the "Company") will be held at 3911 Sorrento Valley Boulevard, Suite 110, San Diego, CA 92121, on June 6, 2019 at 8:30 a.m. local time, for the following purposes:

- To elect a board of directors for the forthcoming year. Our board of directors has nominated the following eight persons, each to serve for a one year term to expire at the 2020 annual meeting of stockholders: Jason Aryeh, Todd Davis, Nancy Gray, John Higgins, John Kozarich, John LaMattina, Sunil Patel and Stephen Sabba.
- To ratify the selection of Ernst & Young LLP as the Company's independent registered accounting firm for the fiscal year ending December 31, 2019.
- To consider and vote upon, on an advisory basis, the compensation of our named executive officers as disclosed in this proxy statement pursuant to the compensation disclosure rules of the Securities and Exchange Commission (the "SEC").
- To approve the amendment and restatement of the Company's 2002 Stock Incentive Plan.
- To approve the amendment and restatement of the Company's Employee Stock Purchase Plan.
- To transact such other business as may properly come before the meeting or any adjournment(s) thereof.

Stockholders of record at the close of business on April 10, 2019 will be entitled to vote at the annual meeting. We have elected to use the internet as our primary means of providing our proxy materials to stockholders. Most stockholders will receive only a Notice of Internet Availability of Proxy Materials with instructions for accessing the proxy materials, including our Proxy Statement and annual report, and for voting via the internet. The Notice of Internet Availability of Proxy Materials also provides information on how stockholders may obtain paper copies of our proxy materials free of charge, if they so choose.

The stock transfer books of the Company will remain open between the record date, April 10, 2019, and the date of the meeting. A list of stockholders entitled to vote at the annual meeting will be available for inspection at the offices of the Company and at the meeting. Whether or not you plan to attend the annual meeting in person, please vote by internet or telephone as described in the enclosed proxy materials or, if you request that the proxy materials be mailed to you, by signing, dating and returning the proxy card enclosed with those materials. If you attend the annual meeting and vote by ballot, your proxy will be revoked automatically and only your vote at the annual meeting will be counted. The prompt return of your proxy will assist us in preparing for the annual meeting.

By Order of the Board of Directors,

/s/ CHARLES S. BERKMAN

Charles S. Berkman

Senior Vice President, General Counsel & Secretary

San Diego, California

April 24, 2019

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Ligand Pharmaceuticals Incorporated
3911 Sorrento Valley Boulevard, Suite 110
San Diego, CA 92121

Proxy Statement

For the Annual Meeting of Stockholders

On behalf of the board of directors of Ligand, we are asking for your proxy, to be used at the annual meeting of stockholders to be held on June 6, 2019. The annual meeting will be held at 8:30 a.m. local time at 3911 Sorrento Valley Boulevard, Suite 110, San Diego, CA 92121. Stockholders of record on April 10, 2019 (the "Record Date") are entitled to notice of and to vote at the annual meeting. If you need directions to the location of the annual meeting, please contact us at (858) 550-7500. On or about April 24, 2019, we will mail to stockholders a Notice of Internet Availability of Proxy Materials containing instructions on how to access our proxy statement and 2018 annual report online and how to vote online. If you receive such a Notice by mail, you will not receive a printed copy of the materials unless you specifically request one. However, the Notice contains instructions on how to request to receive printed copies of these materials and a proxy card by mail.

Important Notice Regarding the Availability of Proxy Materials for the Stockholder Meeting to Be Held on Thursday, June 6, 2019.

This proxy statement and the Company's annual report are available electronically at www.envisionreports.com/LGND.

General Information about the Annual Meeting and Voting

What is the purpose of the annual meeting?	At our annual meeting, stockholders will act on the items outlined in the notice of meeting that is attached to this proxy statement. These include the election of directors, the ratification of the selection of Ernst & Young LLP as the Company's independent registered public accounting firm, the approval, on an advisory basis, of the compensation of the named executive officers as disclosed in this proxy statement, the approval of the amendment and restatement of the Company's 2002 Stock Incentive Plan and the approval of the amendment and restatement of the Company's Employee Stock Purchase Plan.
Who can vote at the meeting?	Only stockholders of record as of the close of business on the Record Date are entitled to vote the shares of stock they held on that date. Stockholders may vote in person or by proxy (see "How do I vote by proxy?" below). Each holder of shares of common stock is entitled to one vote for each share of stock held on the proposals presented in this proxy statement. Our amended and restated bylaws provide that a majority of all of the shares of the stock entitled to vote, whether present in person or represented by proxy, will be a quorum for the transaction of business at the meeting.
How many votes do I have?	Each share of our common stock that you own as of April 10, 2019 entitles you to one vote. The Notice of Internet Availability of Proxy Materials that is sent to you, or the proxy card or voting instruction form that is included in the proxy materials mailed to you if you have requested delivery by mail, will show the number of shares that you are entitled to vote.
What is a "broker non-vote"?	A broker non-vote occurs when a broker holding shares for a beneficial owner, commonly known as holding shares in "street name," does not vote on a particular proposal because the broker does not have discretionary voting power with respect to that proposal and has not received instructions from the beneficial owner.
How are votes counted?	Directors will be elected by a favorable vote of a plurality of the aggregate votes present, in person or by proxy, at the annual meeting. Accordingly, abstentions will not affect the outcome of the election of candidates for director. Absent instructions from the beneficial owner of such shares, a broker is not entitled to vote shares held for a beneficial owner on certain non-routine items, such as the election of directors, the approval, on an advisory basis, of the compensation of the named executive officers as disclosed in this proxy statement and any stockholder proposals. Thus, if the beneficial owner does not give a broker specific instructions, the beneficially owned shares may not be voted on this proposal and will not be counted in determining the number of shares necessary for approval, although they will count for purposes of determining whether a quorum exists. Stockholders are not permitted to cumulate their shares for the purpose of electing directors or otherwise. The proposal to ratify the selection of Ernst & Young LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2019 requires the affirmative vote of a majority of the aggregate votes present, in person or by proxy, and entitled to vote at the annual meeting. Abstentions will have the same effect as a vote against this proposal. However, ratification of the selection of Ernst & Young LLP is considered a routine matter on which a broker or other nominee is empowered to vote. Accordingly, no broker non-votes will result from this proposal. Approval of the non-binding advisory resolution on our executive compensation requires the affirmative vote of a majority of the aggregate votes present, in person or by proxy, and entitled to vote at the annual meeting. Abstentions will have the same effect as a vote against this proposal. Absent instructions from the beneficial owner of such shares, a broker is not entitled to vote shares held for a beneficial owner on the resolution to approve the compensation of our named executive officers. As a result, broker non-votes will have no effect on the outcome of the vote.

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Approval of the amendment and restatement of our 2002 Stock Incentive Plan requires the affirmative vote of a majority of the aggregate votes present, in person or by proxy, and entitled to vote at the annual meeting. Abstentions will have the same effect as a vote against this proposal. Absent instructions from the beneficial owner of such shares, a broker is not entitled to vote shares held for a beneficial owner on the resolution to approve the amendment and restatement of our 2002 Stock Incentive Plan. As a result, broker non-votes will have no effect on the outcome of the vote.

Approval of the amendment and restatement of our Employee Stock Purchase Plan requires the affirmative vote of a majority of the aggregate votes present, in person or by proxy, and entitled to vote at the annual meeting. Abstentions will have the same effect as a vote against this proposal. Absent instructions from the beneficial owner of such shares, a broker is not entitled to vote shares held for a beneficial owner on the resolution to approve the amendment and restatement of our Employee Stock Purchase Plan. As a result, broker non-votes will have no effect on the outcome of the vote.

All votes will be counted by an inspector of elections appointed for the meeting. The inspector will count separately “yes” votes, “no” votes, abstentions and broker non-votes. Shares represented by proxies that reflect abstentions or broker non-votes will be counted as shares that are present and entitled to vote for purposes of determining the presence of a quorum.

Voting results will be tabulated and certified by our mailing and tabulating agent, Computershare.

Why did I receive a one-page notice in the mail regarding the Internet availability of proxy materials instead of a full set of proxy materials?

Pursuant to rules adopted by the SEC, we have elected to provide access to our proxy materials over the internet. Accordingly, we are sending a Notice of Internet Availability of Proxy Materials to our stockholders who have not previously requested the receipt of paper proxy materials advising them that they can access this proxy statement, the 2018 annual report and voting instructions over the internet at <http://www.envisionreports.com/LGND>, by calling toll-free (866) 641-4276, or by sending an e-mail to investorvote@computershare.com with “Proxy Materials Ligand Pharmaceuticals” in the subject line. Include in the message your full name and address, plus the number located in the shaded bar on the reverse, and state in the email that you want a paper copy of current meeting materials. You can also state your preference to receive a paper copy for future meetings. There is no charge for you requesting a copy. Please make your request for a copy on or before May 23, 2019 to facilitate timely delivery. In addition, stockholders may request to receive proxy materials electronically by email or in printed form by mail on an ongoing basis. All stockholders will have the ability to access the proxy materials on the website referred to in the Notice of Internet Availability of Proxy Materials or request to receive a printed set of the proxy materials. We encourage stockholders to take advantage of the availability of the proxy materials on the internet to help reduce the environmental impact of the annual meeting.

How do I Record Holders

vote by proxy?

If you are a stockholder of record on the Record Date, you may vote in one of the following four ways:

By the internet. You may go to www.envisionreports.com/LGND 24 hours a day, 7 days a week, and follow the instructions. You will need the 15-digit control number that is included in the Notice of Internet Availability of Proxy Materials, proxy card or voting instructions form that is sent to you. The internet voting system allows you to confirm that the system has properly recorded your votes. This method of voting will be available up until 11:59 p.m. EDT, on June 5, 2019.

By telephone. On a touch-tone telephone, you may call toll-free 1-800-652-8683, 24 hours a day, 7 days a week, and follow the instructions. You will need the 15 digit control number that is included in the Notice of Internet Availability of Proxy Materials, proxy card or voting instructions form that is sent to you. As

with internet voting, you will be able to confirm that the system has properly recorded your votes. This method of voting will be available up until 11:59 p.m. EDT, on June 5, 2019.

By mail. If you are a stockholder of record, and you elect to receive your proxy materials by mail, you may vote by proxy by marking, dating, and signing your proxy card exactly as your name appears on the card and returning it by mail in the postage-paid envelope that will be provided to you. You should mail the proxy card form in plenty of time to allow delivery prior to the meeting. Do not mail the proxy card or voting instruction form if you are voting over the internet or by telephone.

At the annual meeting. You may vote your shares at the annual meeting if you attend in person.

Even if you plan to attend the annual meeting, we encourage you to vote over the internet or by telephone prior to the meeting. It is fast and convenient, and votes are recorded and confirmed immediately.

Beneficial Owners: Shares Registered in the Name of a Broker or Bank

If you are a beneficial owner of shares registered in the name of your broker, bank or other agent, you should have received a proxy card and voting instructions with these proxy materials from that organization rather than directly from us. Simply complete and mail the proxy card to ensure that your vote is counted.

You may be eligible to vote your shares electronically over the Internet or by telephone. A large number of banks and brokerage firms offer Internet and telephone voting. If your bank or brokerage firm does not offer Internet or telephone voting information, please complete and return your proxy card in the self-addressed, postage-paid envelope provided. To vote in person at the annual meeting, you must obtain a valid proxy from your broker, bank or other agent. Follow the instructions from your broker or bank included with these proxy materials, or contact your broker or bank to request a proxy form.

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May I revoke my proxy? If you give us your proxy, you may revoke it at any time before it is exercised. You may revoke your proxy by sending in another signed proxy with a later date, by notifying our corporate secretary, Charles S. Berkman, in writing before the annual meeting that you have revoked your proxy, or by attending the annual meeting and voting in person.

What is the quorum requirement? A quorum of stockholders is necessary to hold a valid meeting. A quorum will be present if the holders of a majority in voting power of the shares of common stock issued, outstanding and entitled to vote are present in person or represented by proxy at the annual meeting. On the Record Date, there were 19,663,929 shares outstanding and entitled to vote. Accordingly, 9,831,965 shares must be represented by stockholders present at the annual meeting or by proxy to have a quorum. Your shares will be counted towards the quorum only if you submit a valid proxy vote or vote at the annual meeting. Abstentions and broker non-votes will be counted towards the quorum requirement. If there is no quorum, either the chairperson of the annual meeting or a majority in voting power of the stockholders entitled to vote at the annual meeting, present in person or represented by proxy, may adjourn the annual meeting to another time or place.

I share an address with another stockholder, and we received only one paper copy of the proxy materials and annual report. How may I obtain an additional copy of these materials? The rules of the SEC permit us, under certain circumstances, to send a single set of the Notice of Internet Availability of Proxy Materials, proxy materials, and annual reports to any household at which two or more stockholders reside. This procedure, known as householding, reduces the volume of duplicate information you receive and helps to reduce our expenses. In order to take advantage of this opportunity, we have delivered only one Notice of Internet Availability of Proxy Materials or, if you previously requested to receive paper proxy materials by mail, one proxy statement and annual report to stockholders who share an address (unless we received contrary instructions from the affected stockholders prior to the mailing date). We will mail a separate copy of any of these documents, if requested. Requests for separate copies of any of these documents, either now or in the future, as well as requests for single copies in the future by stockholders who share an address and are currently receiving multiple copies, can be made by stockholders of record by contacting our corporate secretary at Ligand Pharmaceuticals Incorporated, 3911 Sorrento Valley Boulevard, Suite 110, San Diego, CA 92121, or by telephone at (858) 550-7500. Such requests by street name holders should be made through their bank, broker or other holder of record.

How do I obtain an Annual Report on Form 10-K? If you would like a copy of our annual report on Form 10-K for the fiscal year ended December 31, 2018 that we filed with the SEC, we will send you one without charge. Please write to:

Ligand Pharmaceuticals Incorporated
3911 Sorrento Valley Boulevard, Suite 110
San Diego, CA 92121

Attn: Corporate Secretary

All of our SEC filings are also available in the Investors section of our website at www.ligand.com.

How can I find out the results of the voting at the annual meeting? Preliminary voting results will be announced at the annual meeting. Final voting results will be published in a Current Report on Form 8-K to be filed with the SEC within four business days after the annual meeting. If final voting results are not available to us in time to file a Form 8-K within four business days after the meeting, we intend to file a Form 8-K to publish preliminary results and, within four business days after the final results are known to us, file an amendment to the Form 8-K to publish the final results.

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Proxy
Statement
Summary

The summary below highlights certain information that may be found elsewhere in this proxy statement. We encourage you to read the entire proxy statement before casting your vote. Our proxy statement and related materials are first being made available to our shareholders on or about April 24, 2019.

Director Nominees

Please find a list of director nominees to the Board of Directors (the "Board") of Ligand Pharmaceuticals Incorporated (the "Company" or "Ligand") below. Additional information for each nominee can be found under "Proposal 1: Election of Directors".

Name	Age*	Director Since	Professional Background
John W. Kozarich, Ph.D. (N)	69	2003	Distinguished Scientist and Executive Advisor of ActivX Biosciences, Inc.
John L. Higgins	49	2007	Chief Executive Officer of Ligand Pharmaceuticals Incorporated
Jason M. Aryeh (C)(N)	50	2006	Founder and Managing General Partner of JALAA Equities, LP
Todd C. Davis (C)	58	2007	Founder and Managing Partner of RoyaltyRx Capital
Nancy Ryan Gray, Ph.D. (A)	59	2017	President and CEO of Gordon Research Conferences
John L. LaMattina, Ph.D. (C)	69	2011	Senior Partner at PureTech Ventures
Sunil Patel(A)	47	2010	Former Executive Vice President and Chief Financial Officer for OncoMed Pharmaceuticals
Stephen L. Sabba, M.D. (A)(N)	59	2008	Leading Bio/Pharma Analyst and Fund Manager for Knott Partners, L.P

* As of April 10, 2019

(A) Member of the audit committee

(C) Member of the compensation committee

(N) Member of the nominating and corporate governance committee

Our Key Executive Compensation Practices

Practice	Description
Balanced Approach to Performance-Based Pay	Performance-based awards are tied to the achievement of financial and operating objectives, including, revenue, number of newly acquired shots-on-goal and acquisitions

Two to Three Year Performance Periods and Three Year Vest Schedules

Balanced Mix of Pay Components

The two to three year performance periods and three year vest schedules for our equity awards promotes a long-term approach to the achievement of strategic and financial objectives

Target compensation mix is not overly weighted toward annual incentive awards and balances cash and long-term equity awards in accordance with certain financial or non-financial metrics that align with our short and long-term strategic goals

Executive Compensation at Risk

We ensure a significant portion of the total compensation opportunity for executives is "at-risk" through both our short- and long-term incentive awards, the payout of which is directly related to the achievement of pre-established performance metrics directly tied to our business goals and strategies

Executive Compensation Philosophy

We have an executive

"Double-Trigger" Change-in-Control Arrangements

compensation
philosophy that
clearly articulates
our commitment to
equal pay
principles and
promoting a
values-based
culture
We provide for
double-trigger
acceleration of our
equity awards
(requiring both a
change in control
and a qualifying
termination of an
executive's
employment
before vesting is
accelerated)

Our Board's Voting Recommendations

Item	Description of Proposal	For	Against	Page
1	Election of directors	þ		<u>8</u>
2	Ratification of independent registered public accounting firm	þ		<u>12</u>
3	Approval of compensation of named executive officers	þ		<u>15</u>
4	Approval of Amendment and Restatement of the Ligand Pharmaceuticals Incorporated 2002 Stock Incentive Plan	þ		<u>16</u>
5	Approval of Amendment and Restatement of the Ligand Pharmaceuticals Incorporated Employee Stock Purchase Plan	þ		<u>30</u>

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Proposal No. 1 Election of Directors

The persons named below have been nominated by our board of directors to serve as directors of the Company until the next annual meeting of stockholders and until their successors have been elected and qualified. The eight candidates receiving the highest number of affirmative votes of the shares entitled to vote at the annual meeting will be elected directors of the Company. As of the date of this proxy statement, our board of directors is not aware of any nominee who is unable to or will decline to serve as a director. If, however, any of those named are unable to serve at the time of the annual meeting, the proxyholders may exercise discretionary authority to vote for substitutes.

Business Experience of Director Nominees

Jason M. Aryeh has served as a member of Ligand's board of directors since September 2006. Mr. Aryeh has more than twenty years of equity investment experience focused on the life sciences industry. He is the founder and Managing General Partner of JALAA Equities, LP, a private investment fund focused on the biotechnology and medical device sectors, and has served in such capacity since 1997. Mr. Aryeh currently serves on the Board of Directors of Orchestra BioMed, a private company where he is chairman of Orchestra's Nominating & Governance Committee and on its Audit Committee. Mr. Aryeh previously served as a director of Novellion Therapeutics Inc. (formerly QLT Inc.), a publicly traded company, from 2012 through 2018. Since 2006, Mr. Aryeh has served as Executive Chairman, on the board of directors or as a consultant to many public and private life sciences companies and charitable foundations, including the Cystic Fibrosis Foundation's Therapeutics Board. Mr. Aryeh earned a B.A. in economics, with honors, from Colgate University, and is a member of the Omnicron Delta Epsilon Honor Society in economics. In selecting Mr. Aryeh to serve as a director, the board considered, among other things, his valuable capital markets experience, including his service as managing general partner of a hedge fund focused on the life sciences sector.

Todd C. Davis has served as a member of Ligand's board of director since March 2007. He is the Founder and Managing Partner of RoyaltyRx Capital, a special opportunities investment firm founded in 2018. From 2006 until 2018, Mr. Davis was a Founder & Managing Partner of Cowen/HealthCare Royalty Partners, a global healthcare investment firm. He has almost thirty years of experience in both operations and investing in the biopharmaceutical and life science industries. Mr. Davis has been involved in over \$3 billion in healthcare financings including growth equity, public equity turnarounds, structured debt and royalty acquisitions. He has also led, structured and closed over 40 additional intellectual property licenses, as well as hybrid royalty-debt deals. Previously, Mr. Davis was a partner at Paul Capital Partners, where he co-managed that firm's royalty investments as a member of the Royalty Management Committee. He also served as a partner responsible for biopharmaceutical growth equity investments at Apax Partners. Mr. Davis began his business career in sales at Abbott Laboratories where he held several commercial roles of increasing responsibility. He subsequently held general management, business development, and licensing roles at Elan Pharmaceuticals. Mr. Davis is a navy veteran and holds a B.S. from the U.S. Naval Academy and an M.B.A. from Harvard University. He currently serves on the board of Palvella Therapeutics Inc., BioDelivery Sciences, and Ligand Pharmaceuticals. He is also a board member of the Harvard Business School Healthcare Alumni Association.

Nancy Ryan Gray, Ph.D., has served as a member of Ligand's board of directors since of August 2017. Dr. Gray has acted as the President and CEO of Gordon Research Conferences, a nonprofit organization focused on organizing international scientific conferences, since 2003. From December 1997 until August 2003 she served as the Director of Membership for the American Chemical Society. Prior to that, Dr. Gray worked as a Senior Research Scientist at Exxon/Mobil Research and Engineering, a subsidiary of Exxon Mobil Corporation focused on researching oil and gas. Dr. Gray is a Fellow of the Royal Society of Chemistry, a Fellow of the American Association for the Advancement of Science and a member of the American Chemical Society. She was a Research Fellow at the Foundation on Matter Institute for Atomic and Molecular Physics in Amsterdam, and completed the Harvard Executive Education Finance for Senior Executives program. She also has authored or co-authored numerous scientific articles. Dr. Gray received her B.S. in Chemistry from the University of Notre Dame in 1981 and her Ph.D. in Fuel Science from The Pennsylvania State University in 1985. In selecting Dr. Gray to serve as a director, the board considered, among other things, her scientific background and knowledge of the biotechnology industry.

John L. Higgins is the Chief Executive Officer of Ligand Pharmaceuticals Incorporated, a position he has held since January 2007 and he has been a member of Ligand's board of directors since March 2007. Prior to joining Ligand, Mr. Higgins served as Chief Financial Officer at Connetics Corporation, a specialty pharmaceutical company, since 1997, and also served as Executive Vice President, Finance and Administration and Corporate Development at Connetics until its acquisition by

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Stiefel Laboratories, Inc. in December 2006. Before joining Connetics, he was a member of the executive management team at BioCryst Pharmaceuticals. Prior to BioCryst, Mr. Higgins was a member of the healthcare banking team of Dillon, Read & Co. Inc., an investment banking firm. Mr. Higgins serves on the board, audit and governance committees of BioTechne Corporation, a company which develops and manufactures proteins. Mr. Higgins serves as a director on several private company boards and has served as a director of numerous public and private companies. He graduated Magna Cum Laude from Colgate University with an A.B. in economics. In selecting Mr. Higgins to serve as a director, the board considered, among other things, his valuable experience operating and managing public biotechnology companies, his prior service on other company boards and his financial transaction experience as an investment banker. Ligand also benefits from Mr. Higgins' financial experience in leadership roles at companies within the biopharmaceutical industry.

John W. Kozarich, Ph.D., has served as a member of Ligand's board since March 2003. Dr. Kozarich currently serves as Distinguished Scientist and Executive Advisor of ActivX Biosciences, Inc., and previously served as ActivX's Chairman and President from 2004 through March 2017. From 1992 to 2001, he was vice president at Merck Research Laboratories and previously held professorships at the University of Maryland and Yale University School of Medicine. Dr. Kozarich is also an adjunct professor of Chemical Physiology at the Scripps Research Institute and serves on boards, including Retrophin, Inc. and Intec Pharma Ltd. Previously, Dr. Kozarich served as a director of ActiveX Biosciences Inc., Corium Intl and Novelson Therapeutics. He is also a recent recipient of the Distinguished Scientist Award from the San Diego Section of the American Chemical Society. Dr. Kozarich earned his B.S. in chemistry, summa cum laude, from Boston College, his Ph.D. in biological chemistry from the Massachusetts Institute of Technology, and was an NIH Postdoctoral Fellow at Harvard. In selecting Dr. Kozarich to serve as a director, the board considered, among other things, his valuable pharmaceutical and international experience, including his service at Merck Research Laboratories, which is part of one of the world's largest pharmaceutical companies, and his service with ActivX Biosciences, Inc., Novelson Therapeutics Inc. and Corium Intl. Ligand also benefits from Dr. Kozarich's financial and accounting experience in the pharmaceutical and biotechnology industries.

John L. LaMattina, Ph.D., has served as a member of Ligand's board since February 2011. He spent 30 years at Pfizer Inc. beginning as a medicinal chemist in 1977. During his career, he was appointed to various positions of increasing responsibility for Pfizer Central Research, including Vice President of U.S. Discovery Operations in 1993, Senior Vice President of Worldwide Discovery Operations in 1998, Senior Vice President of Worldwide Development in 1999, and President, Pfizer Global R&D in 2004. Dr. LaMattina graduated with cum laude honors from Boston College with a B.S. in Chemistry. He received a Ph.D. from the University of New Hampshire in Organic Chemistry and subsequently was at Princeton University in the National Institutes of Health Postdoctoral Fellowship program. Dr. LaMattina is currently a senior partner at PureTech Ventures and serves on the boards of directors of PureTech Health plc, Gelesis Inc., Immunome Inc., Vedanta Biosciences, Inc. and Zafgen, Inc., which is a Nasdaq-listed company. In selecting Dr. LaMattina to serve as a director, the board considered, among other things, his valuable pharmaceutical and experience and experience as director of several biotech companies which provides the board with a broad leadership perspective. Ligand also benefits from Dr. LaMattina's expert knowledge of the biopharmaceutical industry and his experience as strategic and scientific advisor.

Sunil Patel has served as a member of Ligand's board of directors since October 2010. He has more than 20 years of senior management and R&D experience in the biotechnology industry. Mr. Patel most recently was Executive Vice President and Chief Financial Officer for OncoMed Pharmaceuticals, a development-stage company focused on therapeutics targeting cancer stem cells. Mr. Patel has held senior management positions in corporate development, marketing, and strategy with BiPar Sciences, Allos Therapeutics, Connetics, Abgenix and Gilead Sciences. Mr. Patel also worked at McKinsey & Company serving biotech and pharmaceutical clients and has held scientific research positions at ZymoGenetics and ProCyt. Mr. Patel received his undergraduate degree in Chemistry at the University of California, Berkeley, and master's degree in Molecular Bioengineering/Biotechnology at the University of Washington. In selecting Mr. Patel to serve as a director, the board considered, among other things, his valuable pharmaceutical and corporate development experience, including his service at OncoMed Pharmaceuticals. Ligand also benefits from Mr. Patel's experience in serving as a senior member of management at both public and private biotechnology companies.

Stephen L. Sabba, M.D., has served as a member of Ligand's board of directors since August 2008. Dr. Sabba has been a leading Bio/Pharma Analyst and Fund Manager for Knott Partners, L.P., an investment fund company, since November 2006. Previously he was a Partner and Director of Research with Kilkenny Capital Management, a Chicago-based biomedical hedge fund. Prior to that, Dr. Sabba was Director of Research at Sturza's Medical Research, and previously was a gastroenterologist and internist in private practice at Phelps Memorial Hospital in North Tarrytown, New York. He received his medical degree from the New York University School of Medicine, and completed a residency in internal medicine and a fellowship in gastroenterology at the Veterans Administration Medical Center in New York City. He earned a B.S. with honors at Cornell University. Dr. Sabba has served as a member of the board of the directors for Novilion Therapeutics Inc.,

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a leading Canadian biotech company, since June 2012. In selecting Dr. Sabha to serve as a director, the board considered, among other things, his capital markets and accounting expertise gained from his prior experience working in the hedge fund and investment fund industries. Ligand also benefits from his background as a medical doctor and from his understanding of medicine.

Director Independence

Our board of directors has determined that, with the exception of Mr. Higgins, each of the directors is an independent director under the Nasdaq Global Market listing standards. The independent directors have two or more regularly scheduled executive sessions per year at which only the independent directors are present.

Board Meetings and Committees

Our board of directors held ten meetings, with two in-person and eight by telephone, and acted by unanimous written consent two times during the year ended December 31, 2018. During such year, each incumbent director attended 75% of the aggregate number of meetings of our board of directors and of each the committees on which he or she served which were held during the periods in which he or she served.

Our board of directors has an audit committee, a nominating and corporate governance committee and a compensation committee. Each committee is described below. Each of these committees has a written charter approved by our board of directors. A copy of each charter can be found in the “Investors—Governance” section of our website at www.ligand.com. Our board of directors has determined that each member of these committees meets the applicable rules and regulations regarding independence and that each member is free of any relationship that would interfere with his or her individual exercise of independent judgment with regard to the Company.

The audit committee is primarily responsible for overseeing the Company’s accounting and financial reporting processes, auditing of financial statements, systems of internal control, and financial compliance programs. The audit committee currently consists of Dr. Gary, Mr. Patel and Dr. Sabha (chair). The audit committee held five meetings with one in-person and four by telephone. After reviewing the qualifications of all current committee members and any relationship they may have that might affect their independence from the Company, our board of directors has determined that (i) all current committee members are “independent” as defined under Section 10A of the Securities Exchange Act of 1934, as amended, (ii) all current committee members are “independent” as defined under the applicable Nasdaq Global Market listing standards, (iii) all current committee members have the ability to read and understand financial statements and (iv) Dr. Sabha qualifies as an “audit committee financial expert.” The latter determination is based on a qualitative assessment of his level of knowledge and experience based on a number of factors, including his formal education and experience.

The nominating and corporate governance committee is responsible for identifying and recommending candidates for director of the Company. The nominating and corporate governance committee currently consists of Mr. Aryeh (chair) and Drs. Kozarich and Sabha. Each member of the nominating and corporate governance committee is an independent director under the Nasdaq Global Market listing standards. The nominating and corporate governance committee held zero in-person meeting and four telephonic meetings during 2018.

The nominating and corporate governance committee considers nominees recommended by stockholders, if submitted in writing to the Secretary at the Company’s principal executive offices and accompanied by the author’s full name, current address and telephone number. The nominating and corporate governance committee has set no specific minimum qualifications for candidates it recommends, but considers each individual’s qualifications, such as high personal integrity and ethics, relevant expertise and professional experience, as a whole. The nominating and corporate governance committee and the board as a whole consider it beneficial to the Company to have directors with a diversity of backgrounds and skills. The nominating and corporate governance committee and the board as a whole have no formal policy with regard to the consideration of diversity in identifying director nominees. The nominating and corporate governance committee considers candidates throughout the year and makes recommendations as vacancies occur or the size of our board of directors expands. Candidates are identified from a variety of sources including recommendations by stockholders, current directors, management, and other parties. The nominating and corporate governance committee considers all such candidates in the same manner, regardless of source. Under its charter, the nominating and corporate governance committee may retain a search firm to identify and recommend candidates but has not done so to date.

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The compensation committee reviews and approves the Company's compensation policies, sets executive officers' compensation and administers the Company's stock option and stock purchase plans. The compensation committee consists of Messrs. Aryeh and Davis (chair) and Dr. LaMattina. Each member is an independent director under the Nasdaq Global Market listing standards. The compensation committee held four meetings with zero in-person and four by telephone, and acted by unanimous written consent two times during 2018.

The Company does not have a policy regarding attendance of the directors at the annual meeting. At our 2018 annual meeting of stockholders, none of our then-current directors was in attendance.

Board Leadership Structure

Our board of directors has nominated eight persons to serve as directors of the Company until the next annual meeting of stockholders, seven of whom are independent. We separate the roles of chief executive officer and chairman of our board of directors in recognition of the differences between the two roles. The chief executive officer is responsible for setting the strategic direction for the Company and the day-to-day leadership and performance of the Company, while the chairman of our board of directors provides guidance to the chief executive officer and presides over meetings of the full board of directors. We believe that this separation of responsibilities provides a balanced approach to managing the board of directors and overseeing the Company.

Board's Role in Risk Oversight

Our board of directors is actively involved in oversight of risks that could affect the Company. The board's role in our risk oversight process includes receiving regular reports from members of senior management on areas of material risk to the Company, including risks associated with our operational, financial, legal and regulatory functions. The full board (or the appropriate board committee in the case of risks that are under the purview of a particular committee) receives these reports from the appropriate "risk owner" within the organization to enable it to understand our risk identification, risk management and risk mitigation strategies. When a board committee engages in a discussion related to areas of material risk to the Company, the chairperson of the relevant committee reports on the discussion to the full board during the committee reports portion of the next board meeting. This enables the board and its committees to coordinate the risk oversight role.

Communicating with the Board of Directors

Stockholders may communicate with our board of directors or individual directors by mail, in care of the Secretary, at the Company's principal executive offices. Letters are distributed to the board of directors, or to any individual director or directors as appropriate, depending on the content of the letter. However, items that are unrelated to the duties and responsibilities of the board of directors will be excluded. In addition, material that is illegal, inappropriate or similarly unsuitable will be excluded. Any letter that is filtered out under these standards, however, will be made available to any director upon request.

Recommendation of the Board of Directors

The board of directors unanimously recommends a vote FOR the nominees listed above.

Proposal No. 2 Ratification of Independent Registered Public Accounting Firm

On April 2, 2019, the Audit Committee of the Company's Board approved the selection of Ernst & Young LLP as its independent registered public accounting firm. You are being asked to ratify the selection of Ernst & Young LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2019. Neither the firm nor any of its members has any relationship with the Company or any of its affiliates, except in the firm's capacity as the Company's independent registered public accounting firm.

Stockholder ratification of the selection of Ernst & Young LLP as the Company's independent registered public accounting firm is not required by Delaware law, the Company's certificate of incorporation, the Company's amended and restated bylaws, or otherwise. However, the board of directors is submitting the selection of Ernst & Young LLP to the stockholders for ratification as a matter of good corporate practice. In the event the stockholders fail to ratify the selection, the board of directors will reconsider its selection. Even if the selection is ratified, the board of directors or its audit committee, in its discretion, may direct the appointment of a different independent auditing firm at any time during the year if such a change would be in the Company's and its stockholders' best interests.

Representatives of Ernst & Young LLP are expected to be present at the annual meeting, and will have the opportunity to make a statement if they desire to do so and are expected to be available to respond to appropriate questions. The affirmative vote of the holders of a majority of the shares represented and voting at the annual meeting will be required to ratify the selection of Ernst & Young LLP.

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Independent Auditor's Fees

The following is a summary of the fees incurred by the Company from Ernst & Young LLP, the Company's independent registered public accounting firm for the fiscal year ended December 31, 2018 and 2017:

Fee Category	Fiscal Year 2018 Fees	Fiscal Year 2017 Fees
Audit Fees ⁽¹⁾	\$968,528	\$903,385
Audit-related fees ⁽²⁾	157,000	150,000
Tax Fees ⁽³⁾	622,121	273,843
Total Fees	\$1,747,649	\$1,327,228

(1) Audit fees consist of amounts for professional services rendered in connection with the integrated audit of our consolidated financial statements and related schedule and internal control over financial reporting, review of the interim condensed consolidated financial statements included in quarterly reports. We note that for fiscal year 2017, \$150,000 of the fees were reclassified from the audit fees to the audit-related fees to conform to the current year presentation.

(2) For the fiscal years ended December 31, 2018 and 2017, audit-related fees were primarily incurred for accounting consultations.

(3) Tax fees for the fiscal years ended December 31, 2018 and 2017, related to services rendered for federal, state and international tax compliance and tax consulting projects including the analysis of our net operating loss carryforwards, Research and Development tax credit analysis, international tax planning, issuance of the 2018 convertible notes and business combination.

In considering the nature of the services provided by Ernst & Young LLP during the 2018 fiscal year, the audit committee determined that such services are compatible with the provision of independent audit services.

The audit committee discussed these services with Ernst & Young LLP and the Company's management to determine that they are permitted under the rules and regulation concerning auditor independence promulgated by the SEC to implement the Sarbanes-Oxley Act of 2002, as well as the American Institute of Certified Public Accountants.

All services performed by Ernst & Young LLP in 2018 and 2017 were pre-approved in accordance with the requirements of the audit committee charter.

Except as stated above, there were no other fees charged by Ernst & Young LLP for 2018 or 2017. The audit committee considers the provision of these services to be compatible with maintaining the independence of Ernst & Young LLP. None of the fees paid to Ernst & Young LLP under the category "Tax Fees" described above were approved by the audit committee after services were rendered pursuant to the de minimis exception established by the SEC.

Audit Committee Policy Regarding Pre-Approval of Audit and Permissible Non-Audit Services of Our Independent Registered Public Accounting Firm

Our audit committee has established a policy that all audit and permissible non-audit services provided by our independent registered public accounting firm will be pre-approved by the audit committee. These services may include audit services, audit-related services, tax services and other services. The audit committee considers whether the provision of each non-audit service is compatible with maintaining the independence of our auditors. Pre-approval is detailed as to the particular service or category of services and is generally subject to a specific budget. Our independent registered public accounting firm and management are required to periodically report to the audit committee regarding the extent of services provided by the independent registered public accounting firm in accordance with this pre-approval, and the fees for the services performed to date.

Recommendation of the Board of Directors

Our board of directors unanimously recommends that stockholders vote FOR the ratification of the selection of Ernst & Young LLP to serve as the Company's independent registered public accounting firm for the year ending December 31, 2019.

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Proposal No. 3 Approval of Compensation of the Named Executive Officers

Under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (the "Dodd-Frank Act"), our stockholders are entitled to vote at the annual meeting to provide advisory approval of the compensation of our named executive officers as disclosed in this proxy statement pursuant to the compensation disclosure rules of the SEC. This proposal, commonly known as a "say-on-pay" proposal, gives our stockholders the opportunity to express their views on our named executive officers' compensation. This vote is not intended to address any specific item of compensation, but rather the overall compensation of our named executive officers and the philosophy, policies and practices described in this proxy statement. Pursuant to the Dodd-Frank Act, the stockholder vote on executive compensation is an advisory vote only, and it is not binding on us or our board of directors.

Although the vote is non-binding, our compensation committee and board of directors value the opinions of the stockholders and will consider the outcome of the vote when making future compensation decisions. As described more fully in the Compensation Discussion and Analysis section of this proxy statement, our executive compensation program is designed to attract, retain and motivate individuals with superior ability, experience and leadership capability to deliver on our annual and long-term business objectives necessary to create stockholder value. We urge stockholders to read the Compensation Discussion and Analysis section of this proxy statement, which describes in detail how our executive compensation policies and procedures operate and are intended to operate in the future. The compensation committee and the board of directors believe that our executive compensation program fulfills these goals and is reasonable, competitive and aligned with our performance and the performance of our executives.

We are asking our stockholders to indicate their support for our named executive officer compensation as described in this proxy statement. Accordingly, we ask that our stockholders vote "FOR" the following resolution:

"RESOLVED, that Ligand Pharmaceuticals Incorporated stockholders approve, on an advisory basis, the compensation of the named executive officers, as disclosed in Ligand Pharmaceuticals Incorporated's Proxy Statement for the 2019 annual meeting of stockholders, pursuant to the compensation disclosure rules of the SEC, including the Compensation Discussion and Analysis, the 2018 Summary Compensation Table and the other related tables and disclosure."

Recommendation of the Board of Directors

Our board of directors unanimously recommends that stockholders vote FOR the approval, on an advisory basis, of the compensation of the named executive officers as disclosed in this proxy statement pursuant to the compensation disclosure rules of the SEC.

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Proposal No. 4: Amendment and Restatement of the Ligand Pharmaceuticals Incorporated 2002 Stock Incentive Plan

We are asking our stockholders to approve the amendment and restatement of the Ligand Pharmaceuticals Incorporated 2002 Stock Incentive Plan, or the Existing Plan. The amendment and restatement of the Existing Plan is referred to herein as the Restated Equity Plan. The Restated Equity Plan was adopted by our board on March 28, 2019, subject to stockholder approval. The Restated Equity Plan will become effective if it is approved by the stockholders at the annual meeting.

The proposed amendments to the Existing Plan would:

Increase the Share Reserve. We are asking our stockholders to approve an increase of 820,000 in the number of shares available for issuance under the Restated Equity Plan over the existing share reserve under the Existing Plan. Accordingly, the Restated Equity Plan authorizes the issuance of an aggregate of 6,299,254 shares of common stock. As of April 10, 2019, awards covering a total of 2,032,707 shares were subject to outstanding awards under the Existing Plan (with performance awards counted assuming "target" performance) and 213,646 shares remained available for future grants under the Existing Plan (with performance awards counted assuming "target" performance, which number drops to 191,549 shares remaining available for issuance under the Existing Plan if performance awards are counted assuming "maximum" performance).

Under the terms of the Restated Equity Plan, the shares available for issuance may be used for all types of awards under a fungible pool formula. Pursuant to this fungible pool formula, the authorized share limit will be reduced by one share of common stock for every one share subject to an option or stock appreciation right, or SAR, outstanding under the Restated Equity Plan and 1.5 shares of common stock for every one share subject to a "full-value award" under the Restated Equity Plan. For purposes of the Restated Equity Plan, a full-value award is an award pursuant to which shares of our common stock are issuable that is granted with a per-share exercise or purchase price less than 100% of the fair market value of a share of our common stock on the date of grant.

The proposed increase in shares available for issuance under the Restated Equity Plan (over the existing share reserve under the Existing Plan) has been reviewed and approved by our board. In the process, the board determined that the existing number of shares available for issuance under the Existing Plan was insufficient to meet our ongoing needs to provide long-term incentive grants on an ongoing and regular basis to motivate, reward and retain key employees who create stockholder value. The increase in shares has been necessitated by the hiring of new employees, and by granting additional stock awards to current employees as long-term incentives. The increase will enable us to continue our policy of equity ownership by employees and directors as an incentive to contribute to our continued success.

Limit on Incentive Stock Options. Under the Restated Equity Plan, no more than 6,299,254 shares may be issued upon the exercise of incentive stock options, or ISOs, subject to adjustment for changes in our capitalization and certain corporate transactions, as described below under the heading "Adjustments."

Extend the Term. The Restated Equity Plan will have a term of ten years from the date it was adopted by our board.

Limitations on Dividend Payments on Unvested Awards. The Restated Equity Plan provides that dividends and dividend equivalents may not be paid on awards subject to vesting conditions unless and until such conditions are met. Under the Restated Equity Plan, dividend equivalents may not be paid on stock options or SARs.

Removal of Section 162(m) Provisions. Section 162(m) of the Internal Revenue Code, or the Code, prior to the Tax Cuts and Jobs Act of 2017 (the "TCJA"), allowed performance-based compensation that met certain requirements to be tax deductible regardless of amount. This qualified performance-based compensation exception was repealed as part of the TCJA. We have removed certain provisions from the Restated Equity Plan which were otherwise required for

awards to qualify as performance-based compensation under the Section 162(m) exception prior to its repeal, including, without limitation, the limit on the number of awards that could be granted to an individual in any calendar year.

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Tax Withholding. The Restated Equity Plan permits the plan administrator to allow for the withholding or delivery of shares in satisfaction of tax withholding with respect to awards with a value up to the maximum individual statutory tax rate in the applicable jurisdiction at the time of such withholding (or such other rate as may be required to avoid the liability classification of the applicable award under generally accepted accounting principles in the United States of America). Shares withheld or delivered in excess of the minimum applicable statutory rate will not, however, become available for issuance under the Restated Equity Plan.

Each of these aspects of the Restated Equity Plan is discussed below.

The Restated Equity Plan is not being materially amended in any respect other than to reflect the changes described above.

Why the Stockholders Should Vote to Approve the Restated Equity Plan

Equity Incentive Awards Are an Important Part of Our Compensation Philosophy. Our equity compensation plans are critical to our ongoing effort to build stockholder value. As discussed in the Compensation Discussion and Analysis section of this proxy statement, equity incentive awards are central to our compensation program. Our board and its compensation committee believe that our ability to grant equity incentive awards to new and existing employees, directors and eligible consultants has helped us attract, retain and motivate world-class talent. Historically, we have primarily issued stock options and restricted stock units because these forms of equity compensation provide a strong retention value and incentive for employees to work to grow the business and build stockholder value, and are attractive to employees who share the entrepreneurial spirit that has made us a success.

Also, our equity incentive programs are broad-based. The equity incentive programs we have in place have worked to build stockholder value by attracting and retaining talented employees. We believe we must continue to offer a competitive equity compensation plan in order to attract and motivate the talent necessary for our continued growth and success. As of April 10, 2019, 53 of our 109 employees, all of our 7 non-employee directors and 2 of our 18 consultants held outstanding equity awards.

The Existing Plan Will No Longer Have Shares Available for Grant. Under our current forecasts, the Existing Plan will run out of shares available for grant within the next nine months, and we will not be able to continue to issue equity to our employees and directors unless our stockholders approve the Restated Equity Plan. This assumes we continue to grant awards consistent with our historical usage and current practices, as reflected in our historical burn rate discussed below, and noting that future circumstances may require us to change our current equity grant practices. While we could increase cash compensation if we are unable to grant equity incentives, we anticipate that we will have difficulty attracting, retaining and motivating our employees and directors if we are unable to make equity grants to them.

We Manage Our Equity Incentive Award Use Carefully. We manage our long-term stockholder dilution by limiting the number of equity awards granted annually. Our compensation committee carefully monitors our total dilution and equity expense to ensure that we maximize stockholder value by granting only the appropriate number of equity awards necessary to attract, reward and retain employees. The following table summarizes the awards outstanding and shares available for grant under the Existing Plan as of April 10, 2019, and the proposed increase in shares authorized for issuance under the Restated Equity Plan:

	Number of Shares ⁽¹⁾	As a % of Shares Outstanding ⁽²⁾	Dollar Value ⁽³⁾
Options outstanding	1,905,655	9.7%	\$244,190,632
Weighted average exercise price of outstanding options	\$77.11	—	—
Weighted average remaining term (in years) of outstanding options	5.99	—	—
Restricted stock units ⁽⁴⁾	127,052	0.6%	\$16,280,443
Shares available for grant ⁽⁵⁾	213,646	1.1%	\$27,376,598
Proposed increase in shares available for issuance under Restated Equity Plan (over existing share reserve under Existing Plan)	820,000	4.2%	\$105,074,800

(1) Excludes the shares available for grant under our Employee Stock Purchase Plan, or the Existing ESPP. For more information about our Existing ESPP and the shares remaining available for issuance thereunder, see Proposal 5 below.

(2) Based on 19,663,929 shares of our common stock outstanding as of April 10, 2019.

(3) Based on the closing price of our common stock on April 10, 2019, of \$128.14 per share.

(4) Restricted stock units that are subject to performance-based vesting are reflected assuming “target” performance. Performance-based awards granted prior to 2018 may be eligible to vest in up to 137.5% of the “target” award levels at “maximum” performance. Performance-based awards granted beginning in 2018 may be eligible to vest in up to 150% of the “target” award levels at “maximum” performance. The number of performance-based restricted stock units outstanding as of April 10, 2019 assuming “maximum” performance is 44,200.

(5) Shares remaining available for issuance under the Existing Plan calculated assuming performance-based awards are counted against the share reserve at “target” levels. If performance-based awards are counted against the share reserve assuming “maximum” performance, only 191,549 shares remained available for issuance under the Existing Plan as of April 10, 2019.

In determining whether to approve the Restated Equity Plan, including the proposed increase to the share reserve under the Restated Equity Plan over the share reserve under the Existing Plan, our board considered the following:

The 6,299,254 shares to be reserved for issuance under the Restated Equity Plan will represent an increase of 820,000 shares from the aggregate number of shares reserved for issuance and that remain available for future grant under the Existing Plan as of April 10, 2019.

In determining the size of the share reserve under the Restated Equity Plan, our board considered the number of equity awards we granted during the past three calendar years. In calendar years 2016, 2017 and 2018, our annual equity burn rates (calculated by dividing (1) the number of shares subject to equity awards granted during the year by (2) the weighted-average number of diluted shares outstanding at the end of the applicable year) under the Existing Plan were 2.4%, 1.5% and 1.2%, respectively. If each “full-value award” is multiplied by 1.5 (consistent with the methodology employed pursuant to the fungible share ratio in the Restated Equity Plan), the “adjusted” annual burn rate under the Existing Plan would be 3.0%, 1.6% and 1.3%, for calendar years 2016, 2017 and 2018, respectively.

In fiscal years 2016, 2017 and 2018, the number of stock options and time-vesting restricted stock units granted and the number of performance-based restricted stock units earned, was as follows:

	2018	2017	2016
Stock Options/SARs granted	228,362	273,353	263,489
Time-based RSUs granted	43,812	43,042	41,987
Performance-based RSUs earned	12,783	143,691	—

We expect the proposed aggregate share reserve under the Restated Equity Plan to provide us with enough shares for awards for approximately one to two years, assuming we continue to grant awards consistent with our current

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practices and historical usage, as reflected in our historical burn rate, and further dependent on the price of our shares and hiring activity during the next few years, forfeitures of outstanding awards under the Existing Plan, and noting that future circumstances may require us to change our current equity grant practices. We cannot predict our future equity grant practices, the future price of our shares or future hiring activity with any degree of certainty at this time, and the share reserve under the Restated Equity Plan could last for a shorter or longer time.

In calendar years 2016, 2017 and 2018, the end of year overhang rate (calculated by dividing (1) the sum of the number of shares subject to equity awards outstanding at the end of the calendar year plus shares remaining available for issuance for future awards at the end of the calendar year by (2) the number of shares outstanding at the end of the calendar year) was 14.6%, 13.3% and 11.7%, respectively. If the Restated Equity Plan is approved, we expect our overhang at the end of 2019 will be approximately 11.4% (excluding the 64,008 shares that remain available for issuance under the Employee Stock Purchase Plan as of April 10, 2019).

Analysis by our compensation consultant, which was based on generally accepted evaluation methodologies used by proxy advisory firms, that the additional number of shares to be reserved under the Restated Equity Plan is within generally accepted standards as measured by an analysis of the Restated Equity Plan cost relative to industry standards.

In light of the factors described above, and the fact that the ability to continue to grant equity compensation is vital to our ability to continue to attract and retain highly qualified individuals in the extremely competitive labor markets in which we compete, our board has determined that the size of the share reserve under the Restated Equity Plan is reasonable and appropriate at this time. Our board will not create a subcommittee to evaluate the risk and benefits for issuing shares under the Restated Equity Plan.

The Restated Equity Plan Contains Equity Compensation Best Practices

The Restated Equity Plan authorizes the issuance of equity-based compensation in the form of stock options, SARs, restricted shares, restricted stock units, dividend equivalents, stock payments and performance-based awards structured by the compensation committee within parameters set forth in the Restated Equity Plan, for the purpose of providing our directors, officers, employees and consultants equity compensation, incentives and rewards for superior performance. Some of the key features of the Restated Equity Plan that reflect our commitment to effective management of incentive compensation and that are consistent with best practices in equity compensation to protect our stockholders' interests are as follows:

Broad-based eligibility for equity awards. We grant equity awards to all our full-time US employees and key international employees. By doing so, we link employee interests with stockholder interests throughout the organization and motivate our employees to act as owners of the business. As of April 10, 2019, 53 of our 109 employees, all of our 7 non-employee directors and 2 of our 18 consultants had received grants of equity awards.

- Stockholder approval is required for additional shares. The Restated Equity Plan does not contain an annual "evergreen" provision. The Restated Equity Plan authorizes a fixed number of shares, so that stockholder approval is required to increase the maximum number of securities which may be issued under the Restated Equity Plan.

No Re-pricing or Replacement of Options or Stock Appreciation Rights. The Restated Equity Plan prohibits, without stockholder approval: (1) the amendment of awards to reduce the exercise price, and (2) the replacement of an option or SAR with cash, any other award or an option or SAR with an exercise price that is less than the exercise price per share of the original option or SAR.

No In-the-Money Option or Stock Appreciation Right Grants. The Restated Equity Plan prohibits the grant of options or SARs with an exercise or base price less than the fair market value of our common stock, generally the closing price of our common stock, on the date of grant.

Limitations on Dividend Payments on Performance Awards. Dividends and dividend equivalents may be paid on awards subject to vesting conditions only to the extent such conditions are met.

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Limitations on Grants. No one person participating in the Restated Equity Plan may receive awards for more than 1,000,000 shares of common stock in the aggregate per calendar year.

Non-Employee Director Compensation Limit. The sum of any cash compensation, or other compensation, and the grant date fair value of awards granted to a non-employee director for services as a non-employee director during any calendar year, generally may not exceed \$550,000 (which limit will be increased to \$850,000 in the calendar year of his or her initial service as a non-employee director).

No Tax Gross-Ups. The Restated Equity Plan does not provide for any tax gross-ups.

Independent Administration. The compensation committee of the board, which consists of only independent directors, will administer the Restated Equity Plan if it is approved by stockholders.

Stockholder Approval Requirement

Stockholder approval of the Restated Equity Plan is necessary in order for us to (1) meet the stockholder approval requirements of Nasdaq and (2) grant ISOs thereunder.

If the Restated Equity Plan is not approved by our stockholders, the Restated Equity Plan will not become effective, the Existing Plan will continue in full force and effect, and we may continue to grant awards under the Existing Plan, subject to its terms, conditions and limitations, using the shares available for issuance thereunder.

Summary of the Restated Equity Plan

The following is a summary of the principal features of the Restated Equity Plan, assuming approval of this proposal. The summary, however, is not a complete description of all the provisions of the Restated Equity Plan. The proposed Restated Equity Plan is attached to this proxy statement as Appendix A.

Plan Structure

The Restated Equity Plan contains three separate equity programs; the Discretionary Option Grant Program, the Stock Issuance Program and the Other Stock Awards Program.

Administration

The Restated Equity Plan will be administered by the compensation committee of the board. This committee has complete discretion, subject to the provisions of the Restated Equity Plan, to authorize awards under the Restated Equity Plan to all eligible persons other than non-employee members of our board. However, the board may also appoint a secondary committee of one or more members of our board of directors to have separate but concurrent authority to make awards under those programs to all eligible individuals other than our executive officers and non-employee members of our board of directors. The full board will administer the Restated Equity Plan with respect to awards to the non-employee members of our board of directors. The term “Plan Administrator,” as used in this proxy statement, will mean the board, the compensation committee or any secondary committee, to the extent each such entity is acting within the scope of its duties under the Restated Equity Plan.

Eligibility

Officers and employees of Ligand and its subsidiaries, whether now existing or subsequently established, non-employee members of our board of directors and consultants and independent contractors of Ligand and its parent

and subsidiaries are eligible to participate in the Restated Equity Plan.

As of April 10, 2019, all 109 of our employees, all 7 non-employee members of our board of directors and all 18 of our consultants were eligible to receive awards under the Existing Plan, and would have been eligible to receive awards under the Restated Equity Plan had it been in effect on such date.

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Shares Available

We are asking our stockholders to approve an increase of 820,000 in the number of shares available for issuance under the Restated Equity Plan over the share reserve under the Existing Plan. The Restated Equity Plan will authorize the issuance of an aggregate of 6,299,254 shares of common stock, reduced by (1) one share for each share subject to a stock option or SAR and (2) 1.5 shares for each share subject to a full-value award. As of April 10, 2019, 213,646 shares of common stock remained available for future issuance under the Existing Plan and 2,032,707 shares were subject to outstanding awards under the Existing Plan. In no event may more than 6,299,254 shares of common stock be issued upon the exercise of ISOs under the Restated Equity Plan.

If (1) any award is forfeited or expires or such award is settled for cash, (2) any shares subject to a full-value award are forfeited by the holder or repurchased by us at a price not greater than the price paid by the holder of such shares, or (3) any shares are tendered or withheld to satisfy any tax withholding obligation with respect to a full-value award, then the shares subject to such award may, to the extent of such forfeiture, expiration, cash settlement or repurchase, be used again for new grants under the Restated Equity Plan; provided, however, that, notwithstanding the foregoing, in the event shares subject to a full-value award are delivered by a participant or withheld by us to satisfy any tax withholding obligation at a tax withholding rate in excess of the minimum statutory withholding rates, such shares tendered or withheld to satisfy the tax withholding obligation at a rate in excess of the minimum statutory withholding rates shall not be available for future grants of awards under the Restated Equity Plan and shall continue to be counted against the share reserve in an amount corresponding to the reduction in the share reserve previously made with respect to such award. Any shares that again become available for grant will be added back as (1) one share if such shares were subject to an option or SAR, and (2) as 1.5 shares if such shares were subject to full-value awards. The payment of dividend equivalents in cash in conjunction with any outstanding awards will not be counted against the shares available for issuance under the Restated Equity Plan.

Notwithstanding the foregoing, the following shares will not be added to the shares authorized for grant under the Restated Equity Plan: (1) any shares tendered or withheld to satisfy the exercise price of an option or any tax withholding obligation with respect to an option or SAR, (2) any shares subject to a SAR that are not issued in connection with the stock settlement of the SAR on its exercise, and (3) any shares purchased on the open market with the cash proceeds from the exercise of options.

Adjustments

Should any change be made to the common stock issuable under the Restated Equity Plan by reason of any stock split, stock dividend, recapitalization, combination of shares, exchange of shares or other change affecting the outstanding common stock as a class without our receipt of consideration, or as a result of a change in ownership or control of Ligand, then appropriate adjustments will be made to:

• the maximum number and/or class of securities issuable under the Restated Equity Plan and the maximum number of shares that may be issued upon exercise of ISOs under the Restated Equity Plan;

• the maximum number and/or class of securities for which any one person may be granted awards per calendar year under the Restated Equity Plan;

• the number and/or class of securities for which grants are subsequently to be made under an automatic option grant program to new and continuing non-employee members of the board of directors;

the number and/or class of securities and price per share in effect under each outstanding award; and

terms and conditions of any outstanding awards (including, without limitation, any applicable performance

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targets or criteria with respect thereto).

In addition, equitable adjustments will be made to outstanding awards in the event a large non-recurring cash dividend is paid to our stockholders, which affects the common stock or share price of the common stock underlying the awards subject to the Restated Equity Plan. Such adjustments to the outstanding awards will be effected in a manner which will preclude the enlargement or dilution of rights and benefits under those awards.

Valuation

The fair market value per share of common stock on any relevant date under the Restated Equity Plan will be deemed to be equal to the closing selling price per share on that date on the NASDAQ Global Market. If there is no reported selling price for such date, then the fair market value per share will be the closing selling price on the last preceding date for which such quotation exists. On April 10, 2019, the closing selling price per share of our common stock was \$128.14.

Discretionary Grant Program

Grants

The Plan Administrator has complete discretion under the Discretionary Option Grant Program to determine which eligible individuals are to receive option grants, the time or times when those grants are to be made, the number of shares subject to each such grant, the status of any granted option as either an ISO or a non-statutory option under the federal tax laws, the time or times when each option is to become exercisable, the vesting schedule (if any) to be in effect for the option grant and the maximum term (up to 10 years) for which any granted option is to remain outstanding.

Price and Exercisability

Each granted option will have an exercise price per share not less than 100% of the fair market value per share of common stock on the option grant date, and no granted option will have a term in excess of 10 years. The shares subject to each option will generally become exercisable for fully-vested shares in a series of installments over a specified period of service measured from the grant date. However, one or more options may be structured so that they are immediately exercisable for any or all of the option shares. The shares acquired under such immediately-exercisable options will normally be unvested and subject to repurchase by us, at the lower of (1) the exercise price paid per share or (2) the fair market value per share of common stock at the time of cessation of service if the optionee ceases service with us prior to vesting in those shares.

The exercise price may be paid in cash or check, in shares of common stock or, in the Plan Administrator's discretion, by issuance of a promissory note. Outstanding options may also be exercised through a same-day sale program pursuant to which a designated brokerage firm is to effect an immediate sale of the shares purchased under the option and pay to us, out of the sale proceeds available on the settlement date, sufficient funds to cover the exercise price for the purchased shares plus all applicable withholding taxes.

No optionee has any stockholder rights with respect to the option shares until such optionee has exercised the option and paid the exercise price for the purchased shares. Options are generally not assignable or transferable other than by will or the laws of inheritance and, during the optionee's lifetime, the option may be exercised only by such optionee. However, the Plan Administrator may allow non-statutory options to be transferred or assigned during the optionee's lifetime to one or more members of the optionee's immediate family or to a trust established exclusively for one or more such family members or to the optionee's former spouse, to the extent such transfer or assignment is in

furtherance of the optionee's estate plan or pursuant to a domestic relations order. The optionee may also designate one or more beneficiaries to automatically receive his or her outstanding options at death.

Termination of Service

Upon cessation of service, the optionee will have a limited period of time in which to exercise his or her outstanding options for any shares in which the optionee is vested at that time. The Plan Administrator has discretion to extend the period following the optionee's cessation of service during which his or her outstanding options may be exercised, up to the date of the option's expiration and/or to accelerate the exercisability or vesting of such options in whole or in part.

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Stock Issuance Program

Shares may be issued under the Stock Issuance Program at a price per share, if any, determined by the Plan Administrator. The Plan Administrator has complete discretion under this program to determine which eligible individuals are to receive such stock issuances, the time or times when such issuances or awards are to be made, the number of shares subject to each such issuance or award and the vesting schedule, if any, to be in effect for the stock issuance.

The shares issued may be fully and immediately vested upon issuance or may vest upon the recipient's completion of a designated service period or upon our attainment of pre-established performance goals. The Plan Administrator has, however, the discretionary authority at any time to accelerate the vesting of any and all unvested shares outstanding under the Stock Issuance Program.

Any unvested shares for which the requisite service requirement or performance objective is not obtained must be surrendered to us for cancellation or repurchase, and the participant will not have any further stockholder rights with respect to those shares. Recipients of restricted shares under the Stock Issuance Program may have voting rights and may receive dividends, if any, prior to the time when the restrictions lapse, provided that any dividends paid on unvested shares will be subject to the same vesting conditions as the underlying unvested shares.

Other Stock Awards Program

The Plan Administrator has complete discretion under the Other Stock Awards Program to make awards of stock appreciation rights, restricted stock units or dividend equivalents to eligible persons under the Plan.

Stock Appreciation Rights

SARs may be granted in connection with stock options or other awards, or separately. SARs granted by the Plan Administrator in connection with stock options or other awards typically will provide for payments to the holder based upon increases in the price of our common stock over the exercise price of the SAR or a related option or other awards. Each granted SAR will have an exercise or base price per share not less than 100% of the fair market value per share of common stock on the SAR grant date, and no granted SAR will have a term in excess of 10 years. There are no restrictions specified in the plan on the exercise of SARs or the amount of gain realizable therefrom, although restrictions may be imposed by the Plan Administrator in the SAR agreements. The Plan Administrator may elect to pay SARs in cash or in shares of our common stock or in a combination of both.

Restricted Stock Units

Restricted stock units may be awarded to participants, typically without payment of consideration, but subject to vesting conditions based on continued employment or on performance criteria established by our compensation committee. Like stock issuances that are subject to vesting, restricted stock units may not be sold, or otherwise transferred or hypothecated, until vesting conditions are removed or expire. Unlike stock issuances, shares issuable pursuant to a restricted stock unit award will not be issued until the restricted stock unit award has vested, and recipients of restricted stock unit awards generally will have no voting or dividend rights prior to the time when vesting conditions are satisfied.

Dividend Equivalents

Dividend equivalents represent the value of the dividends, if any, per share paid by us, calculated with reference to the number of shares covered by the stock options, SARs or other awards held by the participant. Dividend and dividend

equivalents may not be paid on awards subject to vesting conditions unless and until such conditions are met.

Equity Awards to Non-Employee Directors

Non-employee members of our board of directors are eligible for automatic equity awards under the Restated Equity Plan pursuant to the terms of our Director Compensation Policy, which is described below under “Compensation Discussion and Analysis-Narrative to Director Compensation Table.”

Under the Restated Equity Plan, the sum of any cash compensation, or other compensation, and the grant date fair value of

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awards granted to a non-employee director for services as a non-employee director during any calendar year, generally may not exceed \$550,000 (which limit will be increased to \$850,000 in the calendar year of his or her initial service as a non-employee director). The plan administrator may make exceptions to this limit for individual non-employee directors in extraordinary circumstances, as the plan administrator may determine in its discretion, provided that the non-employee director receiving such additional compensation may not participate in the decision to award such compensation or in other contemporaneous compensation decisions involving non-employee directors.

General Plan Provisions

Change in Ownership or Control

In the event that we are acquired by merger or asset sale, or if there is a change in ownership or control, the Plan Administrator may provide for any or all of the following alternatives:

- require participants to surrender their outstanding awards for a cash payment;
- replace outstanding awards with other rights or property;
 - accelerate the vesting of all or a portion of the awards;
- require that the successor or survivor corporation assume the awards or replace them with equivalent awards; or
- adjust the terms and conditions of outstanding awards.

In addition, in the event that we are acquired by merger or asset sale, or if there is a change in ownership or control, then awards granted under the Restated Equity Plan may:

- vest or accelerate in full when such awards are not to be assumed by any successor corporation;
- vest or accelerate in full when such awards are to be assumed by any successor corporation; or
- vest or accelerate in full when such awards are to be assumed by any successor corporation and the employee holding such options is involuntarily terminated.

Tax Withholding

The Restated Equity Plan permits the plan administrator to allow for the withholding or surrender of shares in satisfaction of tax withholding with respect to awards with a value up to the maximum individual statutory tax rate in the applicable jurisdiction at the time of such withholding (or such other rate as may be required to avoid the liability classification of the applicable award under generally accepted accounting principles in the United States of America).

Amendment and Termination

The board may amend or modify the Restated Equity Plan at any time, subject to any required stockholder approval pursuant to applicable laws and regulations. Unless sooner terminated by the board, the Restated Equity Plan will terminate on the earliest of:

- March 28, 2029; or

the termination of all outstanding options in connection with certain changes in control or ownership of the Company.

Repricing Prohibited

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The Restated Equity Plan prohibits, without stockholder approval: (1) the amendment of awards to reduce the exercise price, and (2) the replacement of an option or SAR with cash, any other award or an option or SAR with an exercise price that is less than the exercise price per share of the original option or SAR.

Performance-Based Awards

Any awards granted pursuant to the Restated Equity Plan may be subject to performance-based vesting conditions. The value of performance awards may be linked to any one or more of the performance criteria listed below, or other specific criteria determined by the Plan Administrator, in each case on a specified date or dates or over any period or periods determined by the Plan Administrator. The goals are established and evaluated by the Plan Administrator and may relate to performance over any periods as determined by the Plan Administrator.

These pre-established performance goals may be based on one or more performance criteria determined by the Plan Administrator, which may include, but are not limited to, the following performance criteria:

net earnings (either before or after interest, taxes, depreciation and amortization);

gross or net sales or revenue;

adjusted net income;

operating earnings or profit;

cash flow (including, but not limited to, operating cash flow and free cash flow);

return on assets;

return on capital;

return on stockholders' equity;

total stockholder return;

return on sales;

gross or net profit or operating margin;

expenses;

working capital;

earnings per share or adjusted earnings per share

price per share of our common stock;

regulatory body approval for commercialization of a product; and

implementation or completion of critical projects;

any of which may be measured with respect to us, or any subsidiary, affiliate or other business unit, either in absolute terms, terms of growth or as compared to any incremental increase or decrease or as compared to results of a peer group or to market performance indicators or indices. The compensation committee will define in an objective fashion the manner of calculating the performance criteria it selects to use for such awards. With regard to a particular performance period, the compensation committee will have the discretion to select the length of the performance period, the type of performance-based awards to be granted, and the goals that will be used to measure the performance for the period. In determining the

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actual size of an individual performance-based award for a performance period, the compensation committee may reduce or eliminate (but not increase) the initial award. Generally, a participant will have to be employed by or providing services to us or any of our subsidiaries or affiliates on the date the performance-based award is paid to be eligible for a performance-based award for any period.

The Plan Administrator may, in its sole discretion, provide that one or more adjustments shall be made to one or more of the performance goals. Such adjustments may include, but are not limited to, one or more of the following:

- items related to a change in accounting principle;

- items relating to financing activities;

- expenses for restructuring or productivity initiatives;

- other non-operating items;

- items related to acquisitions;

- items attributable to the business operations of any entity acquired by us during the performance period;

- items related to the disposal of a business or segment of a business;

- items related to discontinued operations that do not qualify as a segment of a business under applicable accounting standards;

- items attributable to any stock dividend, stock split, combination or exchange of stock occurring during the performance period;

- other items of significant income or expense which are determined to be appropriate adjustments;

- items relating to unusual or extraordinary corporate transactions, events or developments;

- items related to amortization of acquired intangible assets;

- items that are outside the scope of our core, on-going business activities;

- items related to acquired in-process research and development;

- items relating to changes in tax laws;

- items relating to major licensing or partnership arrangements;

- items relating to asset impairment charges;

- items relating to gains or losses for litigation, arbitration and contractual settlements; or

- items relating to any other unusual or nonrecurring events or changes in applicable laws, accounting principles or business conditions.

The maximum number of shares which may be subject to awards granted under the Restated Equity Plan to any individual in any calendar year may not exceed 1,000,000 shares of common stock.

Securities Laws. The Restated Equity Plan is intended to conform to all provisions of the Securities Act of 1933, as amended, and the Exchange Act and any and all regulations and rules promulgated by the SEC thereunder, including, without limitation, Rule 16b-3. The Restated Equity Plan will be administered, and awards will be granted and may be exercised, only in such a manner as to conform to such laws, rules and regulations.

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Material U.S. Federal Income Tax Consequences

The following is a general summary under current law of the material federal income tax consequences to an employee, consultant or non-employee director granted an award under the Restated Equity Plan. This summary deals with the general federal income tax principles that apply and is provided only for general information. Some kinds of taxes, such as state, local and foreign income taxes and federal employment taxes, are not discussed. Tax laws are complex and subject to change and may vary depending on individual circumstances and from locality to locality. The summary does not discuss all aspects of federal income taxation that may be relevant in light of a holder's personal circumstances. This summarized tax information is not tax advice and a holder of an award should rely on the advice of his or her legal and tax advisors.

Option Grants

Options granted under the Restated Equity Plan may be either ISOs which satisfy the requirements of Section 422 of the Code or non-statutory options which are not intended to meet such requirements. The Federal income tax treatment for the two types of options differs as follows:

Incentive Options. The optionee recognizes no taxable income at the time of the option grant, and no taxable income is generally recognized at the time the option is exercised. However, the amount by which the fair market value (at the time of exercise) of the purchased shares exceeds the exercise price will be included in the optionee's income for purposes of the alternative minimum tax. The optionee will, however, recognize taxable income in the year in which the purchased shares are sold or otherwise made the subject of a taxable disposition. For Federal tax purposes, dispositions are divided into two categories: (1) qualifying and (2) disqualifying. A qualifying disposition occurs if the sale or other disposition is made after the optionee has held the shares for more than two years after the option grant date and more than one year after the exercise date. If either of these two holding periods is not satisfied, then a disqualifying disposition will result.

Upon a qualifying disposition, the optionee will recognize long-term capital gain in an amount equal to the excess of (1) the amount realized upon the sale or other disposition of the purchased shares over (2) the exercise price paid for the shares. If there is a disqualifying disposition of the shares, then the excess of (1) the lesser of the fair market value of those shares on the exercise date or the sale date over (2) the exercise price paid for the shares will be taxable as ordinary income to the optionee. Any additional gain or loss recognized upon the disposition will be recognized as a capital gain or loss by the optionee.

If the optionee makes a disqualifying disposition of the purchased shares, then we will be entitled to an income tax deduction, for the taxable year in which such disposition occurs, equal to the excess of (1) the fair market value of such shares on the option exercise date or the sale date, if less, over (2) the exercise price paid for the shares. In no other instance will we be allowed a deduction with respect to the optionee's disposition of the purchased shares.

Non-Statutory Options. No taxable income is recognized by an optionee upon the grant of a non-statutory option. The optionee will in general recognize ordinary income in the year in which the option is exercised, equal to the excess of the fair market value of the purchased shares on the exercise date over the exercise price paid for the shares, and the optionee will be required to satisfy the tax withholding requirements applicable to such income.

We are entitled to an income tax deduction equal to the amount of ordinary income recognized by the optionee with respect to the exercised non-statutory option. The deduction is in general allowed for the taxable year of Ligand in which such ordinary income is recognized by the optionee.

Stock Appreciation Rights

No taxable income is recognized upon receipt of a SAR. The holder recognizes ordinary income, in the year in which the SAR is exercised, in an amount equal to the excess of the fair market value of the underlying shares of common stock on the

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exercise date over the base price in effect for the exercised right, and the holder is required to satisfy the tax withholding requirements applicable to such income.

We are entitled to an income tax deduction equal to the amount of ordinary income recognized by the holder in connection with the exercise of the SAR. The deduction generally is allowed for the taxable year in which such ordinary income is recognized.

Direct Stock Issuance

An employee to whom unvested shares are issued generally will not recognize taxable income upon such issuance and we generally will not then be entitled to a deduction unless an election is made by the participant under Section 83(b) of the Code. However, when the restrictions on the shares of stock lapse, such that the shares are no longer subject to a substantial risk of forfeiture, the employee generally will recognize ordinary income and we generally will be entitled to a deduction for an amount equal to the excess of the fair market value of the shares at the date such restrictions lapse over the purchase price. If a timely election is made under Section 83(b) with respect to unvested stock, the participant generally will recognize ordinary income on the date of the issuance equal to the excess, if any, of the fair market value of the shares at that date over the purchase price therefore, and we will be entitled to a deduction for the same amount. A participant who receives stock in lieu of a cash payment that would otherwise have been made will generally be taxed as if the cash payment has been received, and we generally will be entitled to a deduction for the same amount.

Restricted Stock Units

An individual to whom restricted stock units are issued will not have taxable income upon issuance and we will not then be entitled to a deduction. An individual to whom restricted stock units are issued will generally realize ordinary income at the time the shares issuable with respect to the restricted stock unit award are distributed to the individual in an amount equal to the fair market value of such shares (less any purchase price), and we will be entitled to a corresponding deduction.

Dividend Equivalents

A recipient of a dividend equivalent award generally will not recognize taxable income at the time of grant, and we will not be entitled to a deduction at that time. When a dividend equivalent is paid, the participant generally will recognize ordinary income, and we will be entitled to a corresponding deduction.

Section 409A of the Code

Certain awards under the Restated Equity Plan may be considered “nonqualified deferred compensation” subject to Section 409A of the Code, which imposes additional requirements on the payment of deferred compensation. Generally, if at any time during a taxable year a nonqualified deferred compensation plan fails to meet the requirements of Section 409A, or is not operated in accordance with those requirements, all amounts deferred under the nonqualified deferred compensation plan for the current taxable year and all preceding taxable years, by or for any participant with respect to whom the failure relates, are includible in the gross income of the participant for the taxable year to the extent not subject to a substantial risk of forfeiture and not previously included in gross income. If a deferred amount is required to be included in income under Section 409A, the amount will be subject to income tax at regular income tax rates plus an additional 20 percent tax, as well as potential premium interest tax.

Section 162(m) Limitation.

In general, under Section 162(m), income tax deductions of publicly-held corporations may be limited to the extent total compensation (including base salary, annual bonus, stock option exercises and non-qualified benefits paid) for certain executive officers exceeds \$1 million (less the amount of any “excess parachute payments” as defined in Section 280G of the Code) in any one year. Prior to the TCJA, covered employees generally consisted of our Chief Executive Officer and each of the next three highest compensated officers serving at the end of the taxable year other than our Chief Financial Officer, and compensation that qualified as “performance-based” under Section 162(m) was exempt from this \$1 million deduction limitation. As part of the TCJA, the ability to rely on this exemption was, with certain limited exceptions, eliminated; in addition, the definition of covered employees was expanded to generally include all named executive officers. Certain awards under the Existing Plan granted prior to November 2, 2017 may be grandfathered from the changes made by the TCJA under certain limited transition

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relief, however, for grants after that date and any grants which are not grandfathered, we will no longer be able to take a deduction for any compensation in excess of \$1 million that is paid to a covered employee. There is no guarantee that we will be able to take a deduction for any compensation in excess of \$1 million that is paid to a covered employee under the Existing Plan or the Restated Equity Plan.

New Plan Benefits

Our non-employee directors will be eligible to receive automatic option grants under the Restated Equity Plan pursuant to our director compensation policy, as described below under “Compensation of Directors.” All other future grants under the Restated Equity Plan are within the discretion of the Plan Administrator and the benefits of such grants are, therefore, not determinable. No shares of common stock have been issued with respect to the 820,000 share increase for which stockholder approval is sought under this Proposal 4.

Plan Benefits

The table below shows, as to our named executive officers and the various indicated groups, the number of shares of common stock subject to awards granted under the Existing Plan to date that were outstanding as of April 10, 2019:

Name and Position	Number of Shares Subject to Stock Option Awards	Number of Shares Subject to Restricted Stock Awards/RSUs ⁽²⁾
John L. Higgins, Chief Executive Officer	747,621	34,542
Matthew W. Foehr, President and Chief Operating Officer	308,699	19,429
Matthew Korenberg, Executive Vice President, Finance and Chief Financial Officer	92,497	14,499
Charles S. Berkman, Senior Vice President and General Counsel	37,965	8,050
Executive Officers, as a group	1,186,782	76,520
Non-Employee Directors, as a group ⁽¹⁾	131,326	4,059
Nominees for election as Directors ⁽¹⁾	131,326	4,059
Each associate of any of any such directors, executive officers or nominees	—	—
Each Other Person Who Received or Is To Receive 5% of Such Options, Warrants or Rights	—	—
Employees other than Executive Officers, as a group	607,547	46,473

(1) All of the non-employee members of our board of directors will, upon re-election to the board at the Annual Meeting, receive an automatic award of restricted stock units and options to purchase shares of common stock under the Restated Equity Plan pursuant to our director compensation policy, as described [below] under “Compensation of Directors.” Each option will have an exercise price per share equal to the fair market value per share of common stock on the grant date.

(2) Restricted stock units that are subject to performance-based vesting are reflected assuming “target” performance.

All other future grants under the Restated Equity Plan are within the discretion of the Plan Administrator and the benefits of such grants are, therefore, not determinable.

Recommendation of the Board of Directors

Our board of directors unanimously recommends that stockholders vote FOR the approval of the amendment and restatement of the Ligand Pharmaceuticals Incorporated 2002 Stock Incentive Plan.

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Proposal No. 5: Amendment and Restatement of the Ligand Pharmaceuticals Incorporated Employee Stock Purchase Plan

We are asking our stockholders to approve the amendment and restatement of our Employee Stock Purchase Plan, or the Existing ESPP. The proposed amendment and restatement of the Existing ESPP is referred to herein as the Restated ESPP. The Restated ESPP was adopted by our board in April 2019, subject to stockholder approval. The Restated ESPP will become effective on June 6, 2019 if it is approved by the stockholders at the annual meeting. The Existing ESPP expires on June 28, 2019. We are asking stockholders to approve the Restated ESPP to remove the fixed expiration date and the limit on the number of shares purchasable by participants during any calendar year. Although stockholder approval is not required for these amendments, the board of directors is submitting the Restated ESPP to our stockholders for approval as a matter of good corporate practice. The Restated ESPP is not being amended in any material respect other than to reflect the changes described above.

We believe the Restated ESPP, including the amendment to remove the fixed term of the Existing ESPP, is necessary to ensure that the Restated ESPP will continue to be available to our eligible employees.

The principal features of the Restated ESPP are summarized below for the convenience and information of our stockholders. This description is qualified in its entirety by reference to the Restated ESPP, which is attached to this proxy statement as Appendix B.

Determination to Approve Restated ESPP

The table below presents information about the number of shares remaining available for issuance under the Existing ESPP at April 10, 2019. The table below does not include information about the number of shares that were subject to outstanding equity awards or that may be available for future issuance under our other equity compensation plans. Information related to our other equity compensation plans is further described in the table under the heading “Why the Stockholders Should Vote to Approve the Restated Equity Plan” in Proposal 4 to this proxy statement.

	Number of Shares	As a % of Shares Outstanding ⁽¹⁾	Dollar Value ⁽²⁾
Existing ESPP Shares available for issuance	64,008	0.03 %	\$8,201,985

(1) Based on 19,663,929 shares of our common stock outstanding as of April 10, 2019.

(2) Based on the closing price of our common stock on April 10, 2019, of \$128.14 per share.

In determining whether to approve the Restated ESPP, our board considered the following:

The 218,374 shares reserved for issuance under the Restated ESPP will not represent an increase from the aggregate number of shares reserved for issuance and that remain available for future grant under the Existing ESPP as of April 10, 2019.

In determining not to increase the size of the share reserve under the Restated ESPP, our board considered the number of shares issued under the Existing ESPP during the past three calendar years. In calendar years 2016, 2017 and 2018, our annual equity burn rates (calculated by dividing (1) the number of shares issued under the Existing ESPP by (2) the weighted-average number of diluted shares outstanding during the applicable year) under the Existing ESPP were 0.01%, 0.01% and 0.02%, respectively.

We expect the aggregate share reserve under the Restated ESPP to provide us with enough shares for awards for at least ten years, assuming employee participation in the Restated ESPP consistent with historical levels, as reflected in our three-year burn rate for the Existing ESPP, and further dependent on the price of our shares and hiring activity during the next few years. We cannot predict our future share usage under the Restated ESPP, the future price of our

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shares or future hiring activity with any degree of certainty at this time, and the share reserve under the Restated ESPP could last for a shorter or longer time.

In calendar years 2016, 2017 and 2018, the end of year overhang rate (calculated by dividing (1) the shares remaining available for issuance for future awards at the end of the calendar year under the Existing ESPP by (2) the number of shares outstanding at the end of the calendar year) was 0.34%, 0.32% and 0.31%, respectively. If the Restated ESPP is approved, we expect our overhang at the end of 2019 attributable to the Restated ESPP will be approximately 1.10%.

In light of the factors described above, and the fact that the ability to continue to offer eligible employees the ability to participate in the Restated ESPP is vital to our ability to continue to attract and retain employees in the extremely competitive labor markets in which we compete, our board of directors has determined that adopting the Restated ESPP is reasonable and appropriate at this time. Our board of directors will not create a subcommittee to evaluate the risk and benefits for issuing shares under the Restated ESPP.

Summary of the Restated ESPP

The following is a summary of the principal features of the Restated ESPP, assuming approval of this proposal. The summary, however, is not a complete description of all the provisions of the Restated ESPP. The proposed Restated ESPP is attached to this proxy statement as Appendix B.

General

The Restated ESPP is intended to comply with the requirements of Section 423 of the Code, thereby assuring the participants the associated tax advantages. These tax advantages are described below under “Material Federal Income Tax Consequences.”

Administration

The Restated ESPP will be administered by the compensation committee of the board or directors, which committee we shall refer to in this proposal as the Plan Administrator. The Plan Administrator will have full authority to administer the Restated ESPP, including the authority to interpret and construe any provision of the Restated ESPP.

Eligibility and Participation

Any individual who is employed by us or any of our parent or subsidiary corporations on a basis under which he or she is regularly expected to work for more than 20 hours per week and more than five months per calendar year (including any corporation which subsequently becomes a parent or subsidiary during the term of the Restated ESPP) will be eligible to participate in the Restated ESPP. An individual must be an eligible employee on the start date of any offering period in order to join that offering period.

As of April 10, 2019, 41 of our 109 employees, including our 4 executive officers, were eligible to participate in the Existing ESPP. Upon the effective date of the Restated ESPP, these 41 employees will also be eligible to participate in the Restated ESPP, subject to the terms and conditions of the Restated ESPP.

Shares Available

An aggregate of 218,374 shares of common stock are reserved for issuance under the Existing ESPP, which is the same share reserve in effect under the Existing ESPP. As of April 10, 2019, 154,366 shares of common stock had been issued under the Existing ESPP, and 64,008 shares remained available for future issuance.

Should any change be made to our outstanding common stock by reason of any stock dividend, stock split, exchange or combination of shares or other similar change affecting the outstanding common stock as a class without the company's receipt of consideration, appropriate adjustments will be made to:

- the class and maximum number of securities issuable over the term of the Restated ESPP,
- the class and maximum number of securities purchasable per participant on any purchase date, and

the class and number of securities and the price per share in effect under each outstanding purchase right.

Such adjustments are designed to preclude the dilution or enlargement of rights and benefits under the Restated ESPP.

Offering Periods and Purchase Rights

Our common stock will be offered for purchase under the Restated ESPP through a series of successive offering periods. Offering periods under the Restated ESPP will be six months long, unless otherwise determined by the Plan Administrator.

At the time a participant joins an offering period, he or she will be granted a purchase right to acquire shares of common stock during that offering period. Each participant may authorize periodic payroll deductions in any multiple of 1% (up to a maximum of 10%) of his or her total cash earnings to be applied to the acquisition of common stock at semi-annual intervals. The purchase dates will occur on the last trading day of each offering period (e.g., the last trading day of June and December of each year), and all payroll deductions collected from the participant for the offering period will automatically be applied to the purchase of common stock on that date provided the participant remains an eligible employee and does not withdraw from the Restated ESPP prior to that date.

A participant may suspend his or her payroll deductions under the Restated ESPP. A participant may also withdraw from the Restated ESPP at any time, and his or her accumulated payroll deductions will be refunded immediately.

A participant's purchase right will immediately terminate upon his or her cessation of employment or loss of eligible employee status. Any payroll deductions which the participant may have made for the offering period in which such cessation of employment or loss of eligibility occurs will be refunded and will not be applied to the purchase of common stock.

No participant will have any stockholder rights with respect to the shares covered by his or her purchase rights until the shares are actually purchased on the participant's behalf. No adjustment will be made for dividends, distributions or other rights for which the record date is prior to the date of such purchase.

No purchase rights will be assignable or transferable by the participant, and the purchase rights will be exercisable only by the participant.

Purchase Price

The purchase price of our common stock acquired on each semi-annual purchase date will be equal to 85% of the lower of:

- the fair market value per share of common stock on the start date of the offering period in which the individual is enrolled, or

- the fair market value on the last trading day of such offering period.

The fair market value per share of common stock on any particular date under the Restated ESPP will be deemed to be equal to the closing selling price per share on such date on the Nasdaq Global Market. If there is no closing selling price for the common stock on that date, then the fair market value per share shall be the closing selling price on the last preceding date for which such quotation exists. On April 10, 2019, the closing selling price per share of our common stock on the Nasdaq Global Market was \$128.14.

Special Limitations

The Restated ESPP imposes certain limitations upon a participant's rights to acquire common stock, including the following limitations:

- purchase rights granted to a participant may not permit such individual to purchase more than \$25,000 worth of common stock (valued at the time each purchase right is granted) for each calendar year those purchase rights are outstanding at any time,

- purchase rights may not be granted to any individual if such individual would, immediately after the grant, own or hold outstanding options or other rights to purchase, stock possessing 5% or more of the total combined voting power or value of all classes of our stock or the stock of any of our parent or subsidiary corporations, and

- no participant may purchase more than 1,250 shares of common stock during any offering period.

Any payroll deductions not applied because of these limitations will be refunded to the employee. The Plan Administrator will have the discretionary authority to increase or decrease the per participant and total participant purchase limitations as of the start date of any new offering period under the Restated ESPP, with the new limits to be in effect for that offering period and each subsequent offering period.

Effect of a Change in Control

Should we be acquired by merger, sale of substantially all of its assets or sale of securities representing more than 50% of the total combined voting power of our outstanding securities, then all outstanding purchase rights will automatically be exercised immediately prior to the effective date of such acquisition (or on such other date as is determined by the Plan Administrator). The purchase price will be equal to 85% of the lower of:

- the fair market value per share of common stock on the start date of the offering period in which the individual is enrolled at the time such acquisition occurs, or
- the fair market value per share of common stock on such purchase date.

Share Proration

Should the total number of shares of common stock which are to be purchased under outstanding purchase rights on any particular date exceed the number of shares then available for issuance under the Restated ESPP, the Plan Administrator shall make a pro rata allocation of the available shares on a uniform and nondiscriminatory basis, and the payroll deductions of each participant, to the extent in excess of the aggregate purchase price payable for the common stock prorated to such individual, shall be refunded to such participant.

Amendment and Termination

The Restated ESPP will continue in effect until terminated by our board of directors. Our board of directors may terminate, suspend or amend the Restated ESPP at any time. However, our board of directors may not, without stockholder approval:

- increase the number of shares issuable under the Restated ESPP,
- alter the purchase price formula so as to reduce the purchase price to an amount below 85% of the lower of (1) the fair market value per share of common stock on the start date of an offering period, or (2) the fair market value per share of common stock on the purchase date, or
- modify the requirements for eligibility to participate in the Restated ESPP.

Securities Laws.

The Restated ESPP is intended to conform to all provisions of the Securities Act of 1933, as amended, and the Exchange Act and any and all regulations and rules promulgated by the SEC thereunder, including, without limitation, Rule 16b-3. The Restated ESPP will be administered, and shares will be issued thereunder, only in such a manner as to conform to such laws, rules and regulations.

Material U.S. Federal Income Tax Consequences

The following is a general summary under current law of the material federal income tax consequences to an employee who participates in the Restated ESPP. This summary deals with the general federal income tax principles that apply and is provided only for general information. Some kinds of taxes, such as state, local and foreign income taxes and federal employment taxes, are not discussed. Tax laws are complex and subject to change and may vary depending on individual circumstances and from locality to locality. The summary does not discuss all aspects of federal income taxation that may be relevant in light of a holder's personal circumstances. This summarized tax information is not tax advice and a holder of an award should rely on the advice of his or her legal and tax advisors. The Restated ESPP, and the right of participants to make purchases thereunder, is intended to qualify under the provisions of Section 423 of the Code. Under the applicable Code provisions, no income will be taxable to a participant until the sale or other disposition of the shares purchased under the Restated ESPP. Upon such sale or disposition, the participant will generally be subject to tax in an amount that depends upon the length of time such shares are held by the participant prior to disposing of them.

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If the shares are sold or disposed of more than two years from the first day of the offering period during which the shares were purchased and one year from the date of purchase, or if the participant dies while holding the shares, the participant (or his or her estate) will recognize ordinary income measured as the lesser of (1) the excess of the fair market value of the shares at the time of such sale or disposition over the purchase price or (2) an amount equal to 15% of the fair market value of the shares as of the first day of the offering period. Any additional gain will be treated as long-term capital gain. If the shares are held for the holding periods described above but are sold for a price that is less than the purchase price, there is no ordinary income and the participating employee has a long-term capital loss for the difference between the sale price and the purchase price.

If the shares are sold or otherwise disposed of before the expiration of the holding periods described above, the participant will recognize ordinary income generally measured as the excess of the fair market value of the shares on the date the shares are purchased over the purchase price. Any additional gain or loss on such sale or disposition will be long-term or short-term capital gain or loss, depending on how long the shares were held following the date they were purchased by the participant prior to disposing of them.

We are not entitled to a deduction for amounts taxed as ordinary income or capital gain to a participant except to the extent of ordinary income recognized upon a sale or disposition of shares prior to the expiration of the holding periods described above.

New Plan Benefits

Benefits under the Restated ESPP will depend on the employees' enrollment and contribution elections, and the fair market value of the shares at various future dates. Therefore, it is not possible to determine the benefits that will be received in the future by participants in the Restated ESPP.

Plan Benefits under the Existing ESPP

As of April 10, 2019, each of our named executive officers and the various indicated groups have purchased the following shares under the Existing ESPP:

Name and Position	Number of Shares Purchased	Aggregate Purchase Price
John L. Higgins, Chief Executive Officer	2,502	\$23,182
Matthew W. Foehr, President and Chief Operating Officer	4,117	\$67,320
Matthew Korenberg, Executive Vice President, Finance and Chief Financial Officer	659	\$62,908
Charles S. Berkman, Senior Vice President and General Counsel	8,468	\$203,093
Executive Officers, as a group	19,051	\$479,636
Non-Employee Directors, as a group ⁽¹⁾	—	—
Nominees for election as Directors ⁽¹⁾	—	—
Each associate of any of any such directors, executive officers or	—	—

nominees

Each Other Person Who

Received or Is To

Receive 5% of Such —

Options, Warrants or

Rights

Employees other than

Executive Officers, as a 135,315

group

—

\$4,496,916

(1) Directors who are not Company employees are not eligible to participate in the Existing ESPP.

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Recommendation of the Board of Directors

Our board of directors unanimously recommends that stockholders vote FOR the approval of the amendment and restatement of the Ligand Pharmaceuticals Incorporated Employee Stock Purchase Plan.

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Executive Officers

The names of the executive officers of the Company and their ages, titles and biographies as of April 10, 2019 are set forth below.

John L. Higgins, 49, is being considered for the position of director of the Company. See “Election of Directors” for a discussion of Mr. Higgins' business experience.

Charles S. Berkman, J.D., 50, has served as our Senior Vice President, General Counsel and Secretary since January 2018 and prior that as our Vice President, General Counsel and Secretary since April 2007. Mr. Berkman joined the Company in November 2001 and previously served as Associate General Counsel and Chief Patent Counsel for the Company (and Secretary since March 2007). Prior to joining the Company, Mr. Berkman was an attorney at the international law firm of Baker & McKenzie from November 2000 to November 2001. Before that he served as an attorney at the law firm of Lyon & Lyon from 1993 to November 2000, where he specialized in intellectual property law. Mr. Berkman earned a B.S. in chemistry from the University of Texas and a J.D. from the University of Texas School of Law.

Matthew W. Foehr, 46, has been our President and Chief Operating Officer since January 2015. Prior to that time, Mr. Foehr served as our Executive Vice President and Chief Operating Officer since 2011, and has more than 20 years of experience managing global research and development programs. Prior to joining Ligand in 2011, he was Vice President and Head of Consumer Dermatology R&D, as well as Acting Chief Scientific Officer of Dermatology, in the Stiefel division of GlaxoSmithKline (GSK). Following GSK's \$3.6 billion acquisition of Stiefel in 2009, Mr. Foehr led the R&D integration of Stiefel into GSK. At Stiefel Laboratories, Inc., Mr. Foehr served as Senior Vice President of Global R&D Operations, Senior Vice President of Product Development & Support, and Vice President of Global Supply Chain Technical Services. Prior to Stiefel, Mr. Foehr held various executive roles at Connetics Corporation including Senior Vice President of Technical Operations and Vice President of Manufacturing. Mr. Foehr serves on the Board of Directors of Viking Therapeutics, Inc. and Ritter Pharmaceuticals, Inc. Mr. Foehr is the author of multiple scientific publications and is named on numerous U.S. patents. He received his B.S. degree in biology from Santa Clara University.

Matthew Korenberg, 44, has served as our Executive Vice President, Finance and Chief Financial Officer since January 2018 and prior to that as our Vice President, Finance and Chief Financial Officer since August 2015. Prior to joining Ligand, commencing in September 2013, Mr. Korenberg was the founder, Chief Executive Officer and a director of NeuroCircuit Therapeutics, a company focused on developing drugs to treat genetic disorders of the brain with an initial focus on Down syndrome. Prior to founding NeuroCircuit Therapeutics, Mr. Korenberg was a Managing Director and member of the healthcare investment banking team at Goldman Sachs from July 1999 through August 2013. During his 14 year tenure at Goldman Sachs, Mr. Korenberg was focused on advising and financing companies in the biotechnology and pharmaceutical sectors and was based in New York, London and San Francisco. Prior to Goldman Sachs, Mr. Korenberg was a healthcare investment banker at Dillon, Read & Co. Inc. where he spent two years working with healthcare companies in the biotechnology and pharmaceutical sectors and industrial companies. Mr. Korenberg holds a B.B.A. in Finance and Accounting from The University of Michigan.

Security Ownership of Certain Beneficial Owners, Directors and Management

The following table shows, based on information we have, the beneficial ownership of our common stock as of April 10, 2019, by:

- all persons who are beneficial owners of 5% or more of our outstanding common stock;
- each of our current directors;
- each of our named executive officers (as defined below in “Compensation Discussion and Analysis – Summary Compensation Table”); and
- all of our executive officers and directors as a group.

Unless otherwise indicated, each of the stockholders has sole voting and investment power with respect to the shares beneficially owned, subject to community property laws, where applicable. Percentage of ownership is based on approximately 19,663,929 shares of common stock outstanding on April 10, 2019. Shares of common stock underlying options include options which are currently exercisable or will become exercisable within 60 days after April 10, 2019, are deemed outstanding for computing the percentage of the person or group holding such options, but are not deemed outstanding for computing the percentage of any other person or group. The address for individuals for whom an address is not otherwise indicated is 3911 Sorrento Valley Boulevard, Suite 110, San Diego, CA 92121.

Beneficial Owner	Number of Shares Beneficially Owned	Shares Beneficially Owned via Options, Warrants or Convertible Notes	Percent of Class Owned
BlackRock, Inc. ⁽¹⁾ 55 East 52 nd Street New York, NY 10055	2,761,861	—	14.0%
The Vanguard Group ⁽²⁾ 100 Vanguard Blvd. Malvern, PA 19355	1,929,850	—	9.8%
Renaissance Technologies LLC ⁽³⁾ 800 Third Avenue New York, NY 10022	1,480,819	—	7.5%
Directors and Executive Officers			
Jason M. Aryeh ⁽⁴⁾	115,244	10,851	*
Charles S. Berkman	60,546	9,524	*
Todd C. Davis	47,639	2,456	*
Matthew W. Foehr	155,448	241,372	2.0%
Nancy Ryan Gray	—	1,151	*
John L. Higgins	141,399	625,235	3.8%
Matthew Korenberg	45,767	37,888	*
John W. Kozarich	26,142	35,356	*
John L. LaMattina	21,449	18,186	*
Sunil Patel	24,524	10,851	*
Stephen L. Sabba	26,856	32,856	*
Directors and executive officers as a group (11 people)	665,014	1,025,726	8.4%

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* Less than one percent.

- (1) Represents shares of common stock owned by funds affiliated with BlackRock, Inc. at December 31, 2018, as indicated in the entity's Schedule 13G/A filed with the SEC on February 11, 2019.
- (2) Represents shares of common stock beneficially owned by The Vanguard Group at December 31, 2018 as indicated in the entity's Schedule 13G/A filed with the SEC on February 12, 2019.
- (3) Represents shares of common stock beneficially owned by Renaissance Technologies LLC at December 31, 2018 as indicated in the entity's Schedule 13G filed with the SEC on February 12, 2019.
- (4) Shares held by Jason Aryeh are owned by certain funds managed by JALAA Equities, LP ("JALAA") and affiliates (collectively, the "Funds"). Mr. Aryeh is the general partner of JALAA and a partner of JLV. Mr. Aryeh individually has the sole power to vote 101,344 shares and dispose of 101,344 shares beneficially owned by Mr. Aryeh and the Funds.

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Compensation Discussion and Analysis

This Compensation Discussion and Analysis (“CD&A”) describes our compensation philosophy and programs, the compensation decisions the compensation committee made under those programs, and the factors considered in making those decisions. This CD&A focuses on the compensation of our named executive officers or “NEOs”, who for 2018 were:

Name	Title
John L. Higgins	Chief Executive Officer
Matthew W. Foehr	President and Chief Operating Officer
Matthew Korenberg	Executive Vice President, Finance and Chief Financial Officer
Charles S. Berkman	Senior Vice President and General Counsel

Executive Summary

Overview and Objectives of Our Executive Compensation Program

The compensation committee has designed our executive compensation program to provide compensation opportunities that:

- attract, motivate and retain individuals of superior ability and managerial talent critical to its long-term success;
- align executives’ interests with the Company’s corporate strategies, business objectives and the long-term interests of the Company’s stockholders;
- create incentives to achieve key strategic and corporate performance objectives; and
- enhance the executives’ incentive to increase the Company’s stock price and maximize stockholder value.

Within this framework our compensation program has been developed with the following key principles in mind:

We Intend to Pay for Performance. The majority of our named executive officers’ total compensation as shown in our Summary Compensation Table below ties compensation directly to the achievement of corporate objectives, increases in our stock price or both. We emphasize pay for performance in order to align executive compensation with our business strategy and the creation of long-term stockholder value.

Our Compensation Program Supports Our Corporate Objectives and Stockholder Interests. Our compensation program is designed to align executive officer compensation with our corporate strategies, business objectives and the long-term interests of our stockholders by rewarding successful execution of our business plan and tying a significant portion of total compensation opportunities to equity incentives.

Key Elements of Our Compensation Program. Our compensation program is designed to achieve these objectives through a combination of the following types of compensation:

- base salary;
- annual variable performance bonus awards payable in cash;
- long-term stock-based incentive awards comprised of a significant portion of performance-based equity; and
- employee benefits and perquisites, including change in control severance arrangements.

The compensation committee uses competitive compensation data from the annual total compensation study of peer companies to inform its decisions about overall compensation opportunities and specific compensation elements, including base salary. Additionally, the compensation committee uses multiple reference points when establishing targeted compensation levels. The compensation committee has adopted a philosophy that is intended to emphasize

equity over cash while ensuring total compensation is competitive. The Committee applies judgment and discretion in establishing targeted pay levels, taking into account not only competitive market data, but also factors such as Company, business and individual performance, scope of responsibility, critical needs and skill sets, leadership potential and succession planning.

Each element of our executive compensation program is discussed in greater detail below.

Ligand's Strong 2018 Corporate Performance

Our Company's fiscal year 2018 accomplishments, guided by our named executive officers, illustrate the success of our executive compensation program, and included, among other things, the following:

Successful Business Development: The Company's shots on goal portfolio increased through licensing and acquisitions by more than 40 during 2018, finishing the year with over 200 shots on goal. In October 2018, the Company acquired Vernalis, a structure-based drug discovery biotechnology company with a broad pipeline of partnered programs and ongoing collaborations, which provides a platform to help efficiently pursue investment and acquisition activities in Europe and the United Kingdom.

Continued Optimization of Captisol Business: In 2018, the Company entered into 85 new Captisol research contracts and had expanded the distribution capacity on Captisol. In addition to shipping commercial and clinical material out of the contract manufacturing sites in both Portugal and Ireland, the Company also established a new distribution capability in Ireland in 2018.

Research and Development: In 2018, the Company continued to advance its product pipeline, including final preparations for making the Clinical Trial Application submission to the health authorities in Canada where its first in-human trial will be run this year. The Company manufactured the clinical batches of Captisol-enabled(CE)-iohexol and has received Institutional Review Board approval to initiate the clinical trial in the first quarter of 2019 and we plan to have Phase 1 bioavailability data on CE-iohexol in 2019. In addition, the Company also initiated five internal antibody-related programs in 2018.

Operational Achievements: During 2018, the Company had its seventh consecutive year of being cash flow positive with solid financial growth. The Company successfully contained costs while integrating the Vernalis business within the organization.

Performance Graph

The graph below shows the five-year cumulative total stockholder return assuming the investment of \$100 and is based on the returns of the component companies weighted monthly according to their market capitalizations. The graph compares total stockholder returns of our common stock, of all companies traded on the Nasdaq Stock market, as represented by the Nasdaq Composite® Index, and of the NASDAQ Biotechnology Stock Index, as prepared by The Nasdaq Stock Market Inc.

The stockholder return shown on the graph below is not necessarily indicative of future performance and we will not make or endorse any predictions to future stockholder returns.

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2018 Compensation Programs and Decisions

In line with our executive compensation program's emphasis on pay for performance, compensation awarded to our named executive officers for 2018 reflected our financial results and overall compensation philosophy:

Base Salary Adjustments: During 2018, our named executive officers received increases to their base salaries of between 2% and 11%. The Company provides its named executive officers with a base salary that approximates the 25th percentile for similar positions at our peer group, and these increases were determined to be appropriate by our compensation committee to ensure that the base salaries of our named executive officers continued to be generally consistent with this pay positioning philosophy.

Pay-for-Performance Annual Incentive Bonuses: For 2018, our Company focused on certain key business development objectives and objectives related to business development, the Captisol business, the OmniAb business and operational goals. Our compensation program for 2018 was designed to support the Company's focus on these areas and together achievement in these areas represented the criteria upon which our named executive officer's bonus opportunity was based. Based on corporate performance in these four areas during 2018, as summarized above, our compensation committee determined that our executive officers should be paid their bonuses at 110% of targeted levels. The annual bonuses awarded to our named executive officers for 2018 are discussed below under "Annual Performance-Based Cash Compensation."

Equity Emphasis on Performance-Based Equity Awards: Our compensation committee continued its practice of ensuring that a substantial portion of our named executive officers' total compensation is awarded in the form of long-term equity incentive awards. In 2018, at least 25% of each named executive officer's equity awards were granted in the form of performance-based stock awards.

Stock Options: Fifty percent of each named executive officer's annual awards was granted in the form of stock options, which we consider to be performance based awards as they provide value to our executives only if our stock price increases. These stock options are subject to our standard four year vesting schedule.

Performance-Based Restricted Stock Units: In 2018, the compensation committee also awarded performance-based restricted stock units to our named executive officers, which awards represented approximately 25% of the total value of the long-term equity incentive awards granted to our named executive officers in 2018. These performance-based restricted stock units will vest based on objectives related to the Company's revenue for the two year performance period commencing January 1, 2018 and ending December 31, 2019 and new shots on goal and revenue generated from acquisitions completed

during the performance period commencing January 1, 2018 and ending December 31, 2020, with each such objective equally weighted (and a possible performance multiplier of 150% for "maximum" performance relative to both objectives). The compensation committee selected the foregoing performance measures because they represent the key financial and operational performance metrics for which the executives are responsible, thereby creating the clearest link between executive actions, corporate results and continued long-term success for the Company.

Time-Based Restricted Stock Units: The remainder of the long-term equity incentive awards granted to our named executive officers was granted in the form of restricted stock units that are subject to our standard three year vesting schedule.

In light of the Company's overall performance during 2018, the compensation committee believes that the named executive officers' 2018 compensation was appropriate.

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Ligand's Executive Compensation Best Practices

We regularly review and refine our executive compensation program to ensure that it continues to reflect practices and policies that are aligned with our pay-for-performance philosophy. The following practices and policies we believe are in line with current best practices for aligning executive and shareholder interests and sound corporate governance practices:

Compensation Practice	Ligand Policy
Pay for Performance	YES We have a historical practice of granting a meaningful portion of equity compensation for our executives and a majority of our executives' total direct compensation is performance-based.
Annual "Say on Pay" Vote	YES We seek an annual non-binding advisory vote from our shareholders to approve the executive compensation programs disclosed in our CD&A, tabular disclosure and related narrative in our proxy.
Independent Compensation Consultant	YES The compensation committee retains an independent compensation consultant.
Annual Compensation Risk Assessment	YES Each year we perform an assessment of any risks that could result from our compensation plans and programs.
Employment Agreements	NO We do not provide our executive officers with employment agreements.
Excise Tax Gross-ups	NO We do not provide tax gross ups to our executives for "excess parachute payments".
Repricing or Exchange of Underwater Stock Options	NO We prohibit option repricing without stockholder approval.
Single Trigger Change in Control Vesting/Benefits	NO We do not provide for single-trigger vesting or payment of benefits for our executives upon a change in control. Rather, we provide double-trigger (or both a change in control and termination of an executive's employment) before vesting is accelerated.

Response to 2018 Say on Pay Vote

In June 2018, we held a stockholder advisory vote on the compensation of our named executive officers, commonly referred to as a say-on-pay vote. Our stockholders overwhelmingly approved the compensation of our named executive officers, with approximately 98% of stockholder votes cast in favor of our 2018 say-on-pay resolution (excluding abstentions and broker non-votes). As we evaluated our compensation practices and talent needs throughout 2018, we were mindful of the strong support our stockholders expressed for our compensation philosophy. As a result, following our annual review of our executive compensation philosophy, the compensation committee decided to generally retain our existing approach to executive compensation for our continuing executives, with an emphasis on short- and long-term incentive compensation that rewards our senior executives when they deliver value for our stockholders.

The Role of the Compensation Committee and Executive Officers in Setting Compensation

The compensation committee has the primary authority to determine the Company's compensation philosophy and to establish compensation for the Company's executive officers. In determining each level of compensation and the total package, the compensation committee reviewed a variety of sources, to determine and set compensation.

The chief executive officer aids the compensation committee by providing annual recommendations regarding the compensation of all executive officers, other than himself. Each named executive officer and senior executive management team member, in turn, participates in an annual performance review with the chief executive officer to provide input about his contributions to the Company's success for the period being assessed. The performance of our chief executive officer and senior executive management team as a group is reviewed annually by the compensation committee.

In 2018, the compensation committee retained Radford, a part of Aon plc, a national executive compensation consulting firm, to assist it in the formulation of the peer group used to determine executive equity compensation

during 2018 and to advise regarding the determination of the other key elements of the executive compensation program. Radford reports to and is accountable to the compensation committee, and may not conduct any other work for us without the authorization of the compensation committee. Radford did not provide any services to us in 2018 beyond its engagement as an advisor to the

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compensation committee on executive compensation matters. After review and consultation with Radford, the compensation committee has determined that Radford is independent and there is no conflict of interest resulting from retaining Radford currently or during the year ended December 31, 2018. In reaching these conclusions, the compensation committee considered the factors set forth in Exchange Act Rule 10C-1 and Nasdaq listing standards.

As in prior years, the compensation committee and the Company's management also consulted several independent compensation surveys to assist them in determining market pay practices for compensating executive officers. These surveys were reviewed to compare the Company's compensation levels to the market compensation levels, taking into consideration the other companies' size, the industry, the individual executive's level of responsibility and his years of experience. For 2018, the current executive salaries were evaluated against the Radford Global Life Sciences Survey using data from comparable U.S. public biotechnology companies with revenue under \$500 million and market capitalization between \$1.0 billion and \$8.0 billion as of September 2017 when survey data was compiled. These surveys were used due to the competitiveness in hiring employees within the biotechnology industry as well as in our geographic location and we believe they represent the types of companies with which we compete for executive talent. With respect to the foregoing survey data, the identities of the individual companies included in the surveys were not provided to the compensation committee, and the compensation committee did not refer to individual compensation information for such companies. Instead, the compensation committee only referred to the statistical summaries of the compensation information for the companies included in such surveys.

Additionally, the compensation committee worked with Radford to confirm a peer group of companies in the United States for which compensation information can be provided to the compensation committee. This is necessary so the Company can offer compensation that is competitive within that group of companies. The peer group companies for 2018 compensation included ACADIA Pharmaceuticals, Acorda Therapeutics, Eagle Pharmaceuticals, Exelixis, Halozyme Therapeutics, Horizon Pharma, Inoviva, Ironwood Pharmaceuticals, Ionis Pharmaceuticals, Lexicon Pharmaceuticals, Momenta Pharmaceuticals, Nektar Therapeutics, Neurocrine Biosciences, Pacira Pharmaceuticals, PDL BioPharma, Portola Pharmaceuticals, Repligen, Supernus Pharmaceuticals and Theravance Biopharma.

The selected companies in our peer group are companies that fall within a reasonable range of comparison factors and/or that we may compete with for executive talent. In addition to the criteria related to finding companies with similar business models and at a similar stage of development as Ligand, the other criteria used in the identification and selection of the peer group included business/labor market competitors in the biotechnology industry similar in size and complexity to us, companies with revenue under \$500 million, companies with market values between \$1.0 billion and \$8.0 billion (based on trading values in November 2017 when the peer group was selected) and companies with products in comparable stages of development to our products. We also focused on companies with multiple product candidates, as opposed to single product companies. The peer group was not selected on the basis of executive compensation levels. The peer group revisions from the 2017 peer group were intended to ensure that the peer group more accurately reflects companies that are our peers in terms of our current business model and stage of development, including the number of programs maintained by the Company and the importance of licensing to the Company's business model.

The peer group compensation data is limited to publicly available information and therefore does not provide precise comparisons by position as offered by more comprehensive survey data. The survey data, however, can be used to provide pooled compensation data for positions closely akin to those held by each named executive officer. In addition, the pool of senior executive talent from which we draw and against which we compare ourselves extends beyond the limited community of our immediate peer group and includes a wide range of other organizations outside of our traditional competitors, which range is represented by such surveys. As a result, the compensation committee uses peer group data to analyze the overall competitiveness of our compensation with our direct publicly traded peers in the United States and our general compensation philosophy, and to determine equity award levels for the named executive officers, but also relies on industry survey data in determining actual executive compensation. For purposes

of this compensation discussion and analysis, references to our “peer group” include both the peer group of companies listed above and the survey data reviewed by our compensation committee.

The compensation committee has adopted a compensation philosophy that places a greater emphasis on long-term equity incentive compensation for our named executive officers than cash compensation. As a result, the compensation committee generally sets target total cash compensation below the median of executive officers performing similar job functions at companies in our peer group to ensure a greater emphasis is placed on long-term incentives while ensuring total compensation is competitive with market. At the same time, the compensation committee emphasizes long-term equity incentive compensation by setting target equity compensation above the median of executive officers performing similar job

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junctions at companies in our peer group. However, we strongly believe in retaining the best talent among our senior executive management team and while we believe that comparisons to market data are a useful tool, we do not believe that it is appropriate to establish executive compensation levels based solely on a comparison to data from these companies. Therefore, the compensation committee may approve total compensation packages for senior executive management that vary from the foregoing positioning based on several factors, including overall experiences, accumulated years of service with us, level of responsibilities and/or performance ratings. Our 2018 total compensation for our named executive officers was generally consistent with the foregoing compensation philosophy.

In addition, the mix of compensation paid to our named executive officers is intended to ensure that total compensation reflects our overall success or failure, including our long-term stock performance, and to motivate executive officers to meet appropriate performance measures. In determining each element of compensation for any given year, our compensation committee considers and determines each element individually and then reviews the resulting total compensation and determines whether it is reasonable and competitive. We do not have a pre-established policy or target for the allocation between either cash and non-cash or short-term and long-term incentive compensation.

The compensation levels of our named executive officers reflect to a significant degree their varying roles and responsibilities. Mr. Higgins, in his role as chief executive officer, has the greatest level of responsibility among our named executive officers and, therefore, receives the highest level of pay. This is also consistent with the practices of the companies in our peer group and the summary compensation data included in the summaries of comparable companies reviewed by our compensation committee.

Base Compensation

As discussed above, the Company provides its named executive officers with a base salary that approximates the 25th percentile for similar positions at our peer group, but may vary from such level based on:

- industry experience, knowledge and qualifications;
- the salary levels in effect for comparable positions within the Company's principal industry marketplace competitors; and
- internal comparability considerations.

As a general matter, the base salary for each executive officer is initially established through negotiation at the time the officer is hired, taking into account the officer's qualifications, experience, prior salary and competitive salary information. Increases in base salary from year to year are based upon the performance of the executive officers as well as market positioning considerations, as assessed by the chief executive officer (for executives other than himself) and approved by the compensation committee. The compensation committee assesses these factors with respect to the chief executive officer.

For 2018, our named executive officers received increases to their base salaries of between 2% and 11%, as follows: Mr. Higgins, 2.3% increase; Mr. Foehr, 3.9% increase; Mr. Korenberg, 6.2% increase; and Mr. Berkman, 11.0% increase. These increases were determined to be appropriate by our compensation committee to ensure that the base salaries of our named executive officers continued to be generally consistent with our pay positioning philosophy, as described above. Base salaries paid to our named executive officers for 2018 are disclosed below in the table entitled "Summary Compensation Table."

Performance-Based Compensation

Annual Performance-Based Cash Compensation

It is the compensation committee's objective to have a substantial portion of each named executive officer's compensation contingent upon the Company's performance. For each of our named executive officers, all of his annual bonus compensation is dependent on the Company's performance relative to specified performance objectives.

The annual performance-based bonus program consists of a cash award if certain corporate performance objectives are satisfied. The Company sets annual incentive targets so that each executive's total target cash compensation (inclusive of base salary) approximates the 25th percentile of target total cash opportunities offered by our peer group. Under the Company's

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2018 program, the target performance bonus for the chief executive officer is 75% of base salary, 50% of base salary for Messrs. Foehr and Korenberg, and 40% of base salary for Mr. Berkman. The target incentive opportunities remained flat year over year for executives for 2018.

In determining the performance compensation awarded to each named executive officer, the Company evaluates the Company's performance in a number of areas. At the beginning of each year, our board of directors sets corporate objectives for the year. These objectives are set by the board of directors after considering management input and our overall strategic objectives. These objectives generally relate to factors such as strategic objectives, achievement of product development objectives, establishment of new collaborative arrangements and general operational goals. Following the conclusion of each year, the compensation committee determines the level of achievement for each year relative to these corporate objectives. This achievement level is then applied to each named executive officer's target bonus to determine that year's total annual bonus. The compensation committee retains the discretion to reduce the final bonus payout to a named executive officer.

At the beginning of 2018, our board of directors, with input provided by our named executive officers, established our Company goals for the year. The compensation committee then reviewed and considered a proposed Company-wide (including named executive officers) bonus program in view of the Company goals, including the proportional emphasis to be placed on each objective annual bonus determination purposes.

The Company goals approved by the compensation committee for 2018 for purposes of annual bonus achievement included:

Goals	Status
Business Development Goals (35% Weighting)	
Complete at least nine new licensing deals	Met
Close Series B financing for Nucorion Pharmaceuticals, Inc. or assist Seelos Therapeutics, Inc. in closing next financing	Met
Evaluate and, if appropriate, pursue potential acquisitions	Met
Goals Related to OmniAb Business (35% Weighting)	
Complete OmniChicken license expansions to generate at least five new program campaigns	Met
Increase customer service and awareness of OmniAb platform via successful partner meetings, publications and presentations	Met
Launch next-generation OmniChicken with expanded repertoire	Met
Goals Related to Optimization of Captisol Business (20% Weighting)	
Prepare IND for CE-Iohexol and position for clinical initiation	Met
Expand existing relationships and generate at least 35 new research contracts	Met
Optimize sample processing and logistics/operations to create long-term business efficiencies	Met
Manage business to maximize annual revenue and manage competitive threats	Met
Establish new distribution site, facilitating annual tax savings	Met
Operational Goals (10% Weighting)	
Deliver superior partner customer service focused on information timeliness, technical support, issue resolution and commercial planning	Met
Organizational staff planning and expansion and improvement of data management systems	Met
Complete facility and lab improvements at office and laboratory space located in Emeryville, California	Met
Effective financial, legal and administrative management and tax planning	Met

In evaluating management's performance against our 2018 corporate objectives in January 2019, our compensation committee determined to award a corporate achievement level of 110% relative to those objectives. This determination was made in the discretion of the compensation committee after its review of our overall corporate performance relative to each of the objectives listed above. In general, quantitative objectives were not established for most of the corporate objectives during 2018. Instead these performance objectives were used as a guide by the compensation committee in determining overall corporate performance as they represented those areas in which the named executive officers and our employees generally were expected to focus their efforts.

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With respect to the business development goals, the compensation committee awarded an achievement level of 110%, noting that in 2018, the Company completed thirteen new licensing deals that increased the Company's shots-on-goal portfolio and acquired Vernalis.

With respect to the goals related to our OmniAb business, the compensation committee awarded full credit, for an achievement level of 110%, noting our successful acquisition and integration of Vernalis.

With respect to the goals related to the optimization of our Captisol business, the compensation committee awarded an achievement level of 110%, noting that the Company entered into 85 new Captisol research contracts. The Company worked with key vendors and partners to maximize revenue potential and volatility, had new patents issued and expanded key manufacturing relationships and improved manufacturing efficiencies. In addition, the Company established a new distribution site in Ireland to facilitate annual tax savings.

With respect to the operational goals, which were entirely qualitative goals and not objectively determinable, the compensation committee determined an overall achievement level of 110% was appropriate given its subjective determination of the Company's overall performance in this area during 2018. The compensation committee noted that in 2018, the Company was cash-flow positive for the seventh consecutive year.

As a result of the foregoing determinations, all of our named executive officers received bonus awards equal to 110% of their target awards.

The actual bonus awards paid to our named executive officers for 2018 are disclosed below in the table entitled "Summary Compensation Table."

Long-Term Performance-Based Equity Incentive Program

In accordance with our compensation philosophy, the Company's longer-term performance-based compensation is based on equity ownership. The Company believes that equity ownership in the Company is important to tie the ultimate level of an executive officer's compensation to the performance of the Company's stock and stockholder gains while creating an incentive for sustained growth.

We generally provide equity compensation to our named executive officers through grants of stock options, performance stock units and restricted stock units. The grants are designed to align the interests of our named executive officers with those of the stockholders and provide each individual with a significant incentive to manage the Company from the perspective of an owner with an equity stake in the business. The compensation committee views granting options and restricted stock unit awards as a retention device and therefore also reviews the status of vesting and number of vested versus unvested options and restricted stock unit awards at the time of grant. Guidelines for the number of stock options and restricted stock unit awards granted to each executive officer are determined using a procedure approved by the compensation committee based upon several factors, including the executive officer's level of responsibility, salary grade, performance and the value of the stock option and restricted stock unit awards at the time of grant. With respect to our named executive officers, we generally make awards to such officers at the time of initial hire based on an evaluation of the foregoing factors. Additional grants, other than the annual awards to executives, may be made following a significant change in job responsibility or in recognition of a significant achievement. Annual awards are made to our named executive officers when such awards are deemed appropriate by the compensation committee based on an evaluation of the foregoing factors.

Given the position of executive cash compensation relative to market (which is set at approximately the 25th percentile), our compensation committee has emphasized long-term equity incentive compensation to ensure total compensation is competitive. The long-term equity incentive awards granted to the named executive officers in 2018

were set at approximately the 75th percentile level of equity awards for similar positions at our peer group companies, adjusted using the above factors and taking into consideration such equivalency factors as our number of shares outstanding and market capitalization, compared to the peer group companies.

Time-based stock options granted under our 2002 Stock Incentive Plan, as amended (the "2002 Plan"), generally have a four-year vesting schedule designed to provide an incentive for continued employment. The options generally expire ten years from the date of the grant. This provides a reasonable time frame during which executive officers and other employees who receive grants can benefit from the appreciation of the Company's shares. The exercise price of options granted under our

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2002 Plan, is equal to 100% of the fair market value of the underlying stock on the date of grant. Accordingly, the option will provide a return to the executive officer only if the market price of the shares appreciates over the option term. Time-based restricted stock unit awards generally vest in equal installments over three years. We also grant performance-based equity awards to our named executive officers.

Since 2015, performance-based restricted stock units have been a significant component of our annual long-term equity incentive awards for our named executive officers. The “target” number of performance-based restricted stock units granted to our named executive officers each year represents approximately 25% of the total value of the long-term equity incentive awards granted to our named executive officers. Of the remainder of the long-term equity incentive awards granted to our named executive officers, 50% of the total value of the long-term incentive awards is granted in the form of stock options that are subject to our standard four year vesting schedule, as described above, and 25% of the total value of the long-term incentive awards is granted in the form of restricted stock units that are subject to our standard three year vesting schedule, as described above.

2018 Long-Term Incentive Awards.

In March and May 2018, our compensation committee approved long-term incentive awards to our named executive officers as described in the Grants of Plan-Based Awards table below. The Company will disclose the actual revenue goals/targets relative to actual performance at the conclusion of the performance period.

The time-based stock options and restricted stock units vest in accordance with the standard vesting schedules described above.

With respect to the performance-based restricted stock units granted in 2018, a named executive officer may earn up to 150% of the “target” number of performance-based restricted stock units based on performance relative to the performance objectives established for these awards. The performance-based restricted stock units will vest based on objectives related to the Company's revenue for the two year performance period commencing January 1, 2018 and ending December 31, 2019 and our new shots on goal and revenue generated from acquisitions during the performance period commencing January 1, 2018 and ending December 31, 2020, with each such objective equally weighted. Threshold performance levels, below which no vesting will be awarded, were also established for each performance objective. The compensation committee selected the foregoing performance measures because they represent the key financial and operational performance metrics for which the executives are responsible, thereby creating the clearest link between executive actions, corporate results and continued long-term success for the Company.

All of the equity awards granted to our named executive officers in 2018 are disclosed below in the table entitled “Grants of Plan-Based Awards in Fiscal Year 2018.”

Vesting of 2017 Performance-Based Restricted Stock Units.

In January 2017, our named executive officers were granted performance-based restricted stock units. A named executive officer may earn up to 137.5% of the “target” number of performance-based restricted stock units based on performance relative to the performance objectives established for these awards. The performance-based restricted stock units will vest based on objectives related to our cash flow for the two year performance period commencing January 1, 2017 and ending December 31, 2018 and our new licensing deals during the performance period commencing April 1, 2017 and ending December 31, 2019, with each such objective equally weighted (and a possible performance multiplier of 150% for “maximum” performance relative to the cash flow objective and a possible performance multiplier of 125% for “maximum” performance relative to the new licensing deals objective).

In January 2019, the compensation committee certified our achievement relative to the cash flow objective for purposes of the 2017 performance-based restricted stock units. The threshold, target and maximum performance levels for the cash flow component of the awards were as follows: less than \$195 million, 0% payout; \$195 million, 75% payout; \$216.6 million, 100% payout; and equal to or greater than \$238.3 million, 125% payout. The compensation committee determined that our cash flow for purposes of determining the vesting of the portion of the 2017 performance-based restricted stock units eligible to vest based on our cash flow for the two year performance period commencing January 1, 2017 and ending December 31, 2018 exceeded \$300.0 million, resulting in a 125% payout with respect to these units.

Vesting of 2016 Performance-Based Restricted Stock Units.

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In January 2016, our named executive officers were granted performance-based restricted stock units. A named executive officer may earn up to 137.5% of the “target” number of performance-based restricted stock units based on performance relative to the performance objectives established for these awards. The performance-based restricted stock units were eligible to vest based on objectives related to our revenues for the two year performance period commencing January 1, 2016 and ending December 31, 2017 and our new OmniAb shots on goal transactions during the three year performance period commencing January 1, 2016 and ending December 31, 2018, with each such objective equally weighted (and a possible performance multiplier of 150% for “maximum” performance relative to the revenue objective and a possible performance multiplier of 125% for “maximum” performance relative to the new OmniAb shots-on-goal transactions objectives). Threshold performance levels, below which no vesting will be awarded, were also established for each performance objective. The compensation committee selected the foregoing performance measures because they represent the key financial and operational performance metrics for which the executives are responsible, thereby creating the clearest link between executive actions, corporate results and continued long-term success for the Company.

In March 2018, the compensation committee certified our achievement relative to the revenue objective for purposes of the 2016 performance-based restricted stock units (i.e. 150% vesting for revenue over \$300 million, 100% vesting for revenue between \$275 million and \$300 million, 50% for revenue between \$250 million and \$275 million, and no vesting for revenue below \$250 million) for purposes of the 2016 performance-based restricted stock units and approved a 104% payout with respect to these units.

In January 2019, the compensation committee certified our achievement relative to the new OmniAb shots on goal transactions objective for purposes of the 2016 performance-based restricted stock units. The threshold, target and maximum performance levels for the new shots on goal transactions component of the awards were as follows: less than 8, 0% payout; 8, 75% payout; 12, 100% payout; and equal to or greater than 16, 125% payout. We had 18 new OmniAb shots on goal transactions for purposes of the 2016 performance-based restricted stock units for the three year performance period commencing January 1, 2016 and ending December 31, 2018, resulting in a 125% payout with respect to these units.

All of the equity awards granted to our named executive officers and outstanding as of December 31, 2018 are disclosed below in the table entitled “Outstanding Equity Awards At Fiscal Year End.”

Other Elements of Compensation and Perquisites

We also provide our named executive officers and other employees the following benefits and perquisites.

Medical Insurance. The Company provides to each named executive officer, the named executive officer’s spouse and children such health, dental and vision insurance coverage as the Company may from time to time make available to its other executives of the same level of employment. The Company pays a portion of the premiums for this insurance for all employees.

Life and Disability Insurance. The Company provides each named executive officer such disability and/or life insurance as the Company in its sole discretion may from time to time make available to its other executive employees of the same level of employment. The Company pays the premiums for this life insurance coverage for the named executive officers.

Defined Contribution Plan. The Company and its designated affiliates offer the Section 401(k) Savings/Retirement Plan (the “401(k) Plan”), a tax-qualified retirement plan, to their eligible employees. The 401(k) Plan permits eligible employees to defer from 1% to 90% of their annual eligible compensation, subject to certain limitations imposed by the Internal Revenue Code. The employees’ elective deferrals are immediately vested and non-forfeitable in the 401(k)

Plan. The Company also makes matching contributions to the 401(k) Plan. In 2018, the match was equal to \$0.40 per each \$1.00 contributed by an employee up to an annual maximum of \$4,800 per year.

Employee Stock Purchase Plan. The Company's 2002 Employee Stock Purchase Plan, as amended, which is intended to qualify under Section 423 of the Internal Revenue Code, permits participants to purchase Company stock on favorable terms. Plan participants are granted a purchase right to acquire shares of common stock at a price that is 85% of the stock price on either the first day of the six month offering period or the stock price on the last day of the six month offering period, whichever is lower. The purchase dates occur on the last business days of December and June of each year. To pay for the shares, each participant may authorize periodic payroll deductions from 1% to 10% of his or her cash compensation, subject

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to certain limitations imposed by the Internal Revenue Code. All payroll deductions collected from the participant in an offering period are automatically applied to the purchase of common stock on that offering period's purchase date provided the participant remains an eligible employee and has not withdrawn from the employee stock purchase plan prior to that date.

Other. The Company makes available certain other perquisites or fringe benefits to executive officers and other employees, such as tuition reimbursement, professional society dues and food and recreational fees incidental to official company functions, including board meetings. The aggregate of these other benefits was less than \$10,000 for each executive officer in the last fiscal year.

Severance and Change in Control Arrangements

We believe that reasonable severance benefits for our named executive officers are important because it may be difficult for our executive officers to find comparable employment within a short period of time following an involuntary termination of employment. We also believe that it is important to protect our named executive officers in the event of a change in control transaction involving us. In addition, it is our belief that the interests of stockholders will be best served if the interests of our senior management are aligned with them, and providing change in control severance benefits should eliminate, or at least reduce, the reluctance of senior management to pursue potential change in control transactions that may be in the best interests of stockholders. Accordingly, the severance arrangements we have entered into with each of our executive officers provide for severance benefits in specified circumstances, as well as benefits in connection with an involuntary termination following a change in control.

Change in Control Arrangements

The Company has a change in control severance agreement with each of the named executive officers. In the event a named executive officer's employment is terminated by us without cause or he or she resigns for good reason within 24 months following a change in control of the Company, he or she will be eligible to receive a severance benefit equal to:

- one times (two times for Mr. Higgins) the annual rate of base salary in effect for such officer at the time of involuntary termination; plus
- one times (two times for Mr. Higgins) the greater of: (a) the maximum target bonus for the fiscal year in which the termination occurs; or (b) the maximum target bonus for the fiscal year in which the change in control occurs, if different; plus
- twelve (twenty-four for Mr. Higgins) multiplied by the monthly premium the executive would be required to pay for continued health coverage for himself or herself and his or her eligible dependents.

The foregoing severance amount will be payable in a lump sum following the officer's termination of employment, subject to the officer's execution of a general release of claims acceptable to us.

The change in control severance agreements also provide that all of a named executive officer's outstanding stock awards will vest in the event of such a termination. In addition, the post-termination exercise period of a named executive officer's stock options will be extended from three months to the date that is nine months following the date of termination (but in no event beyond the original expiration date of such options).

For purposes of the change in control severance agreements, an involuntary termination is either a termination of a named executive officer's employment by us without cause or his resignation for good reason. "Cause" is generally defined as an officer's conviction of, or plea of "guilty" or "no contest" to, a felony under the laws of the United States or any state thereof, an officer's willful and material breach of any obligation or duty under the employment agreement, the Company's confidentiality and proprietary rights agreement or the Company's written employment or other written policies that have previously been furnished to the officer, which breach is not cured within 30 days after written

notice thereof is received by the officer, if such breach is capable of cure, the officer's gross negligence or willful misconduct, including without limitation, fraud, dishonesty or embezzlement, in the performance of his duties, or the officer's continuing failure or refusal to perform his assigned duties or to comply with reasonable directives of the board of directors that are consistent with the officer's job duties (which directives are not in conflict with applicable law), which failure is not cured within 30 days after written notice thereof is received by the officer.

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For purposes of the change in control severance agreements, “good reason” is generally defined as a material diminution in the officer’s authority, duties or responsibilities, a material diminution in the officer’s base compensation, a material change in the geographic location at which the officer must perform his duties, or any other action or inaction that constitutes a material breach by the Company or any successor or affiliate of its obligations to the officer under the employment agreement. An officer must provide written notice to the Company of the occurrence of any of the foregoing events or conditions without his written consent within 90 days of the occurrence of such event. The Company will have a period of 30 days to cure such event or condition after receipt of written notice of such event from the officer. Any voluntary termination of an officer’s employment for “good reason” must occur no later than the date that is six months following the initial occurrence of one of the foregoing events or conditions.

For purposes of the change in control severance agreements, a “change in control” has generally the same definition as given to such term under our 2002 Plan, as described below.

Amended and Restated Severance Plan

We maintain the Ligand Pharmaceuticals Incorporated Amended and Restated Severance Plan to provide severance payments to our employees and the employees of our subsidiaries upon an involuntary termination of employment without cause. Each of the named executive officers is eligible to participate in the severance plan, provided that he or she is not subject to disciplinary action or a formal performance improvement plan at the time of termination. However, if, as a result of his or her involuntary termination by us without “cause,” a named executive officer would be eligible to receive severance under any individual change in control severance agreement, employment agreement or other arrangement providing severance benefits, as approved by our board of directors or a committee thereof, such named executive officer will not be eligible for benefits under the severance plan.

Under the terms of the severance plan, a named executive officer will be eligible to receive (1) a lump sum payment in cash for his fully earned but unpaid base salary and accrued but unused vacation through the date of termination, (2) an amount equal to his base salary for the severance period, which period will be equal to (a) two months plus (b) one week for each year of service as of the date of termination and (c) continued health coverage at the same cost as was in effect for the named executive officer at the date of termination throughout such severance period, provided that such named executive officer elects continued coverage under COBRA. The foregoing cash severance benefit will be payable in a lump sum following the officer’s termination of employment, subject to the officer’s execution of a general release of claims acceptable to us.

For purposes of the severance plan, “cause” is generally defined as an officer’s conviction of (or entry of a plea of no contest to) any felony or any other criminal act, an officer’s commission of any act of fraud or embezzlement, an officer’s unauthorized use or disclosure of confidential or proprietary information or trade secrets of the Company or our subsidiaries, or an officer’s commission of any material violation of the Company’s policies, or an officer’s commission of any other intentional misconduct which adversely affects the business or affairs of the Company in a material manner.

Change in Control Acceleration of Equity Awards

Equity awards granted under the 2002 Plan to the named executive officers may be subject to accelerated vesting in the event of a “change in control.”

Equity award agreements under the 2002 Plan, which cover each of the named executive officers, provide that such equity awards will automatically vest in the event of a “change in control” where the option is not assumed or replaced by a successor.

Under the 2002 Plan, a “change in control” is generally defined as:

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a merger, consolidation or reorganization of the Company in which 50% or more of its voting securities change ownership;
the sale, transfer or other disposition of all or substantially all of the Company's assets in complete liquidation or dissolution of the Company; or
a change in control of the Company effected through a successful tender offer for more than 50% of the Company's outstanding common stock or through a change in the majority of our board of directors as a result of one or more contested elections for board membership.

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In addition, the performance-based restricted stock units granted to the named executive officers in 2018 contain additional vesting provisions that will apply in the event of a change in control. In the event of a change in control prior to December 31, 2019, the number of performance-based restricted stock units in which a named executive will be eligible to vest under each performance-based restricted stock unit will be set at the “target” number of restricted stock units, which “target” restricted stock units will continue to be eligible to vest based solely on the participant’s continued employment or service, with 50% of such “target” units vesting on December 31, 2019 and 50% of such “target” units vesting on December 31, 2020. In the event of a change in control after December 31, 2019 but prior to December 31, 2020, the remaining number of restricted stock units in which a participant will be eligible to vest under each performance-based restricted stock unit will be set at 50% of the “target” number of restricted stock units, which “target” restricted stock units will continue to be eligible to vest based solely on the participant’s continued employment or service through December 31, 2020.

Further, the performance-based restricted stock units granted to the named executive officers in 2017 contain additional vesting provisions that will apply in the event of a change in control. In the event a change in control had occurred prior to December 31, 2018, the number of performance-based restricted stock units in which a named executive would have been eligible to vest under each performance-based restricted stock unit would have been set at the “target” number of restricted stock units, which “target” restricted stock units would have continued to be eligible to vest based solely on the participant’s continued employment or service, with 50% of such “target” units vesting on December 31, 2018 and 50% of such “target” units vesting on December 31, 2019. In the event of a change in control after December 31, 2018 but prior to December 31, 2019, the remaining number of restricted stock units in which a participant will be eligible to vest under each performance-based restricted stock unit will be set at 50% of the “target” number of restricted stock units, which “target” restricted stock units will continue to be eligible to vest based solely on the participant’s continued employment or service through December 31, 2019.

Policies Regarding Tax Deductibility of Compensation

Section 162(m) of the Internal Revenue Code restricts the ability of publicly held companies to take a federal income tax deduction for compensation paid to “covered employees” to the extent that compensation exceeds \$1.0 million per covered employee in any fiscal year. Prior to the Tax Cuts and Jobs Act of 2017, covered employees generally consisted of a company’s chief executive officer and its three most highly compensated executive officers serving at the end of the taxable year (other than its chief financial officer), and compensation that qualified as “performance-based” under Section 162(m) was exempt from this \$1 million deduction limitation. As part of the Tax Cuts and Jobs Act of 2017, the ability to rely on this exemption was, with certain limited exceptions, eliminated; in addition, the definition of covered employees was expanded to generally include all named executive officers. Although we historically maintained plans that were intended to permit the payment of deductible compensation under Section 162(m) of the Code if the requirements of Section 162(m) were satisfied, subject to the limited transition relief rules in the Tax Cuts and Jobs Act of 2017, we may no longer be able to take a deduction for any compensation in excess of \$1 million that is paid to a covered employee. While we consider the tax deductibility of each element of executive compensation as a factor in our overall compensation program, the compensation committee retains the discretion to approve compensation that may not qualify for the compensation deduction if, in light of all applicable circumstances, it would be in our best interest for such compensation to be paid without regard to whether it may be tax deductible.

Risk Assessment of Compensation Policies and Programs

In January 2019, management and Radford assessed our compensation policies and programs for all employees for purposes of determining the relationship of such policies and programs and the enterprise risks faced by the Company and presented its assessment to our compensation committee. Based on these assessments, management recommended, and the compensation committee concluded, that none of our compensation policies or programs create risks that are reasonably likely to have a material adverse effect on the Company. In connection with their review,

management and the compensation committee noted certain key attributes of our compensation policies and programs that help to reduce the likelihood of excessive risk taking, including:

- The program design provides a balanced mix of cash and equity compensation, fixed and variable compensation and annual and long-term incentives.

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Corporate performance objectives are designed to be consistent with the Company's overall business plan and strategy, as approved by the board of directors.

The determination of executive incentive awards is based on a review of a variety of indicators of performance, reducing the risk associated with any single indicator of performance.

The Company's equity awards generally vest over multi-year periods.

The compensation committee has the right to exercise negative discretion over executive annual incentive plan payments.

Compensation Tables

Summary Compensation Table

The following table provides information regarding the compensation earned by our named executive officers during the fiscal years ended December 31, 2018, 2017 and 2016.

Name and Principal Position	Year	Salary(\$)	Bonus (\$)	Stock Awards (\$) ⁽¹⁾	Option Awards (\$) ⁽¹⁾	Non-Equity Incentive Plan Compensation (\$) ⁽²⁾	All Other Compensation (\$) ⁽³⁾	Total
John L. Higgins, Chief Executive Officer	2018	627,413	-	2,779,081	2,376,729	517,615	5,965	6,306,803
	2017	611,656	30,000 ⁽²⁾	2,111,154	2,202,412	550,491	7,494	5,513,207
	2016	573,958	-	1,992,215	2,393,068	387,421	5,978	5,352,640
Matthew W. Foehr, President and Chief Operating Officer	2018	458,931	-	1,361,147	1,164,133	252,412	87,517 ⁽⁴⁾	3,236,623
	2017	442,094	30,000 ⁽²⁾	1,387,985	1,280,493	265,256	52,675 ⁽⁵⁾	3,458,503
	2016	429,292	-	973,888	1,169,942	193,181	74,954 ⁽⁶⁾	2,841,257
Matthew Korenberg, Executive Vice President, Finance and Chief Financial Officer	2018	428,438	-	1,077,560	921,591	235,641	5,400	2,668,630
	2017	403,438	30,000 ⁽²⁾	736,550	768,266	242,063	5,400	2,185,717
	2016	378,750	-	664,015	797,704	118,500	7,872	1,966,841
Charles S. Berkman, Senior Vice President and General Counsel	2018	402,500	-	623,961	533,547	177,100	6,471	1,743,579
	2017	362,812	-	466,461	486,593	174,150	8,803	1,498,819
	2016	329,167	-	376,275	452,035	136,350	6,343	1,300,170

Reflects the grant date fair value for stock and option awards granted in 2016, 2017 and 2018, calculated in accordance with FASB ASC Topic 718, Compensation - Stock Compensation, ("Topic 718"). The assumptions used to calculate the value of stock and option awards are set forth under Note 8 of the Notes to Consolidated Financial Statements included in our Annual Report on Form 10-K for the year ended December 31, 2018, filed with the SEC on February 28, 2019. With respect to the restricted stock unit awards included in the Summary

(1) Compensation Table that were granted during 2018 with performance-based vesting conditions, these amounts include the grant date fair value of such performance-based restricted stock units granted to each of the named executive officers based on the estimated probable outcome of the performance based objectives applicable to such awards on the grant date. The full grant date fair value of the performance-based restricted stock units awarded to our named executive officers during fiscal year 2018, assuming maximum achievement of the applicable performance objectives is as follows: Mr. Higgins \$2,277,675, Mr. Foehr \$1,115,566 Mr. Korenberg \$883,145, and Mr. Berkman \$511,385.

(2)

Represents performance bonus awards under the management bonus plan earned in 2016, 2017 and 2018, but paid in the subsequent year. For 2017 for Messrs. Higgins, Foehr and Korenberg, the "Bonus" column reflects a \$30,000 discretionary increase to their annual bonuses approved by the compensation committee.

With the exception of Mr. Foehr, represents life insurance premiums paid by the Company for each year (3) represented in the table and \$4,800 in 401(k) matching funds paid by the Company for each named executive officer.

Pursuant to the management rights letter between Viking Therapeutics, Inc. ("Viking"), and the Company dated May 21, 2014, the Company nominated Mr. Foehr to serve as a member of Viking's board of directors. During 2018, in connection with Mr. Foehr's service as a director of Viking, Mr. Foehr received (1) \$33,170 in cash (4) payments and (2) \$48,647 in option awards (representing the aggregate grant date fair value of the option awards as reported by Viking, computed in accordance with authoritative accounting guidance). Additionally, Mr. Foehr received life insurance premiums paid by the Company for 2018 of \$900 and \$4,800 in 401(k) matching funds paid by the Company in 2018.

(5) During 2017, in connection with Mr. Foehr's service as a director of Viking, Mr. Foehr received (1) \$33,170 in cash payments and (2) \$13,278 in option awards (representing the aggregate grant date fair value of the option awards as reported by Viking, computed in

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accordance with authoritative accounting guidance). Additionally, Mr. Foehr received life insurance premiums paid by the Company for 2017 of \$900, taxable fringe benefits of \$527 and \$4,800 in 401(k) matching funds paid by the Company in 2017.

(6) During 2016, in connection with Mr. Foehr's service as a director of Viking, Mr. Foehr received (1) \$33,170 in cash payments and (2) \$36,084 in option awards (representing the aggregate grant date fair value of the option awards as reported by Viking, computed in accordance with authoritative accounting guidance). Additionally, Mr. Foehr received life insurance premiums paid by the Company for 2016 of \$600, taxable fringe benefits of \$419 and \$4,800 in 401(k) matching funds paid by the Company in 2016.

Grants of Plan-Based Awards in Fiscal Year 2018

The following table summarizes plan-based awards granted to our named executive officers during the last fiscal year.

Name	Grant Date	Date of Board Action approving Award	Estimated Future Payouts Under Non-Equity Incentive Plan Awards ⁽¹⁾	Estimated Future Payouts Under Equity Incentive Plan Awards ⁽²⁾	All Other Stock Awards: Number of Shares of Stock or Units ⁽³⁾	All Other Option Awards: Number of Securities Underlying Options ⁽⁴⁾	Exercise or Base Price of Option Awards ⁽⁵⁾	Grant Date Fair Value of Option Awards ⁽⁶⁾
			Threshold Target (\$)	Maximum Target (\$)	Threshold Target (#)	Maximum Target (#)		
John L. Higgins	1/23/18	1/23/18	487,500	—	—	—	—	—
	5/30/18	5/30/18	—	—	3,964	7,928	11,892	1,518,450
	3/2/18	3/2/18	—	—	—	—	—	1,260,631
	3/2/18	3/2/18	—	—	—	—	41,392	159.01
Matthew W. Foehr	1/23/18	1/23/18	245,000	—	—	—	—	—
	5/30/18	5/30/18	—	—	1,942	3,883	5,825	743,711
	3/2/18	3/2/18	—	—	—	—	—	617,436
	3/2/18	3/2/18	—	—	—	—	20,274	159.01
Matthew Korenberg	1/23/18	1/23/18	235,000	—	—	—	—	—
	5/30/18	5/30/18	—	—	1,537	3,074	4,611	588,763
	3/2/18	3/2/18	—	—	—	—	—	488,797
	3/2/18	3/2/18	—	—	—	—	16,050	159.01
Charles S. Berkman	1/23/18	1/23/18	172,000	—	—	—	—	—
	5/30/18	5/30/18	—	—	890	1,780	2,670	340,923
	3/2/18	3/2/18	—	—	—	—	—	283,038
	3/2/18	3/2/18	—	—	—	—	9,292	159.01

- (1) Represents the target cash bonus awards granted under our annual performance bonus program. Actual bonus amounts paid are reflected in the Summary Compensation Table above.
- The performance-based restricted stock units will vest based on objectives related to the Company's revenue for the two year performance period commencing January 1, 2018 and ending December 31, 2019 and new shots-on-goal and revenue generated from acquisitions completed during the performance period commencing January 1, 2018 and ending December 31, 2020, with each such objective equally weighted (and a possible performance multiplier of 150% for “maximum” performance relative to both objectives. Threshold performance levels, below which no vesting will be awarded, were also established for each performance objective. For a description of the change in control provisions applicable to the foregoing equity award, see “Severance and Change in Control Arrangements” above.
- (2) The restricted stock unit awards granted to the named executive officers vest in equal installments over a three year
- (3) period on each of February 15, 2019, 2020 and 2021. For a description of the change in control provisions applicable to the foregoing equity awards, see “Severance and Change in Control Arrangements” above.

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Each option grant to the named executive officers vests 12.5% on August 15, 2018 and the remainder in 42 equal (4) monthly installments. For a description of the change in control provisions applicable to the foregoing equity awards, see “Severance and Change in Control Arrangements” above.

Represents the fair value of the stock option or stock award at the time of grant as determined in accordance with the provisions of FASB ASC Topic 718. The assumptions used to calculate the value of stock and option awards are set forth under Note 8 of the Notes to Consolidated Financial Statements included in our Annual Report on (5) Form 10-K for the year ended December 31, 2018, filed with the SEC on February 28, 2019. With respect to awards, the vesting of which is performance-based, the grant date fair value is based on the estimated probable outcome of the performance objectives applicable to such awards on the grant date.

Outstanding Equity Awards at Fiscal Year-End

The following table provides information on all stock and option awards held by the named executive officers of the Company as of December 31, 2018. All outstanding equity awards are in shares of the Company’s common stock.

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Name	Option Awards					Stock Awards			
	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Options (#)	Option Exercise Price	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested (\$) ⁽²⁾	Equity Incentive Plan Awards: Number of Unearned Shares, Unit or Rights That Have Not Vested (#)	Equity incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested (\$) ⁽³⁾
John L. Higgins	33,790	—	—	16.14	2/14/2019	—	—	—	—
	48,125	—	—	9.96	2/14/2020	—	—	—	—
	94,657	—	—	10.05	2/16/2021	—	—	—	—
	144,666	—	—	14.47	2/8/2022	—	—	—	—
	95,616	—	—	21.92	2/15/2023	—	—	—	—
	14,334	—	—	32.00	6/3/2023	—	—	—	—
	75,000	—	—	74.42	2/11/2024	—	—	—	—
	20,000	—	—	74.42	2/11/2024	—	—	—	—
	53,856	2,342	—	56.26	2/10/2025	—	—	—	—
	39,235	16,156	—	85.79	2/11/2026	—	—	—	—
	20,005	23,641	—	100.38	2/23/2027	—	—	—	—
	7,761	33,631	—	159.01	3/2/2028	—	—	—	—
	—	—	—	—	—	18,614 ⁽⁴⁾	2,525,920	—	—
Matthew W. Foehr	—	—	—	—	—	—	—	11,502 ⁽⁵⁾	1,560,821
	—	—	—	—	—	—	—	7,928 ⁽⁶⁾	1,075,830
	14,894	—	—	9.97	4/17/2021	—	—	—	—
	21,675	—	—	14.47	2/8/2022	—	—	—	—
	73,000	—	—	21.92	2/14/2023	—	—	—	—
	65,000	—	—	74.42	2/11/2024	—	—	—	—
	40,358	1,755	—	56.26	2/9/2025	—	—	—	—
	19,182	7,898	—	85.79	2/10/2026	—	—	—	—
	11,631	13,745	—	100.38	2/23/2027	—	—	—	—
	3,802	16,472	—	159.01	3/1/2028	—	—	—	—
	—	—	—	—	—	10,804 ⁽⁷⁾	1,466,103	—	—
	—	—	—	—	—	—	—	6,687 ⁽⁵⁾	907,426
	—	—	—	—	—	—	—	3,883 ⁽⁶⁾	526,923
Matthew Korenberg	20,833	4,167	—	104.59	8/5/2025	—	—	—	—
	1,539	5,385	—	85.79	2/11/2026	—	—	—	—
	6,979	8,246	—	100.38	2/23/2027	—	—	—	—
	3,010	13,040	—	159.01	3/1/2028	—	—	—	—
	—	—	—	—	—	6,742 ⁽⁸⁾	914,889	—	—

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Charles S. Berkman	—	—	—	—	—			4,013 ⁽⁵⁾	544,564
	—	—	—	—	—	—	—	3,074 ⁽⁶⁾	417,142
	224	—	—	21.92	2/14/2023	—	—	—	—
	2,623	—	—	56.26	2/9/2025	—	—	—	—
	1,525	3,052	—	85.79	2/10/2026	—	—	—	—
	1,607	5,223		100.38	2/23/2027				
	1,743	7,549		159.01	3/1/2028				
	—	—	—	—	—	4,017 ⁽⁹⁾	545,107	—	—
	—	—	—	—	—			2,542 ⁽⁵⁾	344,949
	—	—	—	—	—	—	—	1,780 ⁽⁶⁾	241,546

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- (1) Each option grant to the named executive officers has a ten year term from the date of grant. Except as described below, each option vests 12.5% after six months from grant and the remainder in 42 equal monthly installments. For a description of the change in control provisions applicable to the stock option awards, see “Severance and Change in Control Arrangements” above.

- (2) Except as described in footnotes 5 and 6 below, the restricted stock unit awards granted to the named executive officers vest in equal installments over a three year period following the date of grant. For a description of the change in control provisions applicable to the stock awards, see “Severance and Change in Control Arrangements” above.

- (3) Computed by multiplying the closing market price of our common stock on December 31, 2018, the last trading day of 2018, of \$135.70, by the number of shares of common stock subject to such award.

- (4) The table above reflects the remaining unvested restricted stock units from the following grants of restricted stock units to Mr. Higgins, which vest in equal installments over a three year period from the date of grant: 3,870 unvested restricted stock units granted on February 11, 2016, 6,816 unvested restricted stock units granted on February 24, 2017, and 7,982 unvested restricted stock units granted on March 2, 2018. For a description of the change in control provisions applicable to the stock awards, see “Severance and Change in Control Arrangements” above.

- (5) Represents the performance-based restricted stock units granted to the named executive officer in 2017. A named executive officer was eligible to earn up to 137.5% of the “target” number of performance-based restricted stock units based on performance relative to the performance objectives established for these awards.

The performance-based restricted stock units granted in 2017 were eligible to vest based on objectives related to the Company's cash flow for the two year performance period commencing January 1, 2017 and ending December 31, 2018 and our new licensing deals during the performance period commencing April 1, 2017 and ending December 31, 2019 with each such objective equally weighted (and a possible performance multiplier of 125% for “maximum” performance relative to the cash flow objective and a possible performance multiplier of 150% for “maximum” performance relative to the new licensing deals objective).

In January 2019, the compensation committee certified our achievement relative to the cash flow objectives for purposes of the 2017 performance-based restricted stock units. The threshold, target and maximum performance levels for the cash flow-based component of the awards were as follows: less than \$195 million, 0% payout; \$195 million, 75% payout; \$216.6 million, 100% payout; and equal to or greater than \$238.3 million, 125% payout. Our cash flow for purposes of the 2017 performance-based restricted stock units for the two year performance period commencing January 1, 2017 and ending December 31, 2018 exceeded \$300 million, resulting in a 125% of “target” payout with respect to the units eligible to vest based on the cash flow objective. The performance condition applicable to these awards were satisfied and vested upon our compensation committee’s certification of such results in January 2019. The actual number of units that vested in January 2019 are reported above with respect to the portion of the 2017 awards tied to cash flow as follows: Mr. Higgins, 6,390; Mr. Foehr, 3,715; Mr. Korenberg, 2,230; and Mr. Berkman, 1,413.

The “target” number of performance-based restricted stock units granted to the named executive officers in 2017 that remain eligible to vest based on the new licensing deals objective are reported in the column titled “Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested” above as follows: Mr. Higgins, 5,112; Mr. Foehr, 2,972; Mr. Korenberg, 1,783; and Mr. Berkman, 1,129.

- (6) Represents the “target” number of performance-based restricted stock units granted to the named executive officer in 2018. The performance-based restricted stock units granted in 2018 will vest based on objectives related to the

Company's revenue for the two year performance period commencing January 1, 2018 and ending December 31, 2019 and new shots on goal and revenue generated from acquisitions completed during the performance period commencing January 1, 2018 and ending December 31, 2020, with each such objective equally weighted (and a possible performance multiplier of 150% for “maximum” performance relative to both objectives). Threshold performance levels, below which no vesting will be awarded, were also established for each performance objective. For a description of the change in control provisions applicable to the foregoing equity awards, see “Severance and Change in Control Arrangements” above. The “target” number of performance-based restricted stock units granted to each of the named executive officers reflected in the column above are as follows: Mr. Higgins, 7,928; Mr. Foehr, 3,833; Mr. Korenberg, 3,074; and Mr. Berkman, 1,780.

The table above reflects the remaining unvested restricted stock units from the following grants of restricted stock units to Mr. Foehr, which vest in equal installments over a three year period: 1,892 unvested restricted stock units (7) granted on February 11, 2016, 5,029 unvested restricted stock units granted on February 24, 2017, and 3,883 unvested restricted stock units granted on March 2, 2018. For a description of the change in control provisions applicable to the stock awards, see “Severance and Change in Control Arrangements” above.

The table above reflects the remaining unvested restricted stock units from the following grants of restricted stock units to Mr. Korenberg: 1,290 unvested restricted stock units granted on February 11, 2016, 2,378 unvested (8) restricted stock units granted February 24, 2017, and 3,074 unvested restricted stock units granted on March 2, 2018. For a description of the change in control provisions applicable to the stock awards, see “Severance and Change in Control Arrangements” above.

The table above reflects the remaining unvested restricted stock units from the following grants of restricted stock units to Mr. Berkman, which vest in equal installments over a three year period: 731 unvested restricted stock units (9) granted on February 11, 2016, 1,506 unvested restricted stock units granted on February 24, 2017, and 1,780 unvested restricted stock units granted on March 2, 2018. For a description of the change in control provisions applicable to the stock awards, see “Severance and Change in Control Arrangements” above.

Option Exercises and Stock Vested During Fiscal Year 2018

The following table provides information on stock option exercises and stock vesting in fiscal 2018 by the named executive officers of the Company.

Name	Option Awards		Stock Awards	
	No. of Shares Acquired on Exercise	Value Realized Upon Exercise (\$) ⁽¹⁾ (#)	Number of Shares Acquired on Vesting	Value Realized on Vesting (\$) ⁽²⁾ (#)
John L. Higgins	44,654	7,948,120	18,608	2,977,076
Matthew W. Foehr	51,515	8,113,543	11,717	1,867,227
Matthew Korenberg	11,540	1,972,178	6,483	1,175,533
Charles S. Berkman	24,453	2,608,699	4,138	660,283

(1) The value realized upon exercise of stock options reflects the price at which shares acquired upon exercise of the stock options were sold or valued for income tax purposes, net of the exercise price for acquiring the shares.

(2) Computed by multiplying the closing market price of our common stock on the vesting date by the number of restricted stock units subject to such award vesting on the applicable vesting date.

Potential Payments Upon Termination or Change in Control

The following table summarizes potential change in control and severance payments to each named executive officer as of December 31, 2018. The three right-hand columns describe the payments that would apply in three different potential scenarios—a termination without cause prior to a change in control or more than 24 months following a change in control; a change in control without a termination of employment; or a termination of employment as a result of the named executive officer's resignation for good reason or termination of employment by us other than for cause, in each case within 24 months following a change in control. The table assumes that the termination or change in control occurred on December 31, 2018. For purposes of estimating the value of accelerated equity awards to be received in the event of a termination of employment or change in control, we have assumed a price per share of our common stock of \$135.70, which represents the closing market price of our common stock as reported on the Nasdaq Global Market on December 31, 2018, the last trading day of 2018. All cash severance benefits will be paid in a lump sum.

Name	Benefit	Termination Without Cause; No Change of Control (\$)	Change of Control; No Termination (\$) ⁽¹⁾	Termination Without Cause or Resignation for Good Reason within 24 Months Following a Change of Control (\$) ⁽²⁾
John L. Higgins	Salary	249,709	—	1,256,600
	Bonus	—	—	942,450
	Option acceleration	—	4,314,871	4,314,871
	Stock Award acceleration	—	6,177,460	6,177,460
	Benefits continuation	14,393	—	69,087
	Total value:	264,102	10,492,331	12,760,468
Matthew W. Foehr	Salary	147,436	—	460,000
	Bonus	—	—	230,000
	Option acceleration	—	2,592,450	2,592,450
	Stock Award acceleration	—	3,740,654	3,740,654

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Matthew Korenberg	Benefits continuation	11,515	—	34,544
	Total value:	158,951	6,333,104	7,057,648
	Salary	104,744	—	430,000
	Bonus	—	—	215,000
	Option acceleration	—	1,288,838	1,288,838
	Stock Award acceleration	—	2,133,917	2,133,917
Charles S. Berkman	Benefits continuation	8,636	—	34,544
	Total value:	113,380	3,422,755	4,102,299
	Salary	199,904	—	405,000
	Bonus	—	—	162,000
	Option acceleration	—	998,645	998,645
	Stock Award acceleration	—	1,326,989	1,326,989
	Benefits continuation	17,272	—	34,544
	Total value:	217,176	2,325,634	2,927,178

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(1) The 2002 Plan provides that options or restricted stock units will vest in the event of a change in control and the options or restricted stock units are not assumed or replaced by a successor. This disclosure assumes that the successor does not assume or replace the options or restricted stock units. For purposes of calculating the values in the table above, performance-based restricted stock units are included at "target" performance levels.

(2) The change in control severance agreements with each of our named executive officers provide that all of a named executive officer's outstanding stock awards will vest in the event of an involuntary termination. For purposes of calculating the values in the table above, performance-based restricted stock units are included at "target" performance levels.

Compensation of Directors

The following table provides information related to the compensation of each of our non-employee directors for fiscal 2018.

Name	Cash Fees (\$)	Stock Awards (\$) ⁽⁸⁾	Option Awards (\$) ⁽⁸⁾	Total (\$)
Jason M. Aryeh ⁽¹⁾	62,685	96,584	186,596	345,865
Todd Davis ⁽²⁾	60,185	96,584	186,596	343,365
Nancy Gray ⁽³⁾	55,185	96,584	186,596	338,365
John W. Kozarich ⁽⁴⁾	80,185	96,584	186,596	363,365
Sunil Patel ⁽⁵⁾	55,185	96,584	186,596	338,365
Stephen L. Sabba ⁽⁶⁾	70,185	96,584	186,596	353,365
John L. LaMattina ⁽⁷⁾	52,685	96,584	186,596	335,865

(1) As of December 31, 2018, Mr. Aryeh held options to purchase 13,325 shares of our common stock and 493 restricted stock units. During 2018, Mr. Aryeh received 493 restricted stock units with a grant date fair value of \$96,584 and 2,474 stock options with a grant date fair value of \$186,596.

(2) As of December 31, 2018, Mr. Davis held options to purchase 4,930 shares of our common stock and 493 restricted stock units. During 2018, Mr. Davis received 493 restricted stock units with a grant date fair value of \$96,584 and 2,474 stock options with a grant date fair value of \$186,596.

(3) As of December 31, 2018, Dr. Gray held options to purchase 5,926 shares of our common stock and 1,101 restricted stock units. During 2018, Dr. Gray received 493 restricted stock units with a grant date fair value of \$96,584 and 2,474 stock options with a grant date fair value of \$186,596.

(4) As of December 31, 2018, Dr. Kozarich held options to purchase 37,830 shares of our common stock and 493 restricted stock units. During 2018, Dr. Kozarich received 493 restricted stock units with a grant date fair value of \$96,584 and 2,456 stock options with a grant date fair value of \$186,596.

(5) As of December 31, 2018, Mr. Patel held options to purchase 13,325 shares of our common stock and 493 restricted stock units. During 2018, Mr. Patel received 493 restricted stock units with a grant date fair value of \$96,584 and 2,474 stock options with a grant date fair value of \$186,596.

(6) As of December 31, 2018, Dr. Sabba held options to purchase 35,330 shares of our common stock and 493 restricted stock units. During 2018, Dr. Sabba received 493 restricted stock units with a grant date fair value of \$96,584 and 2,474 stock options with a grant date fair value of \$186,596.

(7) As of December 31, 2018, Dr. LaMattina held options to purchase 20,660 shares of our common stock and 493 restricted stock units. During 2018, Dr. LaMattina received 493 restricted stock units with a grant date fair value of \$96,584 and 2,474 stock options with a grant date fair value of \$186,596.

(8) Reflects the grant date fair value for stock and option awards granted in 2018, calculated in accordance with FASB ASC Topic 718. The assumptions used to calculate the value of stock and option awards are set forth under Note 8 of the Notes to Consolidated Financial Statements included in our Annual Report on Form 10-K for the year ended

December 31, 2018, filed with the SEC on February 28, 2019.

Narrative to Director Compensation Table

Non-employee members of our board of directors are paid fees for their service as a director and are reimbursed for expenses incurred in connection with such service.

Under our director compensation policy in effect during 2018, each director was eligible to receive an annual retainer of \$45,000. No meeting fees are paid. In addition, the chairperson of the board will received an additional annual retainer of \$30,000, the chairperson of the audit committee received an additional annual retainer fee of \$20,000, the chairperson of the compensation committee received an additional annual retainer of \$15,000 and the chairperson of the nominating and corporate governance committees received an additional annual retainer fee of \$10,000. Members of the audit committee

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received an additional annual retainer of \$10,000, members of the compensation committee received an additional annual retainer of \$7,500 and members of the nominating and corporate governance committee received an additional annual retainer of \$5,000. Directors may elect to receive their retainers in cash or vested shares of our common stock, which shares are issued under our 2002 Plan.

At the 2018 annual meeting, non-employee directors were automatically granted (i) that number of restricted stock units determined by dividing (a) \$95,000, by (b) the average closing price per share of the Company's common stock on the Nasdaq Global Market (or such other established stock exchange or national quotation system on which the stock is quoted) for the 30-calendar day period prior to the date of grant, and (ii) that number of stock options having a value of \$190,000, calculated on the grant date in accordance with the Black-Scholes option pricing model (utilizing the same assumptions that the Company utilizes in preparation of its financial statements). The foregoing awards will vest in full on the earlier of (i) the date of the annual meeting of the Company's stockholders next following the grant date, and (ii) on the first anniversary of the date of grant.

Upon initial election to the board of directors, each non-employee director will automatically be granted (i) that number of restricted stock units determined by dividing (a) \$145,000, by (b) the average closing price per share of the Company's common stock on the Nasdaq Global Market (or such other established stock exchange or national quotation system on which the stock is quoted) for the 30-calendar day period prior to the date of grant, and (ii) that number of stock options having a value of \$280,000, calculated on the grant date in accordance with the Black-Scholes option pricing model (utilizing the same assumptions that the Company utilizes in preparation of its financial statements). The foregoing awards will vest in three equal annual installments on each of the first three anniversaries following the date of grant.

All awards will vest in full in the event of a change in control or a hostile take-over, each as defined under our 2002 Plan.

Non-Employee Director Ownership Guidelines. In addition, the director compensation policy contains an ownership guideline so that members of the board are required to own shares with a value of at least three times the then-current annual retainer after they had completed three years of board service. As of the date of this proxy statement, all non-employee directors were in compliance with these guidelines.

Pay Ratio Disclosure

In August 2015, pursuant to a mandate of the Dodd-Frank Wall Street Reform and Consumer Protection Act, the SEC adopted a rule requiring annual disclosure of the ratio of the median employee's annual total compensation to the total annual compensation of the principal executive officer. We are providing the following information to comply with Item 402(u) of Regulation S-K:

Total compensation of our CEO in 2018 was \$6,306,833 as reported above in our Summary Compensation Table. The total compensation for the median employee, other than our CEO, was \$262,940. The total compensation for the median employee was calculated according to the requirements of the Summary Compensation Table which includes base salary, bonus, equity awards and 401(k) matching contributions. The ratio of our CEO's compensation to the compensation of the median employee was 24 to 1.

The pay ratio reported above is a reasonable estimate calculated in a manner consistent with SEC rules based on our internal records and the methodology described above. The SEC rules for identifying the median compensated employee and calculating the pay ratio based on that employee's annual total compensation allow companies to adopt a variety of methodologies, to apply certain exclusions, and to make reasonable estimates and assumptions that reflect their employee populations and compensation practices. Therefore, the pay ratio reported by other companies may not

be comparable to the pay ratio reported above, as other companies have different employee populations and compensation practices and may utilize different methodologies, exclusions, estimates and assumptions in calculating their own pay ratios. In addition, under the disclosure instructions 2 to Item 402(u), the median-paid employee may be identified once every three years if there is no significant impact to the pay ratio disclosure.

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Our employee population data described above does not include approximately 70 employees of Vernalis, which we acquired in October 2018. Other than the Vernalis acquisition, there had been no material changes to our employee population or to the median-paid employee's compensation arrangements in 2018 that would significantly affect the pay ratio disclosure, the employee representing the median-paid employee is the same employee selected for the 2018 Proxy Statement.

Compensation Committee Interlocks and Insider Participation Relationships and Independence of the Compensation Committee Members

During fiscal 2018, the compensation committee was composed of Messrs. Aryeh and Davis and Dr. LaMattina. No executive officer of the Company served on the board of directors or compensation committee of any entity which has one or more executive officers serving as members of the Company's board of directors or compensation committee.

Compensation Committee Report

The compensation committee of the Company's board of directors has submitted the following report for inclusion in this proxy statement:

The compensation committee reviewed this Compensation Discussion and Analysis and discussed its contents with the Company's management. Based on the review and discussions, the compensation committee has recommended to the board of directors that this Compensation Discussion and Analysis be included in this proxy statement and our annual report for the year ended December 31, 2018.

This report of the compensation committee shall not be deemed incorporated by reference by any general statement incorporating by reference this proxy statement into any filing under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, except to the extent that we specifically incorporate this information by reference, and shall not otherwise be deemed filed under such acts.

The foregoing report has been furnished by the compensation committee.

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Todd C. Davis, Chairperson of the Compensation Committee
Jason M. Aryeh
John L. LaMattina, Ph.D.

Audit Committee Report

The following is the report delivered by the audit committee of the Company's board of directors with respect to the principal factors considered by such committee in its oversight of the accounting, auditing and financial reporting practices of the Company for 2018.

The audit committee oversees the Company's financial reporting process on behalf of the board of directors. Management has the primary responsibility for the financial statements and the reporting process including the systems of internal controls. In fulfilling its oversight responsibilities, the audit committee reviewed and discussed the audited financial statements in the Company's annual report with management, including a discussion of any significant changes in the selection or application of accounting principles, the reasonableness of significant judgments, the clarity of disclosures in the financial statements and the effect of any new accounting initiatives.

The audit committee reviewed and discussed with Ernst & Young LLP, who is responsible for expressing an opinion on the conformity of the Company's audited consolidated financial statements with generally accepted accounting principles, their judgments as to the quality, not just the acceptability, of the Company's accounting principles and such other matters as are required to be discussed with the audit committee under generally accepted auditing standards, including those matters required under Auditing Standard 1301 (Communications with Audit Committees). In addition, the audit committee has discussed with Ernst & Young LLP their independence from management and the Company, and has received from Ernst & Young LLP the written disclosures and the letter required by the Public Company Accounting Oversight Board Rule 3526.

The audit committee met with Ernst & Young LLP to discuss the overall scope of their services, the results of their audit and reviews, its evaluation of the Company's internal controls and the overall quality of the Company's financial reporting. Ernst & Young LLP, as the Company's independent registered public accounting firm, also periodically updates the audit committee about new accounting developments and their potential impact on the Company's reporting. The audit committee's meetings with Ernst & Young LLP were held with and without management present. The audit committee is not employed by the Company, nor does it provide any expert assurance or professional certification regarding the Company's financial statements. The audit committee relies, without independent verification, on the accuracy and integrity of the information provided, and representations made, by management and the Company's independent registered public accounting firm.

In reliance on the reviews and discussions referred to above, the audit committee has recommended to the Company's board of directors that the audited consolidated financial statements be included in this proxy statement and in our annual report for the year ended December 31, 2018.

This report of the audit committee shall not be deemed incorporated by reference by any general statement incorporating by reference this proxy statement into any filing under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, except to the extent that we specifically incorporate this information by reference, and shall not otherwise be deemed filed under such acts.

The foregoing report has been furnished by the audit committee.
Stephen L. Sabba, M.D., Chairperson of the Audit Committee
Nancy Ryan Gray, Ph.D.
Sunil Patel

Equity Compensation Plans

We have two compensation plans approved by our stockholders under which our equity securities are authorized for issuance to employees and directors for goods or services, the 2002 Plan and the Employee Stock Purchase Plan.

The following table summarizes information about our equity compensation plans as of December 31, 2018:

	(a) Number of securities to be issued upon exercises of outstanding options, warrants and rights	(b) Weighted-average exercise price of outstanding options, warrants and rights	(c) Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column(a))
Equity compensation plans approved by security holders	1,313,374 ⁽¹⁾	47.03	614,704 ⁽²⁾
Equity compensation plans not approved by security holders ⁽³⁾	—	—	—
	1,313,374(1)	47.03	614,704 ⁽²⁾

(1) Includes options and restricted stock units outstanding under the 2002 Plan, with performance-based restricted stock units included at "target" levels.

At December 31, 2018, 550,696 and 64,008 shares were available under the 2002 Plan and the Employee Stock Purchase Plan, respectively, for future grants of awards (calculated by including performance-based restricted stock units at the "target" level). Of the shares available under the Employee Stock Purchase Plan at December 31, 2018, 999 of the 36,250 share that were eligible for purchase were purchased during the offering period in effect on such date.

(2) There are no equity compensation plans (including individual compensation arrangements) not approved by the Company's security holders.

Certain Relationships and Related Transactions

We describe below transactions and series of similar transactions, since the beginning of fiscal year 2018, with respect to which we were a party, will be a party, or otherwise benefited, in which:

the amounts involved exceeded or will exceed \$120,000; and

a director, nominee for director, executive officer, holder of more than 5% of our common stock or any member of their immediate family had or will have a direct or indirect material interest.

Pursuant to our audit committee charter, the audit committee of our board of directors is responsible for reviewing and approving all transactions with related parties. We have not adopted written procedures for review of, or standards for approval of, these transactions, but instead the audit committee of our board of directors intends to review such transactions on a case by case basis. In addition, the compensation committee of our board of directors and/or our board of directors will review approve all compensation-related policies involving our directors and executive officers.

The severance arrangements we have entered into with each of our executive officers provide for severance benefits in specified circumstances, as well as benefits in connection with a change in control. See “Compensation Discussion and Analysis—Severance and Change in Control Arrangements.”

Our certificate of incorporation and our amended and restated bylaws provide that we will indemnify each of our directors and officers to the fullest extent permitted by the Delaware General Corporation Law. Further, we have entered into

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indemnification agreements with each of our directors and officers, and we have purchased a policy of directors' and officers' liability insurance that insures our directors and officers against the cost of defense, settlement or payment of a judgment under certain circumstances.

Pursuant to the management rights letter between Viking Therapeutics, Inc. ("Viking"), and the Company dated May 21, 2014, the Company nominated Mr. Foehr to serve as a member of Viking's board of directors. During 2018, in connection with Mr. Foehr's service as a director of Viking, Mr. Foehr received (1) \$33,170 in cash payments and (2) \$48,647 in option awards (representing the aggregate grant date fair value of the option awards as reported by Viking, computed in accordance with authoritative accounting guidance).

All future transactions between the Company and its officers, directors, principal stockholders and affiliates will be approved by the audit committee or a majority of the independent and disinterested members of the board of directors.

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Securities Exchange Act of 1934, as amended, requires the Company's executive officers and directors, and persons who own more than 10% of a registered class of the Company's equity securities, to file reports of ownership and changes in ownership with the SEC. Executive officers, directors and greater than 10% stockholders are required by SEC regulation to furnish the Company with copies of all Section 16(a) forms they file.

Based solely on review of the copies of such forms furnished to the Company, or written representations from certain reporting persons, we have determined that all Section 16(a) filing requirements applicable to its officers, directors and greater than 10% beneficial owners were satisfied during the fiscal year ended December 31, 2018.

Deadline For Proposals For Next Annual Meeting

The deadline for submitting a stockholder proposal for inclusion in our proxy statement and form of proxy for the 2019 annual meeting of stockholders is December 26, 2019 (120 calendar days in advance of the anniversary of the date of this proxy statement). Stockholders wishing to submit proposals or director nominations that are to be included in such proxy statement and proxy must also do so by December 26, 2019. Stockholders are advised to review our amended and restated bylaws, which contain additional requirements with respect to advance notice of stockholder proposals and director nominations. Our current amended and restated bylaws are available at the SEC's website, www.sec.gov, or upon written request to our Corporate Secretary at the address listed below. Stockholder proposals and director nominations should be directed to Corporate Secretary, Ligand Pharmaceuticals Incorporated, 3911 Sorrento Valley Boulevard, Suite 110, San Diego CA, 92121.

In addition, the proxy solicited by the board of directors for the next annual meeting of stockholders will confer discretionary authority to vote on any stockholder proposal presented at that meeting, unless the Company receives notice of such proposal no later than a reasonable period of time prior to the mailing of proxy materials for such annual meeting.

Annual Report on Form 10-K

Stockholders that received the Notice of Internet Availability of Proxy Materials can access this Proxy Statement and our fiscal 2018 Annual Report at <http://www.envisionreports.com/LGND>, which does not have cookies that identify visitors to the site. A copy of the Annual Report of the Company on Form 10-K for the 2018 fiscal year has been mailed concurrently with this proxy statement to all stockholders that received a copy of the proxy materials in the mail. The Annual Report is not incorporated into this proxy statement and is not considered proxy solicitation material. Written requests for copies of our Annual Report to stockholders may also be directed to our Corporate Secretary, Ligand Pharmaceuticals Incorporated, 3911 Sorrento Valley Boulevard Suite 110, San Diego, CA 92121.

Solicitation of Proxies

The Company will bear the entire cost of solicitation, including the preparation, assembly, printing and mailing of this proxy statement, the proxy and any additional solicitation material furnished to stockholders. Copies of solicitation material will be furnished to brokerage houses, fiduciaries and custodians holding shares in their names that are beneficially owned by others so that they may forward this solicitation material to such beneficial owners. In addition, the Company may reimburse such persons for their costs of forwarding the solicitation materials to such beneficial owners. The original solicitation of proxies by mail may be supplemented by solicitation by telephone, telegram or other means by directors, officers, employees or agents of the Company. No additional compensation will be paid to directors, officers or employees of the Company for any such services. Except as described above, the Company does not presently intend to solicit proxies other than by internet.

Householding of Proxy Materials

The SEC has adopted rules that permit companies and intermediaries (such as brokers) to satisfy the delivery requirements for proxy statements and annual reports with respect to two or more stockholders sharing the same address by delivering a single proxy statement addressed to those stockholders. This process, which is commonly referred to as “householding,” potentially results in a reduced usage of natural resources and cost savings for companies.

A number of brokers with account holders who are our stockholders will be “householding” our proxy materials. A single proxy statement and one annual report will be delivered to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Once you have received notice from your broker that they will be “householding” communications to your address, “householding” will continue until you are notified otherwise or until you revoke your consent. Any stockholder at a shared address to which a single copy of the documents was delivered and who wishes to receive a separate copy of the documents can request a copy of the documents by sending a written request to our Corporate Secretary, Ligand Pharmaceuticals Incorporated, 3911 Sorrento Valley Boulevard, Suite 110, San Diego, CA 92121, or contact our Corporate Secretary at (858) 550-7500. Also, if you no longer wish to participate in “householding” and would prefer to receive a separate proxy statement and annual report in the future, please notify your broker or direct your written request to Corporate Secretary, Ligand Pharmaceuticals Incorporated, 3911 Sorrento Valley Boulevard, Suite 110, San Diego, CA 92121, or contact our Corporate Secretary at (858) 550-7500. Stockholders who currently receive multiple copies of the proxy statement at their address and would like to request “householding” of their communications should contact their broker.

Other Business

As of the date of this proxy statement, the board of directors knows of no other business that will be presented for consideration at the annual meeting. If other matters are properly brought before the annual meeting, however, it is the intention of the persons named in the accompanying proxy to vote the shares represented thereby on such matters in accordance with their best judgment.

By Order of the Board of Directors,

/s/ CHARLES S. BERKMAN

Charles S. Berkman

Senior Vice President, General Counsel & Secretary

April 24, 2019

Appendix A - Amendment and Restatement of the Ligand Pharmaceuticals Incorporated 2002 Stock Incentive Plan

LIGAND PHARMACEUTICALS INCORPORATED

2002 STOCK INCENTIVE PLAN

(AS AMENDED AND RESTATED EFFECTIVE JUNE 6, 2019)

ARTICLE ONE

GENERAL PROVISIONS

I. PURPOSE OF THE PLAN

This 2002 Stock Incentive Plan is intended to promote the interests of Ligand Pharmaceuticals Incorporated, a Delaware corporation, by providing eligible persons in the Corporation's and its Subsidiaries' service with the opportunity to acquire a proprietary interest, or otherwise increase their proprietary interest, in the Corporation as an incentive for them to remain in such service.

Capitalized terms shall have the meanings assigned to such terms in the attached Appendix.

II. STRUCTURE OF THE PLAN

A. The Plan shall be divided into three separate equity incentives programs:

1. the Discretionary Option Grant Program under which eligible persons may, at the discretion of the Plan Administrator, be granted options to purchase shares of Common Stock,

2. the Stock Issuance Program under which eligible persons may, at the discretion of the Plan Administrator, be issued shares of Common Stock, and

3. the Other Stock Award Program under which eligible persons may, at the discretion of the Plan Administrator, be granted restricted stock units, stock appreciation rights and dividend equivalents.

B. The provisions of Articles One, Five and Six shall apply to all equity programs under the Plan and shall govern the interests of all persons under the Plan.

III. ADMINISTRATION OF THE PLAN

A. The Primary Committee shall have sole and exclusive authority to administer the Plan with respect to Section 16 Insiders (other than non-employee Board members, whose Awards shall be administered by the full Board, as provided below). Administration of the Plan with respect to all other persons eligible to participate in those programs may, at the Board's discretion, be vested in the Primary Committee or a Secondary Committee, or the Board may retain the power to administer those programs with respect to all such persons. However, any discretionary Awards for members of the Primary Committee must be authorized by a disinterested majority of the Board.

B. Members of the Primary Committee or any Secondary Committee shall serve for such period of time as the Board may determine and may be removed by the Board at any time. The Board may also at any time

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terminate the functions of any Secondary Committee and reassume all powers and authority previously delegated to such committee.

C. Each Plan Administrator shall, within the scope of its administrative functions under the Plan, have full power and authority (subject to the provisions of the Plan) to establish such rules and regulations as it may deem appropriate for proper administration of the Plan and to make such determinations under, and issue such interpretations of, the provisions of those programs and any outstanding Awards thereunder as it may deem necessary or advisable. Decisions of the Plan Administrator within the scope of its administrative functions under the Plan shall be final and binding on all parties who have an interest in the equity incentive programs under its jurisdiction or any Award thereunder.

D. Service on the Primary Committee or the Secondary Committee shall constitute service as a Board member, and members of each such committee shall accordingly be entitled to full indemnification and reimbursement as Board members for their service on such committee. No member of the Primary Committee or the Secondary Committee shall be liable for any act or omission made in good faith with respect to the Plan or any Awards under the Plan.

E. Notwithstanding the foregoing, the full Board shall administer the Plan with respect to any Awards to the non-employee members of the Board. In addition, in its sole discretion, the Board may at any time and from time to time exercise any and all rights and duties of the Primary Committee or any Secondary Committee under the Plan except with respect to matters which under Rule 16b-3 under the Exchange Act, or any regulations or rules issued thereunder, are required to be determined in the sole discretion of the Primary Committee. Should any Awards made under the Plan prior to November 2, 2017, be intended to qualify as Qualified Performance-Based Compensation within the meaning of Section 162(m)(4)(C) of the Code prior to its repeal, then all such determinations regarding such Awards will be made solely by the Primary Committee comprised solely of two or more “outside directors” within the meaning of Section 162(m) of the Code.

IV. ELIGIBILITY

A. The persons eligible to participate in the Discretionary Option Grant, Stock Issuance and Other Stock Award Programs are as follows:

- (i) Employees,
- (ii) non-employee members of the Board or the board of directors of any Parent or Subsidiary, and
- (iii) consultants and other independent advisors who provide services to the Corporation (or any Parent or Subsidiary).

B. Each Plan Administrator shall, within the scope of its administrative jurisdiction under the Plan, have full authority to determine, (i) with respect to the option grants under the Discretionary Option Grant Program, which eligible persons are to receive such grants, the time or times when those grants are to be made, the number of shares to be covered by each such grant, the status of the granted option as either an Incentive Option or a Non-Statutory Option, the time or times when each option is to become exercisable, the vesting schedule (if any) applicable to the option shares, the maximum term for which the option is to remain outstanding and such other terms and conditions of such option as the Plan Administrator determines are appropriate, (ii) with respect to stock issuances under the Stock Issuance Program, which eligible persons are to receive such issuances, the time or times when the issuances are to be made, the number of shares to be issued to each Participant, the vesting schedule (if any) applicable to the issued shares, the purchase price, if any, and consideration for such shares and such other terms and conditions of such issued

shares as the Plan Administrator determines are appropriate, and (iii) with respect to other Awards under the Other Stock Awards Program, which eligible persons

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are to receive such Awards, the type of Award, the time or times when the issuances are to be made, the number of shares subject to such Award to be issued to each Participant, the vesting schedule (if any) applicable to the Awards, the consideration for such Awards and such other terms and conditions of such Awards as the Plan Administrator determines are appropriate.

V. STOCK SUBJECT TO THE PLAN

A. Subject to adjustment pursuant to this Section V, the number of shares of Common Stock which may be issued or transferred pursuant to Awards under the Plan is 6,299,254 shares, which number shall be reduced at any time by (i) one share for each share subject to any outstanding Award that is not a Full Value Award, and (ii) 1.5 shares for each share subject to any outstanding Award that is a Full Value Award. Notwithstanding anything in this Section V.A. to the contrary, the number of shares of Common Stock that may be issued or transferred pursuant to Incentive Stock Options under the Plan shall not exceed an aggregate of 6,299,254 shares, subject to adjustment pursuant to this Section V.

B. No one person participating in the Plan may receive Awards for more than 1,000,000 shares of Common Stock in the aggregate per calendar year. In addition, notwithstanding any provision to the contrary in the Plan, the sum of any cash compensation, or other compensation, and the value (determined as of the grant date in accordance with Financial Accounting Standards Board Accounting Standards Codification Topic 718, or any successor thereto) of Awards granted to a non-employee member of the Board as compensation for services as a non-employee member of the Board during any calendar year of the Corporation may not exceed \$550,000, increased to 850,000 in the calendar year of his or her initial service as a non-employee member of the Board. The Plan Administrator may make exceptions to this limit for individual non-employee members of the Board in extraordinary circumstances, as the Plan Administrator may determine in its discretion, provided that the non-employee member of the Board receiving such additional compensation may not participate in the decision to award such compensation or in other contemporaneous compensation decisions involving non-employee members of the Board.

C. To the extent all or a portion of an Award is forfeited, expires or such Award or portion thereof is settled for cash (in whole or in part), the shares of Common Stock subject to such Award or portion thereof, shall, to the extent of such forfeiture, expiration or cash settlement, again be available for future grants of Awards under the Plan in an amount corresponding to the reduction in the share reserve previously made in accordance with Section V.A. above. Notwithstanding anything to the contrary contained herein, the following shares of Common Stock shall not be added to the shares of Common Stock authorized for grant under Section V.A. and will not be available for future grants of Awards: (i) shares of Common Stock tendered by an Optionee or withheld by the Corporation in payment of the exercise price of an option; (ii) shares of Common Stock tendered by the Optionee or Participant or withheld by the Corporation to satisfy any tax withholding obligation with respect to an option or stock appreciation right; (iii) shares of Common Stock subject to a stock appreciation right that are not issued in connection with the stock settlement of the stock appreciation right on exercise thereof; and (iv) shares of Common Stock purchased on the open market with the cash proceeds from the exercise of options. Shares of Common Stock tendered by the Participant or withheld by the Corporation to satisfy any tax withholding obligation with respect to a Full Value Award shall be available for future grants of Awards under the Plan in an amount corresponding to the reduction in the share reserve previously made in accordance with Section V.A. above; provided, however, that, notwithstanding the foregoing, in the event shares subject to a Full Value Award are delivered by a Participant or withheld by the Company to satisfy any Withholding Taxes at a tax withholding rate in excess of the minimum statutory withholding rates, such shares tendered or withheld to satisfy the Withholding Taxes at a rate in excess of the minimum statutory withholding rates shall not be available for future grants of Awards under the Plan and shall continue to be counted against the share reserve in an amount corresponding to the reduction in the share reserve previously made in accordance with Section V.A. above. Any shares of Common Stock forfeited by the Participant or repurchased by the Corporation under Article Three, Section I.C at a price not greater than the price originally paid by the Participant so that such shares are

returned to the Corporation will again be available for Awards in an amount corresponding to the reduction in the share

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reserve previously made in accordance with Section V.A. above. The payment of Dividend Equivalents in cash in conjunction with any outstanding Awards shall not be counted against the shares available for issuance under the Plan. Notwithstanding the provisions of this Section V.C, no shares of Common Stock may again be optioned, granted or awarded if such action would cause an Incentive Option to fail to qualify as an incentive stock option under Section 422 of the Code.

D. If any change is made to the Common Stock by reason of any stock split, stock or cash dividend (other than normal cash dividends), recapitalization, combination of shares, exchange of shares or other change affecting the outstanding Common Stock as a class without the Corporation's receipt of consideration, equitable adjustments shall be made by the Plan Administrator to (i) the maximum number and/or class of securities issuable under the Plan or with respect to Incentive Stock Options under the Plan, (ii) the maximum number and/or class of securities for which any one person may be granted Awards under the Plan per calendar year, (iii) the number and/or class of securities for which grants are subsequently to be made under the Automatic Option Grant Program to new and continuing non-employee Board members, (iv) the number and/or class of securities and the exercise or purchase price per share in effect under each outstanding Award under the Plan, and (v) the terms and conditions of any outstanding Awards (including, without limitation, any applicable performance targets or criteria with respect thereto). Such adjustments to the outstanding Awards are to be effected in a manner which shall preclude the enlargement or dilution of rights and benefits under such Awards. The adjustments determined by the Plan Administrator shall be final, binding and conclusive.

E. Subject to Article Two, Section III, Article Three, Section II and Article Four, Section V, in the event of any transaction or event described in Section V.D or any unusual or nonrecurring transactions or events affecting the Corporation, any affiliate of the Corporation, or the financial statements of the Corporation or any affiliate, or of changes in applicable laws, regulations or accounting principles, including, without limitation, a Change in Control or a Hostile Take-Over, the Plan Administrator, in its sole and absolute discretion, and on such terms and conditions as it deems appropriate, either by the terms of the Award or by action taken prior to the occurrence of such transaction or event and either automatically or upon the Optionee's or Participant's request, is hereby authorized to take any one or more of the following actions whenever the Plan Administrator determines that such action is appropriate in order to prevent dilution or enlargement of the benefits or potential benefits intended to be made available under the Plan or with respect to any Award under the Plan, to facilitate such transactions or events or to give effect to such changes in laws, regulations or principles:

1. To provide for either (A) termination of any such Award in exchange for an amount of cash, if any, equal to the amount that would have been attained upon the exercise of such Award or realization of the Optionee's or Participant's rights (and, for the avoidance of doubt, if as of the date of the occurrence of the transaction or event described in this Section V.E the Plan Administrator determines in good faith that no amount would have been attained upon the exercise of such Award or realization of the Optionee's or Participant's rights, then such Award may be terminated by the Corporation without payment) or (B) the replacement of such Award with other rights or property selected by the Plan Administrator in its sole discretion;
2. To provide that such Award be assumed by the successor or survivor corporation, or a parent or subsidiary thereof, or shall be substituted for by similar Awards covering the stock of the successor or survivor corporation, or a parent or subsidiary thereof, with appropriate adjustments as to the number and kind of shares and prices;
3. To make adjustments in the number and type of shares of Common Stock (or other securities or property) subject to outstanding Awards, and in the number and/or in the terms and conditions of (including the grant or exercise price), and the criteria included in, outstanding Awards;
4. To provide that such Award shall be exercisable or payable or fully vested with respect to all shares covered thereby, notwithstanding anything to the contrary in the Plan or the applicable award agreement; and

5. To provide that the Award cannot vest, be exercised or become payable after such event.

F. In the event of any pending stock dividend, stock split, combination or exchange of shares, merger, consolidation or other distribution (other than normal cash dividends) of Corporation assets to stockholders, or any other change affecting the shares of Common Stock or the share price of the Common Stock, for reasons of administrative convenience, the Corporation in its sole discretion may refuse to permit the exercise of any Award during a period of thirty (30) days prior to the consummation of any such transaction.

ARTICLE TWO

DISCRETIONARY OPTION GRANT PROGRAM

I. OPTION TERMS

Each option shall be evidenced by one or more documents in the form approved by the Plan Administrator; provided, however, that each such document shall comply with the terms specified below. Each document evidencing an Incentive Option shall, in addition, be subject to the provisions of the Plan applicable to such options.

A. EXERCISE PRICE.

1. The exercise price per share shall be fixed by the Plan Administrator but shall not be less than one hundred percent (100%) of the Fair Market Value per share of Common Stock on the option grant date.

2. The exercise price shall become immediately due upon exercise of the option and shall, subject to the provisions of the documents evidencing the option, be payable in one or more of the forms specified below:

(i) cash or check made payable to the Corporation,

(ii) shares of Common Stock held by the Optionee or otherwise issuable upon exercise of the option and valued at Fair Market Value on the Exercise Date,

(iii) to the extent the option is exercised for vested shares, through a special sale and remittance procedure pursuant to which the Optionee shall concurrently provide irrevocable instructions to (a) a Corporation-designated brokerage firm to effect the immediate sale of the purchased shares and remit to the Corporation, out of the sale proceeds available on the settlement date, sufficient funds to cover the aggregate exercise price payable for the purchased shares plus all applicable income and employment taxes required to be withheld by the Corporation by reason of such exercise and (b) the Corporation to deliver the certificates for the purchased shares directly to such brokerage firm in order to complete the sale, or

(iv) with the consent of the Plan Administrator, a promissory note bearing interest at no less than such rate as shall then preclude the imputation of interest under the Code.

Except to the extent such sale and remittance procedure is utilized, payment of the exercise price for the purchased shares must be made on the Exercise Date. Notwithstanding any other provision of the Plan to the contrary, no Optionee who is a member of the Board or an "executive officer" of the Corporation within the meaning of Section 13(k) of the Exchange Act shall be permitted to pay the exercise price of an option, or continue any extension of credit with respect to the exercise of an option, with a loan from the Corporation or a loan arranged by the Corporation in violation of Section 13(k) of the Exchange Act.

B. EXERCISE AND TERM OF OPTIONS. Each option shall be exercisable at such time or times,

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during such period and for such number of shares as shall be determined by the Plan Administrator and set forth in the documents evidencing the option. However, no option shall have a term in excess of ten (10) years measured from the option grant date.

C. EFFECT OF TERMINATION OF SERVICE.

1. The following provisions shall govern the exercise of any options held by the Optionee at the time of cessation of Service or death:

(i) Any option outstanding at the time of the Optionee's cessation of Service for any reason shall remain exercisable for such period of time thereafter as shall be determined by the Plan Administrator and set forth in the documents evidencing the option, but no such option shall be exercisable after the expiration of the option term.

(ii) Any option held by the Optionee at the time of death and exercisable in whole or in part at that time may be subsequently exercised by the personal representative of the Optionee's estate or by the person or persons to whom the option is transferred pursuant to the Optionee's will or the laws of inheritance or by the Optionee's designated beneficiary or beneficiaries of that option.

(iii) During the applicable post-Service exercise period, the option may not be exercised in the aggregate for more than the number of vested shares for which the option is exercisable on the date of the Optionee's cessation of Service. Upon the expiration of the applicable exercise period or (if earlier) upon the expiration of the option term, the option shall terminate and cease to be outstanding for any vested shares for which the option has not been exercised. However, the option shall, immediately upon the Optionee's cessation of Service, terminate and cease to be outstanding to the extent the option is not otherwise at that time exercisable for vested shares.

2. The Plan Administrator shall have complete discretion, exercisable either at the time an option is granted or at any time while the option remains outstanding, to:

(i) extend the period of time for which the option is to remain exercisable following the Optionee's cessation of Service from the limited exercise period otherwise in effect for that option to such greater period of time as the Plan Administrator shall deem appropriate, but in no event beyond the expiration of the option term, and/or

(ii) permit the option to be exercised, during the applicable post-Service exercise period, not only with respect to the number of vested shares of Common Stock for which such option is exercisable at the time of the Optionee's cessation of Service but also with respect to one or more additional installments in which the Optionee would have vested had the Optionee continued in Service.

D. STOCKHOLDER RIGHTS. The holder of an option shall have no stockholder rights with respect to the shares subject to the option until such person shall have exercised the option, paid the exercise price and become a holder of record of the purchased shares.

E. REPURCHASE RIGHTS. The Plan Administrator shall have the discretion to grant options which are exercisable for unvested shares of Common Stock. Should the Optionee cease Service while holding such unvested shares, the Corporation shall have the right to repurchase any or all of those unvested shares. The terms upon which such repurchase right shall be exercisable (including the period and procedure for exercise and the appropriate vesting schedule for the purchased shares) shall be established by the Plan Administrator and set forth in the document evidencing such repurchase right.

F. LIMITED TRANSFERABILITY OF OPTIONS. During the lifetime of the Optionee, Incentive Options shall be exercisable only by the Optionee and shall not be assignable or transferable other than by will or

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the laws of inheritance following the Optionee's death. Non-Statutory Options shall be subject to the same restriction, except that a Non-Statutory Option may be assigned in whole or in part during the Optionee's lifetime to one or more members of the Optionee's family or to a trust established exclusively for one or more such family members or to Optionee's former spouse, to the extent such assignment is in connection with the Optionee's estate plan or pursuant to a domestic relations order. The assigned portion may only be exercised by the person or persons who acquire a proprietary interest in the option pursuant to the assignment. The terms applicable to the assigned portion shall be the same as those in effect for the option immediately prior to such assignment and shall be set forth in such documents issued to the assignee as the Plan Administrator may deem appropriate. Notwithstanding the foregoing, the Optionee may also designate one or more persons as the beneficiary or beneficiaries of his or her outstanding options under this Article Two, and those options shall, in accordance with such designation, automatically be transferred to such beneficiary or beneficiaries upon the Optionee's death while holding those options. Such beneficiary or beneficiaries shall take the transferred options subject to all the terms and conditions of the applicable agreement evidencing each such transferred option, including (without limitation) the limited time period during which the option may be exercised following the Optionee's death.

II. INCENTIVE OPTIONS

The terms specified below shall be applicable to all Incentive Options. Except as modified by the provisions of this Section II, all the provisions of Articles One, Five and Six shall be applicable to Incentive Options. To the extent an option which is designated as an Incentive Option fails to meet the requirements of Section 422 of the Code, then such option shall be treated as a Non-Statutory Option. Options which are specifically designated as Non-Statutory Options when issued under the Plan shall not be subject to the terms of this Section II.

A. ELIGIBILITY. Incentive Options may only be granted to Employees.

B. DOLLAR LIMITATION. The aggregate Fair Market Value of the shares of Common Stock (determined as of the respective date or dates of grant) for which one or more options granted to any Employee under the Plan (or any other option plan of the Corporation or any Parent or Subsidiary) may for the first time become exercisable as Incentive Options during any one calendar year shall not exceed the sum of One Hundred Thousand Dollars (\$100,000). To the extent the Employee holds two (2) or more such options which become exercisable for the first time in the same calendar year, the foregoing limitation on the exercisability of such options as Incentive Options shall be applied on the basis of the order in which such options are granted.

C. 10% STOCKHOLDER. If any Employee to whom an Incentive Option is granted is a 10% Stockholder, then the exercise price per share shall not be less than one hundred ten percent (110%) of the Fair Market Value per share of Common Stock on the option grant date, and the option term shall not exceed five (5) years measured from the option grant date.

III. CHANGE IN CONTROL/HOSTILE TAKE-OVER

A. In the event of a Change in Control, each outstanding option under the Discretionary Option Grant Program shall automatically accelerate so that each such option shall, immediately prior to the effective date of that Change in Control, become exercisable for all the shares of Common Stock at the time subject to such option and may be exercised for any or all of those shares as fully vested shares of Common Stock. However, an outstanding option shall NOT become exercisable on such an accelerated basis if and to the extent: (i) such option is to be assumed by the successor corporation (or parent thereof) or is otherwise to continue in full force and effect pursuant to the terms of the Change in Control transaction or (ii) such option is to be replaced with a cash incentive program of the successor corporation which preserves the spread existing at the time of the Change in Control on any shares for which the option is not otherwise at that time exercisable and provides for subsequent payout of that spread in accordance with

the same exercise/vesting schedule applicable to those option shares or (iii) the acceleration of such option is subject to other limitations imposed by the Plan Administrator at the time of

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the option grant.

B. All outstanding repurchase rights under the Discretionary Option Grant Program shall automatically terminate, and the shares of Common Stock subject to those terminated rights shall immediately vest in full, in the event of a Change in Control, except to the extent: (i) those repurchase rights are to be assigned to the successor corporation (or parent thereof) or are otherwise to continue in full force and effect pursuant to the terms of the Change in Control transaction or (ii) such accelerated vesting is precluded by other limitations imposed by the Plan Administrator at the time the repurchase right is issued.

C. Immediately following the consummation of the Change in Control, all outstanding options under the Discretionary Option Grant Program shall terminate and cease to be outstanding, except to the extent assumed by the successor corporation (or parent thereof) or otherwise continued in full force and effect pursuant to the terms of the Change in Control transaction.

D. Each option which is assumed in connection with a Change in Control or otherwise continued in effect shall be appropriately adjusted, immediately after such Change in Control, to apply to the number and class of securities which would have been issuable to the Optionee in consummation of such Change in Control had the option been exercised immediately prior to such Change in Control. Appropriate adjustments shall also be made to the exercise price payable per share under each outstanding option, provided the aggregate exercise price payable for such securities shall remain the same (subject only to reduction by reason of rounding). To the extent the actual holders of the Corporation's outstanding Common Stock receive cash consideration for their Common Stock in consummation of the Change in Control, the successor corporation may, in connection with the assumption of the outstanding options under the Discretionary Option Grant Program, substitute one or more shares of its own common stock with a fair market value equivalent to the cash consideration paid per share of Common Stock in such Change in Control transaction.

E. The Plan Administrator shall have the discretionary authority to structure one or more outstanding options under the Discretionary Option Grant Program so that those options shall, immediately prior to the effective date of a Change in Control, become exercisable for all the shares of Common Stock at the time subject to those options and may be exercised for any or all of those shares as fully vested shares of Common Stock, whether or not those options are to be assumed in the Change in Control transaction or otherwise continued in effect. In addition, the Plan Administrator shall have the discretionary authority to structure one or more of the Corporation's repurchase rights under the Discretionary Option Grant Program so that those rights shall immediately terminate upon the consummation of the Change in Control transaction, and the shares subject to those terminated rights shall thereupon vest in full.

F. The Plan Administrator shall have full power and authority to structure one or more outstanding options under the Discretionary Option Grant Program so that those options shall become exercisable for all the shares of Common Stock at the time subject to those options in the event the Optionee's Service is subsequently terminated by reason of an Involuntary Termination within a designated period (not to exceed eighteen (18) months) following the effective date of any Change in Control transaction in which those options do not otherwise accelerate. In addition, the Plan Administrator may structure one or more of the Corporation's repurchase rights so that those rights shall immediately terminate with respect to any shares held by the Optionee at the time of such Involuntary Termination, and the shares subject to those terminated repurchase rights shall accordingly vest in full at that time.

G. The Plan Administrator shall have the discretionary authority to structure one or more outstanding options under the Discretionary Option Grant Program so that those options shall, immediately prior to the effective date of a Hostile Take-Over, become exercisable for all the shares of Common Stock at the time subject to those options and may be exercised for any or all of those shares as fully vested shares of Common Stock. In addition, the

Plan Administrator shall have the discretionary authority to structure one or more of the Corporation's repurchase rights under the Discretionary Option Grant Program so that those rights shall terminate

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automatically upon the consummation of such Hostile Take-Over, and the shares subject to those terminated rights shall thereupon vest in full. Alternatively, the Plan Administrator may condition the automatic acceleration of one or more outstanding options under the Discretionary Option Grant Program and the termination of one or more of the Corporation's outstanding repurchase rights under such program upon the subsequent termination of the Optionee's Service by reason of an Involuntary Termination within a designated period (not to exceed eighteen (18) months) following the effective date of such Hostile Take-Over.

H. The portion of any Incentive Option accelerated in connection with a Change in Control or Hostile Take-Over shall remain exercisable as an Incentive Option only to the extent the applicable One Hundred Thousand Dollar (\$100,000) limitation is not exceeded. To the extent such dollar limitation is exceeded, the accelerated portion of such option shall be exercisable as a Nonstatutory Option under the Federal tax laws.

I. The outstanding options shall in no way affect the right of the Corporation to adjust, reclassify, reorganize or otherwise change its capital or business structure or to merge, consolidate, dissolve, liquidate or sell or transfer all or any part of its business or assets.

ARTICLE THREE

STOCK ISSUANCE PROGRAM

I. STOCK ISSUANCE TERMS

Shares of Common Stock may be issued under the Stock Issuance Program through direct and immediate issuances without any intervening option grants. Each such stock issuance shall be evidenced by a Stock Issuance Agreement which complies with the terms specified below. Shares of Common Stock may also be issued under the Stock Issuance Program pursuant to share right awards which entitle the recipients to receive those shares upon the attainment of designated performance goals or the satisfaction of specified Service requirements.

A. PURCHASE PRICE.

1. The purchase price per share, if any, shall be fixed by the Plan Administrator.
2. Shares of Common Stock may be issued under the Stock Issuance Program for any form of consideration as the Plan Administrator may deem appropriate in each individual instance, including, without limitation:
 - (i) cash or check made payable to the Corporation, or
 - (ii) past services rendered to the Corporation (or any Parent or Subsidiary), or
 - (iii) future services to be rendered to the Corporation (or any Parent or Subsidiary).

B. RESTRICTIONS. Shares of Common Stock issued under this Stock Issuance Program shall be subject to such restrictions on transferability and other restrictions as the Plan Administrator may impose (including, without limitation, limitations on the right to vote such shares or the right to receive dividends on such shares). These restrictions may lapse separately or in combination at such times, pursuant to such circumstances, in such installments, or otherwise, as the Plan Administrator determines at the time of the grant of the shares or thereafter. Notwithstanding the foregoing, with respect to shares of Common Stock issued under this Stock Issuance Program subject to vesting, dividends which are paid prior to vesting shall only be paid out to the Participant to the extent that the vesting

conditions are subsequently satisfied and the share vests.

C. Forfeiture. Except as otherwise determined by the Plan Administrator at the time of the grant of the shares or thereafter, upon termination of employment or service during the applicable restriction period, shares

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of Common Stock issued under this Stock Issuance Program that are at that time subject to restrictions shall be forfeited; provided, however, that, the Plan Administrator may (a) provide in any award agreement that restrictions or forfeiture conditions relating to such shares will be waived in whole or in part in the event of terminations resulting from specified causes, and (b) in other cases waive in whole or in part restrictions or forfeiture conditions relating to such shares.

II. CHANGE IN CONTROL/HOSTILE TAKE-OVER

A. All of the Corporation's outstanding forfeiture restrictions or repurchase rights on any shares of Common Stock issued under the Stock Issuance Program shall terminate automatically, and all the shares of Common Stock subject to those terminated rights shall immediately vest in full, in the event of any Change in Control, except to the extent (i) those forfeiture restrictions or repurchase rights are to be assigned to the successor corporation (or parent thereof) or are otherwise to continue in full force and effect pursuant to the terms of the Change in Control transaction or (ii) such accelerated vesting is precluded by other limitations imposed in the Stock Issuance Agreement.

B. The Plan Administrator shall have the discretionary authority to structure one or more of the Corporation's forfeiture restrictions or repurchase rights under the Stock Issuance Program so that those rights shall automatically terminate in whole or in part, and the shares of Common Stock subject to those terminated rights shall immediately vest, in the event the Participant's Service should subsequently terminate by reason of an Involuntary Termination within a designated period (not to exceed eighteen (18) months) following the effective date of any Change in Control transaction in which those forfeiture restrictions or repurchase rights are assigned to the successor corporation (or parent thereof) or are otherwise continued in effect.

C. The Plan Administrator shall also have the discretionary authority to structure one or more of the Corporation's forfeiture restrictions or repurchase rights under the Stock Issuance Program so that those rights shall automatically terminate in whole or in part, and the shares of Common Stock subject to those terminated rights shall immediately vest, either upon the occurrence of a Hostile Take-Over or upon the subsequent termination of the Participant's Service by reason of an Involuntary Termination within a designated period (not to exceed eighteen (18) months) following the effective date of that Hostile Take-Over.

III. SHARE ESCROW/LEGENDS

Unvested shares may, in the Plan Administrator's discretion, be held in escrow by the Corporation until the Participant's interest in such shares vests or may be issued directly to the Participant with restrictive legends on the certificates evidencing those unvested shares.

ARTICLE FOUR

OTHER STOCK AWARDS PROGRAM

I. STOCK APPRECIATION RIGHTS

A. A stock appreciation right may be granted to any eligible person selected by the Plan Administrator. A stock appreciation right shall be subject to such terms and conditions not inconsistent with the Plan as the Plan Administrator shall impose and shall be evidenced by a stock appreciation right agreement.

B. A stock appreciation right shall entitle the Participant (or other person entitled to exercise the stock appreciation right pursuant to the Plan) to exercise all or a specified portion of the stock appreciation right (to the extent then exercisable pursuant to its terms) and to receive from the Corporation an amount equal to the product of (i) the excess of (A) the Fair Market Value of the Common Stock on the date the stock appreciation right is exercised over (B) the

Fair Market Value of the Common Stock on the date the stock appreciation right

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was granted and (ii) the number of shares of Common Stock with respect to which the stock appreciation right is exercised, subject to any limitations the Plan Administrator may impose. The exercise or base price per share of a stock appreciation right shall be fixed by the Plan Administrator but shall not be less than one hundred percent (100%) of the Fair Market Value per share of Common Stock on the date the stock appreciation right was granted.

C. Subject to Section I.B above, payment of the amounts determined under Sections I.B. above shall be in cash, in Common Stock (based on its Fair Market Value as of the date the stock appreciation right is exercised) or a combination of both, as determined by the Plan Administrator. To the extent any payment is effected in Stock, it shall be made subject to satisfaction of all provisions of Article Two above pertaining to options.

D. Each stock appreciation right shall be exercisable at such time or times, during such period and for such number of shares as shall be determined by the Plan Administrator and set forth in the documents evidencing the stock appreciation right. However, no stock appreciation right shall have a term in excess of ten (10) years measured from the date the stock appreciation right was granted.

II. Dividend Equivalents

Any eligible person selected by the Plan Administrator may be granted dividend equivalents based on the dividends declared on the shares of Common Stock that are subject to any Award, to be credited as of dividend payment dates, during the period between the date the Award is granted and the date the Award is exercised, vests or expires, as determined by the Plan Administrator. Such dividend equivalents shall be converted to cash or additional shares of Common Stock by such formula and at such time and subject to such limitations as may be determined by the Plan Administrator. Notwithstanding anything to the contrary, dividends or dividend equivalents with respect to an Award that is subject to vesting that are based on dividends paid prior to the vesting of such Award shall only be paid out to the extent that the vesting conditions are subsequently satisfied and the Award vests. In addition, notwithstanding anything to the contrary, no dividend equivalents shall be payable with respect to options or stock appreciation rights.

III. Restricted Stock Units

The Plan Administrator is authorized to make Awards of restricted stock units (a right to shares of Common Stock deliverable in the future) to any eligible person selected by the Plan Administrator in such amounts and subject to such terms and conditions as determined by the Plan Administrator. At the time of grant, the Plan Administrator shall specify the date or dates on which the restricted stock units shall become fully vested and nonforfeitable, and may specify such conditions to vesting as it deems appropriate. At the time of grant, the Plan Administrator shall specify the maturity date applicable to each grant of restricted stock units which shall be no earlier than the vesting date or dates of the Award and may be determined at the election of the grantee. On the maturity date, the Corporation shall, subject to Article Six, Section V, transfer to the Participant one unrestricted, fully transferable share of Common Stock for each restricted stock unit scheduled to be paid out on such date and not previously forfeited.

IV. OTHER TERMS

A. Except as otherwise provided herein, the term of any award of stock appreciation rights, dividend equivalents or restricted stock units shall be set by the Plan Administrator in its discretion.

B. Except as otherwise provided herein, the Plan Administrator may establish the exercise or purchase price, if any, of any award of stock appreciation rights, dividend equivalents or restricted stock units.

C. An award of stock appreciation rights, dividend equivalents or restricted stock units shall only be exercisable or payable prior to the Participant's termination of Service; provided, however, that the Plan Administrator in its sole and absolute discretion may provide that an award of stock appreciation rights, dividend

equivalents or restricted stock units may be exercised or paid subsequent to a termination of Service, as applicable, or following a Change in Control of the Corporation, or because of the Participant's retirement, death or disability, or otherwise.

D. Payments with respect to any Awards granted under this Article Four shall be made in cash, in Stock or a combination of both, as determined by the Committee.

E. All Awards under this Article Four shall be subject to such additional terms and conditions as determined by the Plan Administrator and shall be evidenced by an award agreement.

V. CHANGE IN CONTROL/HOSTILE TAKE-OVER

A. In the event of a Change in Control, each outstanding Award under the Other Stock Award Program shall automatically accelerate so that each such Award shall, immediately prior to the effective date of that Change in Control, become vested and exercisable and/or payable with respect to all the shares of Common Stock at the time subject to such Award and may be exercised or paid for any or all of those shares as fully vested shares of Common Stock. However, an outstanding Award shall NOT become vested and exercisable and/or payable on such an accelerated basis if and to the extent: (i) such Award is to be assumed by the successor corporation (or parent thereof) or is otherwise to continue in full force and effect pursuant to the terms of the Change in Control transaction or (ii) such Award is to be replaced with a cash incentive program of the successor corporation which preserves the spread existing at the time of the Change in Control on any shares for which the Award is not otherwise at that time vested, exercisable or payable and provides for subsequent payout of that spread in accordance with the same exercise/vesting/payment schedule applicable to those Award shares or (iii) the acceleration of such Award is subject to other limitations imposed by the Plan Administrator at the time of the Award grant.

B. Immediately following the consummation of the Change in Control, all outstanding Awards under the Other Stock Award Program shall terminate and cease to be outstanding, except to the extent assumed by the successor corporation (or parent thereof) or otherwise continued in full force and effect pursuant to the terms of the Change in Control transaction.

C. Each Award which is assumed in connection with a Change in Control or otherwise continued in effect shall be appropriately adjusted, immediately after such Change in Control, to apply to the number and class of securities which would have been issuable to the Participant in consummation of such Change in Control had the Award been exercised or paid immediately prior to such Change in Control. Appropriate adjustments shall also be made to the exercise or purchase price payable per share under each outstanding Award, provided the aggregate exercise or purchase price payable for such securities shall remain the same. To the extent the actual holders of the Corporation's outstanding Common Stock receive cash consideration for their Common Stock in consummation of the Change in Control, the successor corporation may, in connection with the assumption of the outstanding Awards under the Other Stock Award Program, substitute one or more shares of its own common stock with a fair market value equivalent to the cash consideration paid per share of Common Stock in such Change in Control transaction.

D. The Plan Administrator shall have the discretionary authority to structure one or more outstanding Awards under the Other Stock Award Program so that those Awards shall, immediately prior to the effective date of a Change in Control, become vested and exercisable and/or payable exercisable for all the shares of Common Stock at the time subject to those Awards and may be exercised or paid for any or all of those shares as fully vested shares of Common Stock, whether or not those Awards are to be assumed in the Change in Control transaction or otherwise continued in effect. In addition, the Plan Administrator shall have the discretionary authority to structure one or more of the Corporation's repurchase rights under the Other Stock Award Program so that those rights shall immediately terminate upon the consummation of the Change in Control transaction, and the shares subject to those terminated rights shall thereupon vest in full.

E. The Plan Administrator shall have full power and authority to structure one or more outstanding Awards under the Other Stock Award Program so that those Awards shall become vested and exercisable and/or payable for all the shares of Common Stock at the time subject to those Awards in the event the Participant's Service is subsequently terminated by reason of an Involuntary Termination within a designated period (not to exceed eighteen (18) months) following the effective date of any Change in Control transaction in which those Awards do not otherwise accelerate.

F. The Plan Administrator shall have the discretionary authority to structure one or more outstanding Awards under the Other Stock Award Program so that those Awards shall, immediately prior to the effective date of a Hostile Take-Over, become vested and exercisable and/or payable for all the shares of Common Stock at the time subject to those Awards and may be exercised or paid for any or all of those shares as fully vested shares of Common Stock. Alternatively, the Plan Administrator may condition the automatic acceleration of one or more outstanding Awards under the Other Stock Award Program upon the subsequent termination of the Optionee's Service by reason of an Involuntary Termination within a designated period (not to exceed eighteen (18) months) following the effective date of such Hostile Take-Over.

G. The outstanding Awards shall in no way affect the right of the Corporation to adjust, reclassify, reorganize or otherwise change its capital or business structure or to merge, consolidate, dissolve, liquidate or sell or transfer all or any part of its business or assets.

ARTICLE FIVE

PERFORMANCE-BASED AWARDS

Notwithstanding any other provision of the Plan or any Award, with respect to any Award which is intended to continue to qualify as Qualified Performance-Based Compensation (as described in Section 162(m)(4)(C) of the Code prior to its repeal) pursuant to the transition relief rules in the Tax Cuts and Jobs Act of 2017, to the extent any of the provisions of the Plan or any Award (or any amendments hereto pursuant to this amendment and restatement of the Plan) would cause such Awards to fail to so qualify, any such provisions shall not apply to such Awards to the extent necessary to ensure the such Awards continue to so qualify. In addition, any Award which is intended to continue to qualify as Qualified Performance-Based Compensation (as described in Section 162(m)(4)(C) of the Code prior to its repeal) pursuant to the transition relief rules in the Tax Cuts and Jobs Act of 2017 shall be subject to any additional limitations as the Primary Committee determines necessary for such Award to continue to so qualify. To the extent permitted by applicable law, and the Plan and any such Awards shall be deemed amended to the extent necessary to conform to such requirements.

ARTICLE SIX

MISCELLANEOUS

I. TAX WITHHOLDING

A. The Corporation's obligation to deliver shares of Common Stock upon the exercise, vesting or payment of Awards under the Plan shall be subject to the satisfaction of all applicable income and employment tax withholding requirements.

B. The Plan Administrator may, in its discretion, provide any or all holders of Awards under the Plan with the right to use shares of Common Stock in satisfaction of all or part of the Withholding Taxes to which such holders may become subject in connection with the exercise, vesting or payment of their Awards. Such right may be provided to any such holder in either or both of the following formats:

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Stock Withholding: The election to have the Corporation withhold, from the shares of Common Stock otherwise issuable upon the exercise, vesting or payment of such Award, a portion of those shares with an aggregate Fair Market Value equal to the minimum required percentage of the Withholding Taxes.

Stock Delivery: The election to deliver to the Corporation, at the time the Award is exercised, vests or is paid, one or more shares of Common Stock previously acquired by such holder (other than in connection with the exercise, vesting or payment triggering the Withholding Taxes) and held for at least six (6) months (or such other period determined by the Plan Administrator) with an aggregate Fair Market Value equal to the percentage of the Withholding Taxes (not to exceed one hundred percent (100%)) designated by the holder.

C. Notwithstanding any other provision of the Plan, the number of shares of Common Stock which may be withheld or delivered by the Participant in order to satisfy the Withholding Taxes with respect to the exercise, vesting or payment of an Award shall be limited to the number of shares of Common Stock which have a Fair Market Value on the date of withholding or delivery equal to the aggregate amount of such Withholding Taxes based on the minimum statutory withholding rates for federal, state, local and foreign income tax and payroll tax purposes that are applicable to such supplemental taxable income or such higher rate as may approved by the Administrator (which rates shall in no event exceed the maximum individual statutory tax rate in the applicable jurisdiction at the time of such withholding (or such other rate as may be required to avoid the liability classification of the applicable award under generally accepted accounting principles in the United States of America)); provided, however, unless otherwise approved by the Administrator, to the extent such shares of Common Stock were acquired by the Participant from the Company as compensation, the shares of Common Stock must have been held for the minimum period required by applicable accounting rules to avoid a charge to the Company's earnings for financial reporting purposes; provided, further, that the number of shares of Common Stock withheld or delivered shall be rounded up to the nearest whole share sufficient to cover the Withholding Taxes to the extent rounding up to the nearest whole share does not result in the liability classification of the applicable Award under generally accepted accounting principles in the United States of America.

II. EFFECTIVE DATE AND TERM OF THE PLAN

A. This Plan constitutes an amendment and restatement of the Ligand Pharmaceuticals Incorporated 2002 Stock Incentive Plan most recently adopted by the Board on April 5, 2016, and approved by the Corporation's stockholders on May 23, 2016 (the "Existing Plan"). This amended and restated Plan was adopted by the Board on March 28, 2019, and will become effective on the Restatement Effective Date.

B. The Plan shall terminate upon the earliest to occur of (i) March 28, 2029, or (ii) the termination of all outstanding options in connection with a Change in Control. In the event of the termination of the Plan, then all option grants and unvested stock issuances outstanding at that time shall continue to have force and effect in accordance with the provisions of the documents evidencing such grants or issuances.

C. This amended and restated Plan shall be submitted for the approval of the Company's stockholders within 12 months after the date of the Board's adoption of this amended and restated Plan. If this amended and restated Plan is not approved by the Company's stockholders, this amended and restated Plan shall not become effective and the Existing Plan shall continue in full force and effect in accordance with its terms.

III. AMENDMENT OF THE PLAN

The Board shall have complete and exclusive power and authority to amend or modify the Plan in any or all respects. However, no such amendment or modification shall adversely affect the rights and obligations with respect

to Awards at the time outstanding under the Plan unless the Optionee or the Participant consents to such amendment or modification. In addition, certain amendments may require stockholder approval pursuant to applicable laws or regulations. Except as permitted by Article One, Section V, Article Two, Section III or Article

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Four, Section V in connection with a transaction specified in Article One, Section V.D or V.E (including, without limitation, any Change in Control, Hostile Take-Over, stock dividend, stock split, extraordinary cash dividend, recapitalization, combination of shares or exchange of shares), the terms of outstanding Awards may not be amended to reduce the exercise price of outstanding Options or stock appreciation rights or cancel, exchange, substitute, buyout or surrender outstanding Options or stock appreciation rights in exchange for cash, other Awards or Options or stock appreciation rights with an exercise price that is less than the exercise price of the original Options or stock appreciation rights without stockholder approval.

IV. USE OF PROCEEDS

Any cash proceeds received by the Corporation from the sale of shares of Common Stock under the Plan shall be used for general corporate purposes.

V. REGULATORY APPROVALS

A. The implementation of the Plan, the granting of any Award under the Plan and the issuance of any shares of Common Stock under the Plan shall be subject to the Corporation's procurement of all approvals and permits required by regulatory authorities having jurisdiction over the Plan, the Awards granted under it and the shares of Common Stock issued pursuant to it.

B. No shares of Common Stock or other assets shall be issued or delivered under the Plan unless and until there shall have been compliance with all applicable requirements of applicable securities laws, including the filing and effectiveness of the Form S-8 registration statement for the shares of Common Stock issuable under the Plan, and all applicable listing requirements of any stock exchange (or the Nasdaq Global Market, if applicable) on which Common Stock is then listed for trading.

C. All stock certificates delivered pursuant to the Plan are subject to any stop-transfer orders and other restrictions as the Plan Administrator deems necessary or advisable to comply with federal, state, or foreign jurisdiction, securities or other laws, rules and regulations and the rules of any national securities exchange or automated quotation system on which the Stock is listed, quoted, or traded. The Plan Administrator may place legends on any stock certificate to reference restrictions applicable to the Common Stock. In addition to the terms and conditions provided herein, the Board may require that an Optionee or Participant make such reasonable covenants, agreements, and representations as the Board, in its discretion, deems advisable in order to comply with any such laws, regulations, or requirements. The Plan Administrator shall have the right to require any Optionee or Participant to comply with any timing or other restrictions with respect to the settlement or exercise of any Award, including a window-period limitation, as may be imposed in the discretion of the Plan Administrator.

D. Notwithstanding any other provision of the Plan, unless otherwise determined by the Plan Administrator or required by any applicable law, rule or regulation, the Corporation shall not deliver to any Optionee or Participant certificates evidencing shares of Common Stock issued in connection with any award and instead such shares of Common Stock shall be recorded in the books of the Corporation (or, as applicable, its transfer agent or stock plan administrator).

E. In the event that the Corporation establishes, for itself or using the services of a third party, an automated system for the documentation, granting or exercise of Awards, such as a system using an internet website or interactive voice response, then the paperless documentation, granting or exercise of Awards by an Optionee or a Participant may be permitted through the use of such an automated system.

VI. NO EMPLOYMENT/SERVICE RIGHTS

Nothing in the Plan shall confer upon the Optionee or the Participant any right to continue in Service for any period of specific duration or interfere with or otherwise restrict in any way the rights of the Corporation (or

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any Parent or Subsidiary employing or retaining such person) or of the Optionee or the Participant, which rights are hereby expressly reserved by each, to terminate such person's Service at any time for any reason, with or without cause.

VII. COMPLIANCE WITH SECTION 409A OF THE CODE

To the extent that the Plan Administrator determines that any Award granted under the Plan is subject to Section 409A of the Code, the agreement evidencing such Award shall incorporate the terms and conditions required by Section 409A of the Code. To the extent applicable, the Plan and Award agreements shall be interpreted in accordance with Section 409A of the Code and Department of Treasury regulations and other interpretive guidance issued thereunder, including without limitation any such regulations or other guidance that may be issued after the adoption of the Plan. Notwithstanding any provision of the Plan to the contrary, in the event that following the adoption of the Plan the Plan Administrator determines that any Award may be subject to Section 409A of the Code and related Department of Treasury guidance (including such Department of Treasury guidance as may be issued after the adoption of the Plan), the Plan Administrator may adopt such amendments to the Plan and the applicable Award agreement or adopt other policies and procedures (including amendments, policies and procedures with retroactive effect), or take any other actions, that the Plan Administrator determines are necessary or appropriate to (a) exempt the Award from Section 409A of the Code and/or preserve the intended tax treatment of the benefits provided with respect to the Award, or (b) comply with the requirements of Section 409A of the Code and related Department of Treasury guidance.

VIII. FORFEITURE AND CLAW-BACK PROVISIONS

A. Pursuant to its general authority to determine the terms and conditions applicable to Awards under the Plan, the Plan Administrator shall have the right to provide, in the terms of Awards made under the Plan, or to require a participant to agree by separate written or electronic instrument, that: (1) any proceeds, gains or other economic benefit actually or constructively received by the participant upon any receipt or exercise of the Award, or upon the receipt or resale of any shares underlying the Award, must be paid to the Corporation, and (2) the Award shall terminate and any unexercised portion of the Award (whether or not vested) shall be forfeited, if (i) a termination of Service occurs prior to a specified date, or within a specified time period following receipt or exercise of the Award, (ii) the participant at any time, or during a specified time period, engages in any activity in competition with the Corporation, or which is inimical, contrary or harmful to the interests of the Corporation, as further defined by the Plan Administrator or (iii) the participant incurs a termination of Service for Misconduct; and

B. All Awards (including any proceeds, gains or other economic benefit actually or constructively received by a participant upon any receipt or exercise of any Award or upon the receipt or resale of any shares underlying the Award) shall be subject to the applicable provisions of any claw-back policy implemented by the Corporation, whether implemented prior to or after the grant of such Award, including without limitation, any claw-back policy adopted to comply with the requirements of applicable law, including without limitation, the Dodd-Frank Wall Street Reform and Consumer Protection Act and any rules or regulations promulgated thereunder, to the extent set forth in such claw-back policy and/or in the applicable Award agreement.

APPENDIX

The following definitions shall be in effect under the Plan:

A. AWARD shall mean an option, stock issuance award, stock appreciation right award, restricted stock unit award or dividend equivalent award granted pursuant to the Plan.

B. BOARD shall mean the Corporation's Board of Directors.

C. CHANGE IN CONTROL shall mean a change in ownership or control of the Corporation effected through any of the following transactions:

(i) a merger, consolidation or other reorganization approved by the Corporation's stockholders, unless securities representing more than fifty percent (50%) of the total combined voting power of the voting securities of the successor corporation are immediately thereafter beneficially owned, directly or indirectly and in substantially the same proportion, by the persons who beneficially owned the Corporation's outstanding voting securities immediately prior to such transaction, or

(ii) the sale, transfer or other disposition of all or substantially all of the Corporation's assets in complete liquidation or dissolution of the Corporation, or

(iii) the acquisition, directly or indirectly by any person or related group of persons (other than the Corporation or a person that directly or indirectly controls, is controlled by, or is under common control with, the Corporation), of beneficial ownership (within the meaning of Rule 13d-3 of the 1934 Act) of securities possessing more than fifty percent (50%) of the total combined voting power of the Corporation's outstanding securities pursuant to a tender or exchange offer made directly to the Corporation's stockholders.

D. CODE shall mean the Internal Revenue Code of 1986, as amended.

E. COMMON STOCK shall mean the Corporation's common stock.

F. CORPORATION shall mean Ligand Pharmaceuticals Incorporated, a Delaware corporation, and any corporate successor to all or substantially all of the assets or voting stock of Ligand Pharmaceuticals Incorporated which shall by appropriate action adopt the Plan.

G. DISCRETIONARY OPTION GRANT PROGRAM shall mean the discretionary option grant program in effect under Article Two of the Plan.

H. EMPLOYEE shall mean an individual who is in the employ of the Corporation (or any Parent or Subsidiary), subject to the control and direction of the employer entity as to both the work to be performed and the manner and method of performance.

I. EXERCISE DATE shall mean the date on which the Corporation shall have received written notice of the option exercise.

J. FAIR MARKET VALUE per share of Common Stock on any relevant date shall be determined in accordance with the following provisions:

(i) If the Common Stock is at the time traded on the Nasdaq Global Market, then the Fair Market Value shall be the closing selling price per share of Common Stock on the date in question, as such price is reported by the National Association of Securities Dealers on the Nasdaq Global Market and published in The Wall Street Journal. If there is no closing selling price for the Common Stock on the date in question, then the Fair Market Value shall be the closing selling price on the last preceding date for which such quotation exists.

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(ii) If the Common Stock is at the time listed on any Stock Exchange, then the Fair Market Value shall be the closing selling price per share of Common Stock on the date in question on the Stock Exchange determined by the Plan Administrator to be the primary market for the Common Stock, as such price is officially quoted in the composite tape of transactions on such exchange and published in The Wall Street Journal. If there is no closing selling price for the Common Stock on the date in question, then the Fair Market Value shall be the closing selling price on the last preceding date for which such quotation exists.

K. Full Value Award shall mean any Award other than an option or a stock appreciation right and that is settled by the issuance of shares of Common Stock.

L. HOSTILE TAKE-OVER shall mean a change in ownership or control of the Corporation effected through either of the following transactions:

(i) a change in the composition of the Board over a period of thirty-six (36) consecutive months or less such that a majority of the Board members ceases, by reason of one or more contested elections for Board membership, to be comprised of individuals who either (A) have been Board members continuously since the beginning of such period or (B) have been elected or nominated for election as Board members during such period by at least a majority of the Board members described in clause (A) who were still in office at the time the Board approved such election or nomination, or

(ii) a Hostile Tender-Offer.

M. HOSTILE TENDER-OFFER shall mean the acquisition, directly or indirectly, by any person or related group of persons (other than the Corporation or a person that directly or indirectly controls, is controlled by, or is under common control with, the Corporation) of beneficial ownership (within the meaning of Rule 13d-3 of the 1934 Act) of securities possessing more than fifty percent (50%) of the total combined voting power of the Corporation's outstanding securities pursuant to a tender or exchange offer made directly to the Corporation's stockholders which the Board does not recommend such stockholders to accept.

N. INCENTIVE OPTION shall mean an option which satisfies the requirements of Code Section 422.

O. INVOLUNTARY TERMINATION shall mean the termination of the Service of any individual which occurs by reason of:

(i) such individual's involuntary dismissal or discharge by the Corporation for reasons other than Misconduct, or

(ii) such individual's voluntary resignation following (A) a change in his or her position with the Corporation which materially reduces his or her duties and responsibilities or the level of management to which he or she reports, (B) a reduction in his or her level of compensation (including base salary, fringe benefits and target bonus under any corporate-performance based bonus or incentive programs) by more than fifteen percent (15%) or (C) a relocation of such individual's place of employment by more than fifty (50) miles, provided and only if such change, reduction or relocation is effected by the Corporation without the individual's consent.

P. MISCONDUCT shall mean the commission of any act of fraud, embezzlement or dishonesty by the Optionee or Participant, any unauthorized use or disclosure by such person of confidential information or trade secrets of the Corporation (or any Parent or Subsidiary), or any other intentional misconduct by such person adversely affecting the business or affairs of the Corporation (or any Parent or Subsidiary) in a material manner. The foregoing definition shall not in any way preclude or restrict the right of the Corporation (or any Parent or Subsidiary) to

discharge or dismiss any Optionee, Participant or other person in the Service of the Corporation (or

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any Parent or Subsidiary) for any other acts or omissions, but such other acts or omissions shall not be deemed, for purposes of the Plan, to constitute grounds for termination for Misconduct.

Q. 1934 ACT shall mean the Securities Exchange Act of 1934, as amended.

R. NON-STATUTORY OPTION shall mean an option not intended to satisfy the requirements of Code Section 422.

S. OPTIONEE shall mean any person to whom an option is granted under the Discretionary Option Grant Program.

T. OTHER STOCK AWARD PROGRAM shall mean the discretionary stock award grant program in effect under Article Four of the Plan

U. PARENT shall mean any corporation (other than the Corporation) in an unbroken chain of corporations ending with the Corporation, provided each corporation in the unbroken chain (other than the Corporation) owns, at the time of the determination, stock possessing fifty percent (50%) or more of the total combined voting power of all classes of stock in one of the other corporations in such chain.

V. PARTICIPANT shall mean any person who is issued an Award under the Plan other than an option.

W. Performance Criteria shall mean the criteria that the Primary Committee selects for purposes of establishing the Performance Goal or Performance Goals for a Participant for a Performance Period, determined as follows:

(i) The Performance Criteria that will be used to establish Performance Goals shall be determined by the Plan Administrator. Such criteria may include, but are not limited to, one or more of the following: net earnings (either before or after interest, taxes, depreciation and amortization), gross or net sales or revenue, adjusted net income, operating earnings or profit, cash flow (including, but not limited to, operating cash flow and free cash flow), return on assets, return on capital, return on stockholders' equity, total stockholder return, return on sales, gross or net profit or operating margin, expenses, working capital, earnings per share, adjusted earnings per share, price per share of Stock, regulatory body approval for commercialization of a product, implementation or completion of critical projects, and market share, any of which may be measured either in absolute terms or as compared to any incremental increase or decrease or as compared to results of a peer group or to market performance indicators or indices.

(ii) The Plan Administrator may, in its sole discretion, provide that one or more adjustments shall be made to one or more of the Performance Goals. Such adjustments may include, but are not limited to, one or more of the following: items related to a change in accounting principle, items relating to financing activities, expenses for restructuring or productivity initiatives, other non-operating items, items related to acquisitions, items attributable to the business operations of any entity acquired by us during the performance period, items related to the disposal of a business or segment of a business, items related to discontinued operations that do not qualify as a segment of a business under applicable accounting standards, items attributable to any stock dividend, stock split, combination or exchange of stock occurring during the performance period, other items of significant income or expense which are determined to be appropriate adjustments, items relating to unusual or extraordinary corporate transactions, events or developments, items related to amortization of acquired intangible assets, items that are outside the scope of our core, on-going business activities, items related to acquired in-process research and development, items relating to changes in tax laws, items relating to major licensing or partnership arrangements, items relating to asset impairment charges, items relating to gains or losses for litigation, arbitration and contractual settlements, or items relating to any other unusual or nonrecurring events or changes in applicable laws, accounting principles or business conditions.

X. Performance Goals shall mean, for a Performance Period, the goals established in writing by the Plan Administrator for the Performance Period. Performance Goals may be expressed in terms of overall Corporation performance or the performance of a division, business unit, or an individual.

Y. Performance Period shall mean the one or more periods of time, which may be of varying and overlapping durations, as the Plan Administrator may select, over which the attainment of one or more Performance Goals will be measured for the purpose of determining a Participant's right to, and the payment of, an Award.

Z. PERMANENT DISABILITY OR PERMANENTLY DISABLED shall mean the inability of the Optionee or the Participant to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment expected to result in death or to be of continuous duration of twelve (12) months or more. However, solely for purposes of the Awards granted to non-employee Board members, Permanent Disability or Permanently Disabled shall mean the inability of the non-employee Board member to perform his or her usual duties as a Board member by reason of any medically determinable physical or mental impairment expected to result in death or to be of continuous duration of twelve (12) months or more.

AA. PLAN shall mean the Corporation's 2002 Stock Incentive Plan, as amended and restated and set forth in this document.

BB. PLAN ADMINISTRATOR shall mean the particular entity, whether the Primary Committee, the Board or the Secondary Committee, which is authorized to administer the Plan with respect to one or more classes of eligible persons, to the extent such entity is carrying out its administrative functions under those programs with respect to the persons under its jurisdiction.

CC. PRIMARY COMMITTEE shall mean the committee of two (2) or more non-employee Board members appointed by the Board to administer the Discretionary Option Grant and Stock Issuance Programs with respect to Section 16 Insiders.

DD. Qualified Performance-Based Compensation means any compensation granted under the Plan prior to November 2, 2017 that is intended to qualify as "qualified performance-based compensation" as described in Section 162(m)(4)(C) of the Code prior to its repeal.

EE. RESTATEMENT EFFECTIVE DATE shall mean the date the Plan shall become effective and shall be coincident with the approval of the Plan at the 2019 Annual Meeting of Stockholders scheduled to take place on June 6, 2019.

FF. SECONDARY COMMITTEE shall mean a committee of one or more Board members appointed by the Board to administer the Discretionary Option Grant, Stock Issuance and Other Stock Award Programs with respect to eligible persons other than Section 16 Insiders.

GG. SECTION 16 INSIDER shall mean an officer or director of the Corporation subject to the short-swing profit liabilities of Section 16 of the 1934 Act.

HH. SERVICE shall mean the performance of services for the Corporation (or any Parent or Subsidiary) by a person in the capacity of an Employee, a non-employee member of the board of directors or a consultant or independent advisor, except to the extent otherwise specifically provided in the documents evidencing the option grant or stock issuance.

II. STOCK EXCHANGE shall mean either the American Stock Exchange or the New York Stock Exchange.

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JJ. STOCK ISSUANCE AGREEMENT shall mean the agreement entered into by the Corporation and the Participant at the time of issuance of shares of Common Stock under the Stock Issuance Program.

KK. STOCK ISSUANCE PROGRAM shall mean the stock issuance program in effect under Article Three of the Plan.

LL. SUBSIDIARY shall mean any corporation (other than the Corporation) in an unbroken chain of corporations beginning with the Corporation, provided each corporation (other than the last corporation) in the unbroken chain owns, at the time of the determination, stock possessing fifty percent (50%) or more of the total combined voting power of all classes of stock in one of the other corporations in such chain.

MM. 10% STOCKHOLDER shall mean the owner of stock (as determined under Code Section 424(d)) possessing more than ten percent (10%) of the total combined voting power of all classes of stock of the Corporation (or any Parent or Subsidiary).

NN. WITHHOLDING TAXES shall mean the applicable income and employment withholding taxes to which the holder of Non-Statutory Options or unvested shares of Common Stock may become subject in connection with the exercise of those options or the vesting of those shares.

Appendix B - Amendment and Restatement of the Ligand Pharmaceuticals Incorporated Employee Stock Purchase Plan

LIGAND PHARMACEUTICALS INCORPORATED
EMPLOYEE STOCK PURCHASE PLAN
(AS AMENDED AND RESTATED EFFECTIVE JUNE 6, 2019)

I. PURPOSE OF THE PLAN

This Employee Stock Purchase Plan is intended to promote the interests of Ligand Pharmaceuticals Incorporated, a Delaware corporation, by providing eligible employees with the opportunity to acquire a proprietary interest in the Corporation through participation in a payroll deduction-based employee stock purchase plan designed to qualify under Section 423 of the Code.

Capitalized terms herein shall have the meanings assigned to such terms in the attached Appendix.

II. ADMINISTRATION OF THE PLAN

The Plan Administrator shall have full authority to interpret and construe any provision of the Plan and to adopt such rules and regulations for administering the Plan as it may deem necessary in order to comply with the requirements of Code Section 423. Decisions of the Plan Administrator shall be final and binding on all parties having an interest in the Plan.

III. STOCK SUBJECT TO PLAN

A. The stock purchasable under the Plan shall be shares of authorized but unissued or reacquired Common Stock, including shares of Common Stock purchased on the open market. The aggregate number of shares of Common Stock reserved for issuance over the term of the Plan shall be 218,374 shares.

B. Should any change be made to the Common Stock by reason of any stock split, stock dividend, recapitalization, combination of shares, exchange of shares or other change affecting the outstanding Common Stock as a class without the Corporation's receipt of consideration, appropriate adjustments shall be made to (i) the maximum number and class of securities issuable under the Plan, (ii) the maximum number and class of securities purchasable per Participant on any one Purchase Date and (iii) the number and class of securities and the price per share in effect under each outstanding purchase right in order to prevent the dilution or enlargement of benefits thereunder.

IV. OFFERING PERIODS

A. Shares of Common Stock shall be offered for purchase under the Plan through a series of successive Offering Periods, which shall continue until such time as (i) the maximum number of shares of Common Stock available for issuance under the Plan shall have been purchased (ii) the Plan Administrator shall have terminated the Offering Period as provided below or (iii) the Plan shall have been sooner terminated.

B. Each Offering Period shall be six (6) months in duration, commencing on each January 1 and July 1 during the term of the Plan. The Plan Administrator shall have the power to change the duration of Offering Periods (including the commencement dates thereof) with respect to future offerings (but in no event may the duration of any Offering Period under the Plan exceed twenty-four (24) months), or to provide that purchases shall be made more frequently under the Plan during each Offering Period, without stockholder approval pursuant to an action taken prior to the commencement of the first Offering Period to be affected thereafter.

C. The Plan Administrator may in its discretion terminate any ongoing Offering Period when, in the sole discretion of the Plan Administrator, such termination would be in the best interests of the Corporation or its stockholders, including, without limitation, to assure that the Corporation will not recognize, for financial reporting purposes, any compensation expense in connection with the shares of Common Stock offered for purchase under the Plan. Upon such early termination, a new Offering Period will begin at the time designated by the Plan Administrator.

V. ELIGIBILITY

A. Each individual who is an Eligible Employee on the Entry Date of any Offering Period under the Plan may enter that Offering Period on such Entry Date, provided he or she remains an Eligible Employee.

B. Each Eligible Employee must complete the enrollment forms prescribed by the Plan Administrator (including a stock purchase agreement and a payroll deduction authorization or such other forms as the Plan Administrator may determine) and file such forms with the Plan Administrator (or its designate) on or before his or her scheduled Entry Date.

C. A Participant's completion of the enrollment forms will enroll such Participant in the Plan for each successive Offering Period on the terms contained therein until the Participant either submits new enrollment forms, withdraws from participation under the Plan or otherwise becomes ineligible to participate in the Plan.

VI. PAYROLL DEDUCTIONS

A. The payroll deduction authorized by the Participant for purposes of acquiring shares of Common Stock during an Offering Period may be any multiple of one percent (1%) of the Cash Earnings paid to the Participant during each Offering Period, up to a maximum of ten percent (10%). The deduction rate so authorized shall continue in effect throughout the Offering Period, except to the extent such rate is changed in accordance with the following guidelines:

(i) The Participant may, at any time during an Offering Period, reduce his or her rate of payroll deduction (including to zero (0%)) to become effective as soon as possible after filing the appropriate form with the Plan Administrator.

The Participant may not, however, effect more than one (1) such reduction per Offering Period.

(ii) The Participant may, prior to the commencement of any new Offering Period, increase the rate of his or her payroll deduction by filing the appropriate form with the Plan Administrator. The new rate (which may not exceed the ten percent (10%) maximum) shall become effective on the start date of the first Offering Period following the filing of such form.

B. Payroll deductions shall begin on the first pay day administratively feasible following the Participant's Entry Date into the Offering Period and shall (unless sooner terminated by the Participant) continue through the pay day ending with or immediately prior to the last day of that Offering Period. The amounts so collected shall be credited to the Participant's book account under the Plan, but no interest shall be paid on the balance from time to time outstanding in such account. The amounts collected from the Participant shall not be required to be held in any segregated account or trust fund and may be commingled with the general assets of the Corporation and used by the Corporation for general corporate purposes.

C. Payroll deductions shall automatically cease upon the termination of the Participant's purchase right in accordance with the provisions of the Plan.

D. Subject to the terms and conditions contained herein, the Participant's acquisition of Common Stock under the Plan on any Purchase Date shall neither limit nor require the Participant's acquisition of Common Stock on any subsequent Purchase Date, whether within the same or a different Offering Period.

VII. PURCHASE RIGHTS

A. **GRANT OF PURCHASE RIGHTS.** A Participant shall be granted a separate purchase right for each Offering Period in which he or she participates. The purchase right shall be granted on the Participant's Entry Date into the Offering Period and shall provide the Participant with the right to purchase shares of Common Stock, in a series of one or more installments over the remainder of such Offering Period, upon the terms set forth below.

Under no circumstances shall purchase rights be granted under the Plan to any Eligible Employee if such individual would, immediately after the grant, own (within the meaning of Code Section 424(d)) or hold outstanding options or other rights to purchase, stock possessing five percent (5%) or more of the total combined voting power or value of all classes of stock of the Corporation or any Corporate Affiliate.

B. **EXERCISE OF THE PURCHASE RIGHT.** Each purchase right shall be automatically exercised in one or more installments on each successive Purchase Date, and shares of Common Stock shall accordingly be purchased on behalf of each Participant on each such Purchase Date. The purchase shall be effected by applying the Participant's payroll

deductions for the Offering Period ending on such Purchase Date to the purchase of whole shares of Common Stock at the purchase price in effect for the Participant for that Purchase Date.

C. **PURCHASE PRICE.** The purchase price per share at which Common Stock will be purchased on the Participant's behalf on each Purchase Date within the Offering Period shall be equal to eighty-five percent (85%) of the lower of (i) the Fair Market Value per share of Common Stock on the Entry Date for that Offering Period or (ii) the Fair Market Value per share of Common Stock on that Purchase Date.

D. **NUMBER OF PURCHASABLE SHARES.** The number of shares of Common Stock purchasable by a Participant on each Purchase Date during the Offering Period shall be the number of whole shares obtained by dividing the amount collected from the Participant through payroll deductions during the Offering Period by the purchase price in effect for the Participant for that Purchase Date. However, the maximum number of shares of Common Stock purchasable per Participant during any Offering Period shall not exceed 1,250 shares, subject to periodic adjustments in the event of certain changes in the Corporation's capitalization as contemplated in Section III.B. above. However, the Plan Administrator shall have the discretionary authority, exercisable prior to the start of any Offering Period under the Plan, to increase or decrease the limitations to be in effect for the number of shares purchasable per Participant and to establish limitations on the maximum number of shares that may be purchased in total by all Participants on each Purchase Date during that Offering Period.

E. **EXCESS PAYROLL DEDUCTIONS.** Any payroll deductions not applied to the purchase of shares of Common Stock on any Purchase Date because they are not sufficient to purchase a whole share of Common Stock shall be held for the purchase of Common Stock on the next Purchase Date. However, any payroll deductions not applied to the purchase of Common Stock by reason of the limitation on the maximum number of shares purchasable per Participant or in total by all Participants on the Purchase Date shall be promptly refunded.

F. **SUSPENSION OF PAYROLL DEDUCTIONS.** In the event that a Participant is, by reason of the accrual limitations in Article VIII, precluded from purchasing additional shares of Common Stock on one or more Purchase Dates during the Offering Period in which he or she is enrolled, then no further payroll deductions shall be collected from such Participant with respect to those Purchase Dates. The suspension of such deductions shall not terminate the Participant's purchase right for the Offering Period in which he or she is enrolled, and payroll deductions shall automatically resume on behalf of such Participant once he or she is again able to purchase shares during that Offering Period in compliance with the accrual limitations of Article VIII.

G. **TERMINATION OF PURCHASE RIGHT.** The following provisions shall govern the termination of outstanding purchase rights:

(i) A Participant may, at any time prior to the next scheduled Purchase Date in the Offering Period, terminate his or her outstanding purchase right by filing the appropriate form with the Plan Administrator (or its designate), and no further payroll deductions shall be collected from the Participant with respect to the terminated purchase right. Any payroll deductions collected during the Offering Period in which such termination occurs shall be refunded as soon as possible.

(ii) The termination of such purchase right shall be irrevocable, and the Participant may not subsequently rejoin the Offering Period for which the terminated purchase right was granted. In order to resume participation in any subsequent Offering Period, such Participant must re-enroll in the Plan (by making a timely filing of the prescribed enrollment forms) on or before his or her scheduled Entry Date into that Offering Period.

(iii) Should the Participant cease to remain an Eligible Employee for any reason (including death, disability or change in status) while his or her purchase right remains outstanding, then that purchase right shall immediately terminate, and all of the Participant's payroll deductions for the Offering Period in which the purchase right so terminates shall be immediately refunded.

(iv) If a leave of absence is unapproved or fails to meet the requirements of Treasury Regulation Section 1.421-7(h)(2), the Participant will cease automatically to participate in the Plan. In such event, the Corporation will automatically cease to deduct the Participant's payroll under the Plan and will pay to the Participant his or her total payroll deductions for the Offering Period, in cash in one lump sum (without interest), as soon as practicable after the participant ceases to participate in the Plan.

During a leave of absence approved by the Corporation or a Corporate Affiliate and meeting the requirements of Treasury Regulation Section 1.421-7(h)(2), a Participant may continue to participate in the Plan by making cash payments to the Corporation on each pay day equal to the amount of the Participant's payroll deductions

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under the Plan for the pay day immediately preceding the first day of such Participant's leave of absence. The payroll deductions of an individual who returns to active employment following an approved leave of absence or a leave of absence meeting the requirements of Treasury Regulation Section 1.421-7(h)(2) shall automatically resume at the rate in effect at the time such leave began, unless the Participant withdrew from the Plan during his or her leave of absence. If a leave of absence is unapproved or fails to meet the requirements of Treasury Regulation Section 1.421-7(h)(2), the Participant will cease automatically to participate in the Plan and all of the Participant's payroll deductions for the Offering Period in which the purchase right so terminates shall be immediately refunded. An individual who returns to active employment following a leave of absence that was unapproved or fails to meet the requirements of Treasury Regulation Section 1.421-7(h)(2) will be treated as a new employee for purposes of subsequent participation in the Plan and must accordingly re-enroll in the Plan (by making a timely filing of the prescribed enrollment forms).

H. **CHANGE IN CONTROL.** Each outstanding purchase right shall automatically be exercised, immediately prior to the effective date of any Change in Control (or such other date prior to the occurrence of the Change in Control as is determined by the Plan Administrator), by applying the payroll deductions of each Participant for the Offering Period in which such Change in Control occurs to the purchase of whole shares of Common Stock at a purchase price per share equal to eighty-five percent (85%) of the lower of (i) the Fair Market Value per share of Common Stock on the Participant's Entry Date into the Offering Period in which such Change in Control occurs or (ii) the Fair Market Value per share of Common Stock on such date. However, the applicable limitation on the number of shares of Common Stock purchasable per Participant shall continue to apply to any such purchase, but not the limitation applicable to the maximum number of shares of Common Stock purchasable in total by all Participants on any one Purchase Date, as may have been established by the Plan Administrator pursuant to Section VII.D. above.

The Corporation shall use its best efforts to provide at least ten (10) days' prior written notice of the occurrence of any Change in Control, and Participants shall, following the receipt of such notice, have the right to terminate their outstanding purchase rights prior to the effective date of the Change in Control.

I. **PRORATION OF PURCHASE RIGHTS.** Should the total number of shares of Common Stock to be purchased pursuant to outstanding purchase rights on any particular date exceed the number of shares then available for issuance under the Plan, the Plan Administrator shall make a pro-rata allocation of the available shares on a uniform and nondiscriminatory basis, and the payroll deductions of each Participant, to the extent in excess of the aggregate purchase price payable for the Common Stock pro-rated to such individual, shall be refunded. In addition, the Plan Administrator may limit the total number of shares to be issued on any Purchase Date when, in the sole discretion of the Plan Administrator, such limitation would be in the best interests of the Corporation or its stockholders, including without limitation to limit or eliminate any compensation expense to the Corporation in connection with the shares of Common Stock to be issued under the Plan. In the event of such a limitation, the Plan Administrator shall make a pro-rata allocation of the available shares and any appropriate refund as provided above.

J. **ASSIGNABILITY.** The purchase right shall be exercisable only by the Participant and shall not be assignable or transferable by the Participant.

K. **STOCKHOLDER RIGHTS.** A Participant shall have no stockholder rights with respect to the shares subject to his or her outstanding purchase right until the shares are purchased on the Participant's behalf in accordance with the provisions of the Plan and the Participant has become a holder of record of the purchased shares.

VIII. ACCRUAL LIMITATIONS

A. No Participant shall be entitled to accrue rights to acquire Common Stock pursuant to any purchase right outstanding under this Plan if and to the extent such accrual, when aggregated with (i) rights to purchase Common Stock accrued under any other purchase right granted under this Plan and (ii) similar rights accrued under other employee stock purchase plans (within the meaning of Code Section 423)) of the Corporation or any Corporate Affiliate, would permit such Participant's rights to purchase stock of the Corporation or any Corporate Affiliate to accrue at a rate which exceeds \$25,000 of the fair market value of such stock (determined as of the first day of the Offering Period during which such rights are granted) for each calendar year in which such rights are outstanding at

any time. This limitation shall be applied in accordance with Section 423(b)(8) of the Code and the Treasury Regulations thereunder.

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B. If by reason of such accrual limitations, any purchase right of a Participant does not accrue for a particular Offering Period, then the payroll deductions that the Participant made during that Offering Period with respect to such purchase right shall be promptly refunded.

C. In the event there is any conflict between the provisions of this Article and one or more provisions of the Plan or any instrument issued thereunder, the provisions of this Article shall be controlling.

IX. EFFECTIVE DATE AND TERM OF THE PLAN

A. This Plan constitutes an amendment and restatement of the Ligand Pharmaceuticals Incorporated Employee Stock Purchase Plan most recently adopted by the Board on April 16, 2009, and approved by the Corporation's stockholders on May 29, 2009 (the "Existing Plan"). This amended and restated Plan was adopted by the Board on April 16, 2019, and will become effective on the Restatement Effective Date.

B. The Plan shall terminate upon such date as is determined by the Board in its sole discretion. The Plan shall automatically be suspended on the date on which all shares available for issuance under the Plan shall have been sold pursuant to purchase rights exercised under the Plan pending approval of an increase in the number of shares available for issuance under the Plan. No further purchase rights shall be granted or exercised, and no further payroll deductions shall be collected, under the Plan following such termination.

C. This amended and restated Plan shall be submitted for the approval of the Corporation's stockholders within 12 months after the date of the Board's adoption of this amended and restated Plan. If this amended and restated Plan is not approved by the Corporation's stockholders, this amended and restated Plan shall not become effective and the Existing Plan shall continue in full force and effect in accordance with its terms.

X. AMENDMENT OF THE PLAN

A. The Board may alter, amend, suspend or terminate the Plan at any time. However, no such amendment, modification or termination may adversely affect any purchase rights outstanding under the Plan without the consent of the affected Plan participant if such Board action shall become effective prior to the close of the current Offering Period. However, the Plan may be amended or terminated immediately upon Board action, if and to the extent necessary to assure that the Corporation will not recognize, for financial reporting purposes, any compensation expense in connection with the shares of Common Stock offered for purchase under the Plan.

B. In no event may the Board effect any of the following amendments or revisions to the Plan without the approval of the Corporation's stockholders: (i) increase the number of shares of Common Stock issuable under the Plan, except for permissible adjustments in the event of certain changes in the Corporation's capitalization, (ii) alter the purchase price formula so as to reduce the purchase price payable for the shares of Common Stock purchasable under the Plan to an amount less than 85% of the lower of (A) the Fair Market Value per share of Common Stock on the Entry Date for an Offering Period or (B) the Fair Market Value per share of Common Stock on the Purchase Date, whichever is lower, or (iii) modify the eligibility requirements for participation in the Plan.

XI. GENERAL PROVISIONS

A. All costs and expenses incurred in the administration of the Plan shall be paid by the Corporation; however, each Plan Participant shall bear all costs and expenses incurred by such individual in the sale or other disposition of any shares purchased under the Plan.

B. Nothing in the Plan shall confer upon the Participant any right to continue in the employ of the Corporation or any Corporate Affiliate for any period of specific duration or interfere with or otherwise restrict in any way the rights of the Corporation (or any Corporate Affiliate employing such person) or of the Participant, which rights are hereby expressly reserved by each, to terminate such person's employment at any time for any reason, with or without cause.

C. The provisions of the Plan shall be governed by the laws of the State of California without resort to that State's conflict-of-laws rules.

D. All Eligible Employees of the Corporation (or of any Corporate Affiliate) will have equal rights and privileges under this Plan so that this Plan qualifies as an "employee stock purchase plan" within the meaning of Section 423 of the Code or applicable Treasury regulations thereunder. Any provision of this Plan that is inconsistent with Section 423 or applicable Treasury regulations will, without further act or amendment by the Corporation, the Board or the Plan

Administrator, be reformed to comply with the equal rights and privileges requirement of Section 423 or applicable Treasury regulations.

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APPENDIX

The following definitions shall be in effect under the Plan:

- A. BOARD shall mean the Corporation's Board of Directors.
- B. CASH EARNINGS shall mean (i) the regular base salary paid to a Participant by one or more Participating Companies during such individual's period of participation in one or more Offering Periods under the Plan plus (ii) all overtime payments, bonuses, commissions, profit-sharing distributions and other incentive-type payments received during such period. Such Cash Earnings shall be calculated before deduction of (A) any income or employment tax withholdings or (B) any contributions made by the Participant to any Code Section 401(k) salary deferral plan or any Code Section 125 cafeteria benefit program now or hereafter established by the Corporation or any Corporate Affiliate. However, Cash Earnings shall NOT include any contributions made by the Corporation or any Corporate Affiliate on the Participant's behalf to any employee benefit or welfare plan now or hereafter established (other than Code Section 401(k) or Code Section 125 contributions deducted from such Cash Earnings).
- C. CHANGE IN CONTROL shall mean a change in ownership of the Corporation pursuant to any of the following transactions:
 - (i) a merger, consolidation or other reorganization approved by the Corporation's stockholders, UNLESS securities representing more than fifty percent (50%) of the total combined voting power of the voting securities of the successor corporation are immediately thereafter beneficially owned, directly or indirectly and in substantially the same proportion, by the persons who beneficially owned the Corporation's outstanding voting securities immediately prior to such transaction, or
 - (ii) the sale, transfer or other disposition of all or substantially all of the assets of the Corporation in complete liquidation or dissolution of the Corporation, or
 - (iii) the acquisition, directly or indirectly, by a person or related group of persons (other than the Corporation or a person that directly or indirectly controls, is controlled by or is under common control with the Corporation) of beneficial ownership (within the meaning of Rule 13d-3 of the 1934 Act) of securities possessing more than fifty percent (50%) of the total combined voting power of the Corporation's outstanding securities pursuant to a tender or exchange offer made directly to the Corporation's stockholders.
- D. CODE shall mean the Internal Revenue Code of 1986, as amended.
- E. COMMON STOCK shall mean the Corporation's common stock.
- F. CORPORATE AFFILIATE shall mean any parent or subsidiary corporation of the Corporation (as determined in accordance with Code Section 423), whether now existing or subsequently established.
- G. CORPORATION shall mean Ligand Pharmaceuticals Incorporated, a Delaware corporation, and any corporate successor to all or substantially all of the assets or voting stock of Ligand Pharmaceuticals Incorporated that shall by appropriate action adopt the Plan.
- H. ELIGIBLE EMPLOYEE shall mean any person who is employed by a Participating Corporation on a basis under which he or she is regularly expected to render more than twenty (20) hours of service per week for more than five (5) months per calendar year for earnings considered wages under Code Section 3401(a). For purposes of the Plan, the employment relationship shall be treated as continuing intact while the individual is on sick leave or other leave of absence approved by the Corporation or Corporate Affiliate and meeting the requirements of Treasury Regulation Section 1.421-7(h)(2). Where the period of leave exceeds ninety (90) days and the individual's right to reemployment is not provided either by statute or by contract, the employment relationship shall be deemed to have terminated on the ninety-first (91st) day of such leave.
- I. ENTRY DATE shall mean the first day of each Offering Period.
- J. FAIR MARKET VALUE per share of Common Stock on any relevant date shall be determined as follows: If the Common Stock is at the time listed on any Stock Exchange, then the Fair Market Value shall be the closing selling price per share of Common Stock on the date in question on the Stock Exchange determined by the Plan Administrator to be the primary market for the Common Stock, as such price is officially quoted in the composite tape of transactions on such exchange and published in THE WALL STREET JOURNAL. If there is no closing selling price for the Common Stock on

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the date in question, then the Fair Market Value shall be the closing selling price on the last preceding date for which such quotation exists.

K. 1933 ACT shall mean the Securities Act of 1933, as amended.

L. OFFERING PERIOD shall mean each six (6) month period commencing on any January 1 or July 1. The duration and timing of Offering Periods may be changed pursuant to Section IV.B of the Plan.

M. PARTICIPANT shall mean any Eligible Employee of a Participating Corporation who is actively participating in the Plan.

N. PARTICIPATING CORPORATION shall mean the Corporation and such Corporate Affiliate or Affiliates as may be authorized from time to time by the Board to extend the benefits of the Plan to their Eligible Employees.

O. PLAN shall mean the Corporation's Employee Stock Purchase Plan, as amended and restated and set forth in this document.

P. PLAN ADMINISTRATOR shall mean the committee of two (2) or more Board members appointed by the Board to administer the Plan.

Q. PURCHASE DATE shall mean the last Trading Day of each Offering Period.

R. RESTATEMENT EFFECTIVE DATE shall mean the date the Plan shall become effective and shall be coincident with the approval of the Plan at the 2019 Annual Meeting of Stockholders scheduled to take place on June 6, 2019.

S. STOCK EXCHANGE shall mean any established national securities exchange, including, without limitation, the American Stock Exchange, the Nasdaq Stock Market or the New York Stock Exchange.

T. TRADING DAY shall mean any day on which the Common Stock is actually traded.

