

AMAG PHARMACEUTICALS INC.

Form DEF 14A

April 20, 2017

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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

SCHEDULE 14A

Proxy Statement Pursuant to Section 14(a) of
the Securities Exchange Act of 1934 (Amendment No.)

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

AMAG PHARMACEUTICALS, INC.

(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.

Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.

(1) Title of each class of securities to which transaction applies:

(2) Aggregate number of securities to which transaction applies:

(3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined):

(4) Proposed maximum aggregate value of transaction:

(5) Total fee paid:

Fee paid previously with preliminary materials.

Check box if any part of the fee is offset as provided by Exchange Act Rule 0-11(a)(2) and identify the filing for which the offsetting fee was paid previously. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.

(1) Amount Previously Paid:

(2) Form, Schedule or Registration Statement No.:

(3) Filing Party:

(4) Date Filed:

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AMAG PHARMACEUTICALS, INC.

1100 Winter Street

Waltham, Massachusetts 02451

NOTICE OF ANNUAL MEETING OF STOCKHOLDERS

To Be Held On May 18, 2017

The 2017 Annual Meeting of Stockholders of AMAG Pharmaceuticals, Inc. (the "Annual Meeting") will be held at the offices of AMAG Pharmaceuticals, Inc., 1100 Winter Street, Waltham, Massachusetts 02451 on Thursday, May 18, 2017, at 9:00 a.m., local time, to consider and act upon the following matters:

- (1) To elect the nine nominees nominated by our Board of Directors named herein to the Board of Directors to serve until the next annual meeting of stockholders and until their successors have been elected and qualified;
- (2) To approve the Fourth Amended and Restated 2007 Equity Incentive Plan to, among other things, increase the number of shares of our common stock available for issuance thereunder by 2,485,000 shares;
- (3) To approve, on an advisory basis, the compensation of our named executive officers, as disclosed in this proxy statement;
- (4) To indicate, on an advisory basis, the preferred frequency of future stockholder advisory votes on the compensation of our named executive officers;
- (5) To approve the Rights Agreement, dated as of April 7, 2017 to enhance our ability to preserve the value of our net operating loss carryforwards and certain other deferred tax assets;
- (6) To ratify the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the year ending December 31, 2017; and
- (7) To transact such other business as may properly come before the Annual Meeting or any adjournments or postponements thereof.

Proposal 1 relates solely to the election of nine directors nominated by the Board of Directors and does not include any other matters relating to the election of directors, including without limitation, the election of directors nominated by any of our stockholders.

Only stockholders of record at the close of business on March 31, 2017, the record date for the Annual Meeting, are entitled to notice of, and will be entitled to vote at, the Annual Meeting or any adjournments or postponements thereof.

All stockholders are cordially invited to attend the Annual Meeting in person. To assure your representation at the Annual Meeting, we urge you to vote via the Internet at www.proxyvote.com or by telephone by following the instructions on the enclosed proxy card, or by signing, voting and returning your proxy card to Broadridge Financial Solutions, 51 Mercedes Way, Edgewood, New York 11717.

By Order of the Board of Directors,

Joseph D. Vittiglio

Secretary

Waltham, Massachusetts

April 20, 2017

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Whether or not you expect to attend the Annual Meeting, please promptly complete your proxy by Internet, telephone or mail as indicated above in order to assure representation of your shares. If completing a proxy by mail, no postage need be affixed if the proxy is mailed in the United States. Do not send any certificates with your proxy. Even if you have voted by proxy, you may still vote in person if you attend the Annual Meeting. Please note, however, that if your shares are held of record by a broker, bank, custodian or other nominee and you wish to vote at the Annual Meeting, you must obtain a proxy issued in your name from that record holder. Please refer to the enclosed form for instructions.

Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting to be Held on May 18, 2017 at 9:00 a.m. at the offices of AMAG Pharmaceuticals, Inc., 1100 Winter Street, Waltham, Massachusetts 02451: This Proxy Statement and Notice, the Proxy Card, and AMAG's 2016 Annual Report to Stockholders and any other proxy materials are available free of charge at www.amagpharma.com under the heading "Investors."

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AMAG PHARMACEUTICALS, INC.

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AMAG PHARMACEUTICALS, INC.

1100 Winter Street

Waltham, Massachusetts 02451

PROXY STATEMENT

FOR THE ANNUAL MEETING OF STOCKHOLDERS

TO BE HELD ON MAY 18, 2017

QUESTIONS AND ANSWERS ABOUT THIS PROXY MATERIAL AND VOTING

The Annual Meeting

Our Board of Directors (the "Board") is soliciting your proxy to vote at the 2017 Annual Meeting of Stockholders of AMAG Pharmaceuticals, Inc. (the "Annual Meeting") to be held at the offices of AMAG Pharmaceuticals, Inc., 1100 Winter Street, Waltham, Massachusetts 02451 on Thursday, May 18, 2017 at 9:00 a.m., local time, and at any adjournments or postponements of the Annual Meeting. Directions to the meeting location are available at the website of AMAG Pharmaceuticals, Inc. at www.amagpharma.com/about-us/contact-locations. This Proxy Statement explains the agenda, voting information and procedures for the Annual Meeting. Please read it carefully. This Proxy Statement and the accompanying proxy card were first mailed to our stockholders on or about April 20, 2017.

At the Annual Meeting, the following proposals will be subject to a vote of our stockholders: (1) to elect the following nine nominees, nominated by our Board, to serve as directors, each to hold office until the next annual meeting and until his or her successor is elected and qualified, or until his or her earlier resignation or removal: William K. Heiden, Barbara Deptula, John A. Fallon, M.D., Brian P. Kelley, Robert J. Perez, Lesley Russell, MB.Ch.B., MRCP, Gino Santini, Davey S. Scoon and James R. Sulat; (2) to approve the Fourth Amended and Restated 2007 Equity Incentive Plan (the "Equity Incentive Plan") to, among other things, increase the number of shares of our common stock available for issuance thereunder by 2,485,000 shares; (3) an advisory vote on the compensation of our named executive officers; (4) an advisory vote on the preferred frequency of future stockholder advisory votes on the compensation of our named executive officers; (5) to approve the Rights Agreement, dated as of April 7, 2017 (the "2017 NOL Rights Agreement") to enhance our ability to preserve the value of our net operating loss carryforwards and certain other deferred tax assets; and (6) to ratify the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the year ending December 31, 2017.

In this Proxy Statement, references to "Company," "AMAG," "we," "us," or "our" mean AMAG Pharmaceuticals, Inc. Any reference in this Proxy Statement to information found on our website, www.amagpharma.com does not incorporate such information by reference into this Proxy Statement.

Who Is Entitled To Attend And Vote At The Annual Meeting?

Only stockholders of record at the close of business on March 31, 2017, the record date (the "Record Date") for the Annual Meeting, are entitled to attend and vote at the Annual Meeting. On the Record Date, there were 34,445,394 shares of common stock outstanding and entitled to vote.

If on the Record Date your shares were registered directly in your name with our transfer agent/registrar, American Stock Transfer & Trust Company, then you are a stockholder of record. As a stockholder of record, you may vote in person at the meeting or by proxy.

If on the Record Date your shares were held through a broker, bank, custodian or other nominee (each, a "Nominee"), then you are the beneficial owner of shares held in "street name" and these proxy materials are being forwarded to you by that Nominee. Only your Nominee can vote your shares, but you have the right to give specific instructions to your Nominee regarding how to vote your shares at the Annual Meeting. Please follow the instructions for voting by proxy provided by your Nominee. You are also invited to attend the Annual Meeting.

How Many Votes Do I Have?

Each stockholder is entitled to one vote for each share of our common stock held by such stockholder on the Record Date.

How Do I Vote?

If you are a stockholder of record, you may vote in person at the Annual Meeting or by proxy by following the instructions on the enclosed proxy card. Whether or not you plan to attend the Annual Meeting, we urge you to vote by telephone or Internet as instructed in the enclosed proxy card, or by completing, signing and dating the enclosed proxy card and

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returning it in the envelope provided. No postage is required if your proxy card is mailed in the United States. You may still attend the Annual Meeting and vote in person even if you have already voted by proxy. If you plan to attend the Annual Meeting and vote in person, we will give you a ballot or a new proxy card when you arrive. Positive identification will be required to vote your shares in person.

If you are a beneficial owner of shares registered in the name of your Nominee, you should have received a proxy card and voting instructions with these proxy materials from that organization. Simply follow the instructions for voting provided by your Nominee to ensure that your vote is counted. You may still attend the Annual Meeting and vote in person even if you have already voted by proxy. However, if your shares are held in the name of your Nominee, to attend the meeting you must bring an account statement or letter from your Nominee indicating that you were the beneficial owner of the shares on the Record Date for voting at the Annual Meeting. To vote your shares in person, you must obtain a legal proxy from your Nominee and provide it along with positive identification.

The persons named as attorneys-in-fact in the enclosed proxy card, William K. Heiden, Edward Myles and Joseph D. Vittiglio, were selected by the Board and are officers of AMAG. All properly executed proxies submitted in time to be counted at the Annual Meeting will be voted by such persons at the Annual Meeting. Where a choice has been specified in such proxy with respect to the foregoing matters, the shares represented by the proxy will be voted in accordance with the specifications. If no such specifications are indicated, such proxies will be voted FOR each of the director nominees identified in Proposal 1, FOR Proposal 2 (the approval of the Equity Incentive Plan), FOR Proposal 3 (the advisory vote on the compensation of our named executive officers), for ONE year under Proposal 4 as the preferred frequency of future stockholder advisory votes on the compensation of our named executive officers, FOR Proposal 5 (the approval of the 2017 NOL Rights Agreement) and FOR Proposal 6 (the ratification of the appointment of PricewaterhouseCoopers LLP).

If any other matter should be presented at the Annual Meeting upon which a vote properly may be taken, shares represented by proxy will be voted in accordance with the judgment of the persons named in such proxy. At present, the Board knows of no other matters to be presented at the Annual Meeting.

How Many Votes Are Required To Approve Each Proposal?

For Proposal 1, the election of nine directors, each nominee shall be elected as a director if the votes cast for such nominee's election exceed the votes cast against such nominee's election (i.e., a majority of the votes cast). Our Corporate Governance Guidelines provide that if an incumbent director is not elected by a majority of votes cast, the Governance and Risk Committee shall promptly consider his or her resignation, and make a recommendation to the Board as to whether to accept or reject the resignation, or whether other action should be taken. The Board will act on the Governance and Risk Committee's recommendation within 30 days following certification of the stockholder vote. For each of Proposal 2 (the approval of the Equity Incentive Plan), Proposal 3 (the advisory vote on the compensation of our named executive officers), Proposal 4 (advisory vote on the preferred frequency of future stockholder advisory votes on the compensation of our named executive officers), Proposal 5 (the approval of the 2017 NOL Rights Agreement) and Proposal 6 (the ratification of the appointment of PricewaterhouseCoopers LLP) the vote of the holders of at least a majority of shares of common stock present or represented and voting on the matter at the Annual Meeting is required for approval (i.e., a majority of the votes cast). Proposal 6 is considered a routine matter and Nominees therefore have discretionary voting power as to Proposal 6. For non-routine matters, broker non-votes (discussed below) are not considered to have been voted "For" or "Against" a particular proposal and therefore have no effect on Proposals 1, 2, 3, 4 or 5 (there will not be any broker non-votes with respect to Proposal 6). Similarly, abstentions are not counted as voting on a matter and thus will have no effect on any of the Proposals. Because stockholders have several voting choices with respect to the proposal on the frequency of future non-binding votes on executive compensation, it is possible that no single choice will receive a majority vote. In light of the foregoing, the Board will consider the outcome of the vote when determining the frequency of future non-binding votes on executive compensation.

When a quorum is present at any meeting of stockholders, the holders of a majority of the stock present or represented and voting on a matter shall decide any matter to be voted upon by the stockholders at such meeting, except when a different vote is required by express provision of law, our certificate of incorporation or our by-laws. At present, the

Board knows of no other matters to be presented for stockholder action at the Annual Meeting.

What Does It Mean If I Receive More Than One Proxy Card?

If you receive more than one proxy card, your shares may be registered in more than one name or are registered in different accounts. Please complete, sign, date, and return all proxy cards or vote by Internet or telephone as instructed on such proxy cards to be sure that all of your shares are voted.

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Can I Change My Vote After I Deliver My Proxy?

Yes. You may change your vote at any time before the final vote at the Annual Meeting. If you are the record holder of your shares, you may revoke your proxy in any one of four ways:

• Duly completing a later-dated proxy relating to the same shares and delivering it before the taking of the vote at the Annual Meeting.

• Properly casting a new vote via the Internet or by telephone at any time before the closure of the Internet or telephone voting facilities.

• Delivering written notice to us before the taking of the vote at the Annual Meeting that you are revoking your proxy.

Such notice should be sent to our principal executive offices at AMAG Pharmaceuticals, Inc., 1100 Winter Street, Waltham, Massachusetts 02451, attention: Secretary.

• Attending the Annual Meeting and voting in person. Simply attending the meeting will not, in itself, revoke your proxy.

If you wish to revoke a delivered proxy and your shares are held by a Nominee, you should follow the revocation instructions provided by that Nominee.

What Are "Broker Non-Votes" And What Discretion Does My Broker Have To Vote My Shares Held In "Street Name"?

Generally, if shares are held in street name, the beneficial owner of the shares is entitled to give voting instructions to the Nominee holding the shares. Under national securities exchange rules, if the beneficial owner does not provide voting instructions, the Nominee can still vote the shares with respect to matters that are considered to be "routine," but not with respect to "non-routine" matters. A broker non-vote occurs when a Nominee holding the shares for a beneficial owner votes on one proposal but does not vote on another proposal because, with respect to such other proposal, the Nominee does not have discretionary voting power and has not received instructions from the beneficial owner as to how to vote such shares.

Proposal 6, the ratification of our appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the year ending December 31, 2017, is the only routine matter included in this Proxy Statement. Pursuant to applicable stock exchange rules, (a) the election of directors, (b) the approval of the Equity Incentive Plan, (c) the advisory vote on compensation paid to our named executive officers, (d) the advisory vote regarding your preferred frequency of future advisory votes on the compensation of our named executive officers and (e) the proposal to approve the 2017 NOL Rights Agreement are considered non-routine matters. For non-routine matters, brokers do not have authority, discretionary or otherwise, to vote your shares unless they receive proper instructions to do so from you in a timely manner. If you hold your shares in street name, we strongly encourage you to submit your proxy by following the instructions provided by your Nominee and exercise your right to vote as a stockholder as promptly as possible.

What Constitutes A Quorum At The Annual Meeting?

A quorum of stockholders is necessary to hold a valid meeting. A quorum will be present if the holders of at least a majority of the shares of common stock issued and outstanding and entitled to vote on the Record Date are present at the Annual Meeting, either in person or represented by proxy. On the Record Date, there were 34,445,394 shares of our common stock outstanding and entitled to vote.

Abstentions and broker non-votes are counted as present or represented for purposes of determining the presence or absence of a quorum for the Annual Meeting. If there is no quorum, the chairman of the meeting or the holders of a majority of shares present at the Annual Meeting, present in person or represented by proxy, may adjourn the meeting to another date.

What Materials Should I Be Receiving In Connection With The Annual Meeting?

Our Annual Report, including audited financial statements for the year ended December 31, 2016, is being mailed to you along with this Proxy Statement and Notice. This Proxy Statement and the accompanying Notice and proxy card were first mailed to our stockholders on or about April 20, 2017.

This Proxy Statement and Notice, the Proxy Card, and AMAG's 2016 Annual Report to Stockholders and any other proxy materials are also available free of charge at www.amagpharma.com under the heading "Investors."

If you share an address with any of our other stockholders, your household might receive only one copy of the Notice and Proxy Statement and Annual Report. To request individual copies of any of these materials for each stockholder in your household, please contact our Investor Relations Department at (617) 498-3300 or AMAG Pharmaceuticals, Inc., 1100 Winter Street, Waltham, Massachusetts 02451, Attention: Investor Relations. We will deliver copies of the Notice and Proxy Statement

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and/or Annual Report promptly following your written or oral request. You may also contact Broadridge Investor Communications Solutions, Inc. ("Broadridge") or your bank, broker or other custodian to request individual copies of any of these materials for each stockholder in your household. To ask that only one copy of any of these materials be mailed to your household, please contact your broker. For additional details on this practice (referred to as "householding") please see the discussion below under "Delivery of Documents to Stockholders Sharing an Address."

How Are We Soliciting Proxies And Tabulating Votes?

We will bear all costs of solicitation of proxies. In addition to these proxy materials, our directors, officers and employees, without additional remuneration, may also solicit proxies through telephone, e-mail and in-person conversations. We will also reimburse brokerage firms, banks and other agents for the cost of forwarding proxy materials to beneficial owners.

Votes will be tabulated by Broadridge.

How Can I Find Out The Results Of The Voting At The Annual Meeting?

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

When Are Stockholder Proposals And Director Nominations Due For Next Year's Annual Meeting?

To be considered for inclusion in next year's proxy materials, stockholder proposals (other than director nominations, which can only be submitted as described below) must be submitted in writing to our principal executive offices at AMAG Pharmaceuticals, Inc., 1100 Winter Street, Waltham, Massachusetts 02451, attention: Secretary and must be received by us no later than December 21, 2017. Proposals must satisfy the requirements and procedures set forth in Rule 14a-8 under the Securities Exchange Act of 1934, as amended (the "Exchange Act").

If you wish to nominate a director or submit a proposal for consideration at our 2018 annual meeting of stockholders, you must submit such nomination or proposal in writing to our principal executive offices at AMAG Pharmaceuticals, Inc., 1100 Winter Street, Waltham, Massachusetts 02451, attention: Secretary. Such nomination or proposal must be received by us no earlier than January 18, 2018 and no later than February 17, 2018 and must satisfy the requirements described in our by-laws. For additional details, please see the discussion below under "Stockholder Proposals."

SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Section 16(a) of the Exchange Act requires our directors, executive officers and holders of more than 10% of our common stock, referred to herein as "Reporting Persons," to file with the Securities and Exchange Commission (the "SEC"), initial reports of ownership and reports of changes in ownership of our common stock. Such persons are required by SEC regulations to furnish us with copies of all such filings. Based on our review of the copies of such filings received by us with respect to the year ended December 31, 2016, and written representations from our directors and executive officers who served in such capacity during the year ended December 31, 2016, we believe that all Reporting Persons complied with all Section 16(a) filing requirements for the year ended December 31, 2016.

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SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

Unless otherwise noted, the following table sets forth information regarding the beneficial ownership of our common stock as of March 31, 2017 by the following persons:

Each person known by us to beneficially own more than 5% of our common stock;

Each of our directors and nominees for director;

Each of our named executive officers listed in the "Summary Compensation Table" included in this Proxy Statement; and

All of our current directors and executive officers as a group.

"Beneficial ownership" is determined in accordance with the rules of the SEC and includes voting and investment power with respect to those shares. Pursuant to the rules of the SEC, the number of shares of common stock deemed outstanding includes shares issuable upon settlement of restricted stock units ("RSUs") held by the respective person or group that will vest or which may be settled within 60 days of March 31, 2017 and pursuant to options held by the respective person or group that are currently exercisable or may be exercised within 60 days of March 31, 2017. These stock options and RSUs shall be deemed to be outstanding for the purpose of computing the percentage of shares beneficially owned by such person or group but shall not be deemed to be outstanding for the purpose of computing the percentage of shares beneficially owned by any other person or group.

Name and Address of Beneficial Owner(2)	Shares Beneficially Owned(1)	Percentage of Shares Beneficially Owned(2)
BlackRock, Inc.(3) 55 East 52nd Street New York, New York 10055	4,653,183	13.5%
FMR LLC(4) 245 Summer Street Boston, Massachusetts 02210	3,958,103	11.5%
Palo Alto Investors, LLC(5) 470 University Avenue Palo Alto, California 94301	3,344,620	9.7%
Janus Capital Management LLC(6) 151 Detroit Street Denver, Colorado 80206	3,266,213	9.5%
The Vanguard Group(7) 100 Vanguard Boulevard Malvern, Pennsylvania 19355	2,908,516	8.4%
William K. Heiden(8)	700,984	2.0%
Frank E. Thomas(9)	220,047	*
Robert J. Perez(10)	63,952	*
Davey S. Scoon(11)	62,168	*
Lesley Russell, MB. Ch.B., MRCP(12)	55,485	*
Gino Santini(13)	53,477	*
Barbara Deptula(14)	42,477	*
John A. Fallon, M.D.(15)	35,750	*
James R. Sulat(16)	35,061	*
Nicholas Grund(17)	21,915	*
Joseph D. Vittiglio(18)	18,865	*
Edward Myles(19)	15,416	*
Julie Krop, M.D.(20)	15,016	*
Brian P. Kelley(21)	5,014	*

All current directors and executive officers as a group (14 persons)(22) 1,345,627 3.8%

* Less than 1%.

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Certain RSU award agreements provide, with certain exceptions, that if a vesting date occurs during a blackout period where the awardee is precluded from selling shares of our common stock, the receipt of the underlying shares will generally be deferred until the expiration of such blackout period, which may be longer than 60 days.

(1) We have assumed for purposes of reporting beneficial ownership that no blackout period will cause any shares issuable under vested but unsettled RSUs to be deferred more than 60 days from March 31, 2017 and have therefore included such shares in the respective awardee's RSUs expected to vest or which may be settled within 60 days of March 31, 2017.

Unless otherwise indicated, to our knowledge, each stockholder referred to above has sole voting and dispositive power with respect to the shares indicated, and the address of each stockholder is: c/o AMAG

(2) Pharmaceuticals, Inc., 1100 Winter Street, Waltham, Massachusetts 02451. Applicable percentage ownership is based upon 34,445,394 shares of common stock outstanding as of March 31, 2017.

BlackRock, Inc. has sole voting power with respect to 4,578,057 of such shares and shared voting power with

(3) respect to none of such shares. We have relied solely on information supplied by the reporting person on a Schedule 13G/A filed with the SEC on January 12, 2017.

Reflects shares beneficially owned by each of FMR LLC and Abigail P. Johnson. Each of FMR LLC and Abigail P. Johnson has sole voting power with respect to 255,849 of such shares, has shared voting power with respect to none of such shares and has sole dispositive power over all 3,958,103 shares. Abigail P. Johnson is a Director, the Chairman and the Chief Executive Officer of FMR LLC. Neither FMR LLC nor Abigail P. Johnson has the sole

(4) power to vote or direct the voting of the shares owned directly by the various investment companies registered under the Investment Company Act advised by Fidelity Management & Research Company, a wholly owned subsidiary of FMR LLC. The power to vote the shares resides with the funds' Boards of Trustees. We have relied solely on information supplied by the reporting persons on a Schedule 13G/A filed with the SEC on February 14, 2017.

Reflects shares beneficially owned by Palo Alto Investors, LLC ("PAI"), Patrick Lee, M.D., and Anthony Joonkyoo Yun, M.D. PAI is the general partner and investment adviser of Palo Alto Healthcare Master Fund II, L.P. Palo Alto Healthcare Master Fund II, L.P., with an address of c/o Citco Fund Services (Cayman Islands) Limited, 89 Nexus Way, Camana Bay, P.O. Box 31106, Grand Cayman, Cayman Islands, is the beneficial owner

(5) of 2,079,950 of the shares. Dr. Lee and Dr. Yun co-manage PAI and each have shared voting and dispositive power, along with PAI with respect to 3,344,620 shares. Dr. Lee has sole voting and dispositive power with respect to 691 shares. Palo Alto Healthcare Master Fund II, L.P. has shared voting and dispositive power with respect to 2,079,950 of the shares. We have relied solely on information supplied by the reporting persons on a Schedule 13G/A filed with the SEC on January 12, 2017.

(6) We have relied solely on information supplied by the reporting persons on a Schedule 13G/A filed with the SEC on February 13, 2017.

The Vanguard Group has sole voting power with respect to 50,033 of such shares, sole dispositive power with respect to 2,857,057 of such shares, shared voting power with respect to 3,400 of such shares and shared

(7) dispositive power with respect to 51,459 of such shares. We have relied solely on information supplied by the reporting persons on a Schedule 13G/A filed with the SEC on February 9, 2017.

Includes 427,512 shares issuable to Mr. Heiden pursuant to options currently exercisable or exercisable within

(8) 60 days of March 31, 2017 and 48,197 shares issuable to Mr. Heiden pursuant to RSUs expected to vest or which may be settled within 60 days of March 31, 2017.

Includes 134,024 shares issuable to Mr. Thomas pursuant to options currently exercisable or exercisable within

(9) 60 days of March 31, 2017 and 31,507 shares issuable to Mr. Thomas pursuant to RSUs expected to vest or which may be settled within 60 days of March 31, 2017.

(10) Includes 46,562 shares issuable to Mr. Perez pursuant to options currently exercisable or exercisable within 60 days of March 31, 2017 and 8,390 shares issuable to Mr. Perez pursuant to RSUs expected to vest or which may be settled within 60 days of March 31, 2017, 2,500 shares held by the Christine E. Perez 2004 Revocable Trust, dated February 25, 2004, as amended (the "Perez Trust") and 1,900 shares held by the Robert J. Perez 2004

Revocable Trust, dated February 25, 2004, as amended (the "Robert Perez Trust"). Mr. Perez's wife is the trustee of the Perez Trust. Mr. Perez does not have voting or dispositive power with respect to the shares held by the Perez Trust but would have sole voting and dispositive power were he to become trustee at his wife's death or incapacity. Mr. Perez is the trustee of the Robert Perez Trust and has sole voting and dispositive power with respect to the shares held by the Robert Perez Trust.

Includes 44,778 shares issuable to Mr. Scoon pursuant to options currently exercisable or exercisable within (11)60 days of March 31, 2017 and 8,390 shares issuable to Mr. Scoon pursuant to RSUs expected to vest or which may be settled within 60 days of March 31, 2017.

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Includes 38,695 shares issuable to Dr. Russell pursuant to options currently exercisable or exercisable within (12)60 days of March 31, 2017 and 8,390 shares issuable to Dr. Russell pursuant to RSUs expected to vest or which may be settled within 60 days of March 31, 2017.

Includes 38,512 shares issuable to Mr. Santini pursuant to options currently exercisable or exercisable within (13)60 days of March 31, 2017 and 9,890 shares issuable to Mr. Santini pursuant to RSUs expected to vest or which may be settled within 60 days of March 31, 2017.

Includes 29,012 shares issuable to Ms. Deptula pursuant to options currently exercisable or exercisable within (14)60 days of March 31, 2017 and 8,390 shares issuable to Ms. Deptula pursuant to RSUs expected to vest or which may be settled within 60 days of March 31, 2017.

Includes 24,896 shares issuable to Dr. Fallon pursuant to options currently exercisable or exercisable within (15)60 days of March 31, 2017 and 7,624 shares issuable to Dr. Fallon pursuant to RSUs expected to vest or which may be settled within 60 days of March 31, 2017.

Reflects 26,479 shares issuable to Mr. Sulat pursuant to options currently exercisable or exercisable within (16)60 days of March 31, 2017 and 8,582 shares issuable to Mr. Sulat pursuant to RSUs expected to vest or which may be settled within 60 days of March 31, 2017.

Reflects 11,250 shares issuable to Mr. Grund pursuant to options currently exercisable or exercisable within (17)60 days of March 31, 2017 and 10,665 shares issuable to Mr. Grund pursuant to RSUs expected to vest or which may be settled within 60 days of March 31, 2017.

Includes 12,500 shares issuable to Mr. Vittiglio pursuant to options currently exercisable or exercisable within (18)60 days of March 31, 2017 and 2,999 shares issuable to Mr. Vittiglio pursuant to RSUs expected to vest or which may be settled within 60 days of March 31, 2017.

Reflects 8,750 shares issuable to Mr. Myles pursuant to options currently exercisable or exercisable within (19)60 days of March 31, 2017 and 6,666 shares issuable to Mr. Myles pursuant to RSUs expected to vest or which may be settled within 60 days of March 31, 2017.

(20) Includes 13,125 shares issuable to Dr. Krop pursuant to options currently exercisable or exercisable within 60 days of March 31, 2017.

Reflects 3,988 shares issuable to Mr. Kelley pursuant to options currently exercisable or exercisable within (21)60 days of March 31, 2017 and 1,026 shares issuable to Mr. Kelley pursuant to RSUs expected to vest or which may be settled within 60 days of March 31, 2017.

Includes 860,083 shares issuable to all of our current directors and executive officers as a group pursuant to (22) options currently exercisable or exercisable within 60 days of March 31, 2017 and 160,716 shares issuable to all of our current directors and executive officers as a group pursuant to RSUs expected to vest or which may be settled within 60 days of March 31, 2017.

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PROPOSAL 1: ELECTION OF DIRECTORS

You are being asked to vote for nine directors at this Annual Meeting, all of whom are currently directors of AMAG. If you are voting by proxy, the persons named as proxies in the enclosed proxy card will vote "For" each of the nine nominees named below, unless you instruct otherwise.

Each director elected will hold office until the next annual meeting of stockholders and until his or her successor is elected and qualified, or until his or her earlier resignation or removal. Each of the nominees has indicated his or her willingness to serve, if elected. The Board knows of no reason why any of the nominees would be unable or unwilling to serve, but if any nominee should for any reason be unable or unwilling to serve, the proxies will be voted for the election of such other person for the office of director as the Board may recommend in the place of such nominee.

The brief biographies below include certain information, as of the date of this Proxy Statement, regarding the specific and particular experience, qualifications, attributes or skills of each nominee that led the Board to conclude that such nominee should continue to serve on the Board. Companies with a class of securities registered pursuant to Section 12 of the Exchange Act or subject to the requirements of Section 15(d) of the Exchange Act are referred to in the biographies below as "public" companies. Any company registered as an investment company under the Investment Company Act of 1940 is referred to as a "registered investment company" in the biographies below.

William K. Heiden, age 57, has been a director since May 2012. Mr. Heiden has been Chief Executive Officer of AMAG since May 2012 and served as President from May 2012 through April 2015. Prior to joining AMAG, he was the President and Chief Executive Officer of GTC Biotherapeutics, Inc., now rEVO Biologics, Inc., a pharmaceutical company ("GTC"), from 2010 to May 2012. Mr. Heiden was President and Chief Executive Officer and a member of the Board of Directors of Elixir Pharmaceuticals, Inc. ("Elixir") from 2004 to 2008. Prior to joining Elixir, he served as President and Chief Operating Officer of Praecis Pharmaceuticals, Inc., which was subsequently acquired by GlaxoSmithKline plc, from 2002 to 2004. From 1987 to 2002, Mr. Heiden held various positions of increasing responsibility at Schering-Plough Corporation, now Merck & Co., including managing a number of businesses in the United States, Europe and Canada. From 2006 to October 2013, he served on the Board of Directors of LFB Biotechnologies S.A.S., a private French biotechnology company, and from 2007 to October 2013, Mr. Heiden served as Chairman of the Board of Directors of GTC. He currently serves on the Board of Directors of Atara Biotherapeutics, Inc. a public biopharmaceutical company, and the Board of Directors of Pharmaceutical Research and Manufacturers of America (PhRMA). Mr. Heiden holds a B.A. from the University of Florida, an M.B.A. from Cornell University's Johnson Graduate School of Management, and a M.I.M. from the University of Louvain. The Board believes that Mr. Heiden's thirty years of pharmaceutical industry experience leading organizations in both large pharmaceutical and emerging biotechnology companies, significant commercial expertise, as well as strong deal making experience, provides the Board with valuable and specialized expertise as we commercialize and pursue expansion opportunities for our current products and services, including the recently licensed product Intrarosa™ (prasterone) and product candidate, bremelanotide, and as we pursue additional business development opportunities and grow our organization.

Barbara Deptula, age 62, has been a director since September 2013. She served as the Executive Vice President of Business Development and Chief Corporate Development Officer of Shire Plc. ("Shire"), a public biopharmaceutical company, from 2004 to June 2012. Prior to joining Shire, Ms. Deptula served as President of the biotechnology division of SICOR, Inc. from 2003 to 2004. Prior to SICOR, Inc., Ms. Deptula served as Senior Vice President for Coley Pharmaceutical Group, Inc. from 2000 to 2003. Prior to 2000, she also held senior management positions in public and private pharmaceutical companies where Ms. Deptula focused on marketing, product development, licensing and business development, including US Bioscience, Inc., Schering Plough International, Lederle Laboratories, a division of American Cyanamid Co., U.S.A., and Genetics Institute. Ms. Deptula holds a B.S. in Pharmacy from the University of Connecticut's School of Pharmacy and an M.B.A. with a concentration in finance from the University of Chicago Booth School of Business. The Board believes that Ms. Deptula's qualifications to sit on our Board include her decades of experience in a variety of biotechnology and multi-national pharmaceuticals organizations, and in particular her role as Chief Corporate Development Officer at Shire in light of our plans to continue to expand our product portfolio.

John A. Fallon, M.D., age 69, has been a director since September 2014. From 2004 until January 2016, Dr. Fallon served as Senior Vice President and Chief Physician Executive at Blue Cross & Blue Shield of Massachusetts ("BCBS"). Prior to his role at BCBS, Dr. Fallon served as Chief Executive Officer for clinical affairs at the State University of New York Downstate Medical Center, including University Hospital of Brooklyn and the clinical faculty practice plan. His professional experience also includes the Partners Healthcare System, where he was chairman of the physician network. Dr. Fallon was also the founder and CEO of North Shore Health System, a large physician-hospital organization in Massachusetts. He has served on the Board of Directors of Insulet Corporation, a public medical devices company, since October 2012 and as the lead independent director from February 2015 to August 2016. In addition, Dr. Fallon has been a member of the Board of Directors of Exact Sciences Corporation, a public molecular diagnostics company, since January 2016 and Collegium Pharmaceutical Inc. since June 2016. Dr. Fallon also serves on several not-for-profit boards, including NEHI (Network for Excellence in Health

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Innovation) (Chair) and Temple University School of Medicine Board of Advisors. Dr. Fallon practiced internal medicine for more than 20 years, fulfilled his residency at Boston City Hospital, is Board Certified in Internal Medicine and is a fellow of the American College of Physicians. He received a B.A. in chemistry from the College of the Holy Cross, an M.B.A from the University of South Florida and a medical degree from Tufts University School of Medicine. The Board believes that Dr. Fallon's qualifications to sit on our Board include his strong executive experience and extensive expertise in running a managed healthcare organization, including pharmaceutical reimbursement and pricing issues, and his experience as an executive of a leading healthcare insurance company as well as his experience as a clinician and administrator in academia and community based health systems.

Brian P. Kelley, age 55, has been a director since December 2016. Mr. Kelley is currently a Partner at Lindsay Goldberg, a private equity firm, where, since January 2017, he has been responsible for leading Lindsay Goldberg's global consumer products and services investment efforts. From December 2012 to May 2016, Mr. Kelley served as President, Chief Executive Officer and Director of Keurig Green Mountain, Inc. ("Keurig"), a public beverage company, which was acquired in March 2016 by JAP Holding Company, a privately held investment group. Prior to his role at Keurig, Mr. Kelley served as Chief Product Supply Officer, Coca-Cola Refreshments USA, Inc. ("Coca-Cola") from 2011 to November 2012. From 2010 to 2011, Mr. Kelley served as President of Coca-Cola's North America Business Integration and as Coca-Cola's President and General Manager, Still Beverages and Supply Chain North America, from 2007 until 2010. Prior to his tenure at Coca-Cola, Mr. Kelley was President, Chief Executive Officer and Director of SIRVA, Inc. from 2002 to 2007. Prior to 2002, Mr. Kelley's experience includes Ford Motor Company, where he was President of its Lincoln/Mercury division and General Electric Company, GE Appliance Division, where he held roles of increasing responsibility until named Vice President and General Manager, Sales and Distribution and Procter & Gamble, where he held various sales and brand management positions. Mr. Kelley has served as Vice Chairman of the Board of Keurig since May 2016. He currently serves on the Board of Trustees of College of the Holy Cross and Save the Children Federation, Inc., where he is also a member of the Finance & Administration Committee. He received a B.A. in economics from the College of the Holy Cross. The Board believes that Mr. Kelley's 30 years of executive leadership experience in the consumer products industry, along with a strong combination of operational expertise in product development and building high-profile brands, will provide our Board with valuable insights as we continue to expand our portfolio and leverage the consumer capabilities of our Cord Blood Registry business.

Robert J. Perez, age 52, has been a director since January 2009. He is the founder and has been the Managing Partner at Vineyard Sound Advisors, LLC, a biopharmaceutical consulting firm, since March 2015. Mr. Perez is also the founder and has been the Chairman of the Board of Life Science Cares, a non-profit organization, since January 2016. He served as Chief Executive Officer of Cubist Pharmaceuticals, Inc. ("Cubist"), a public pharmaceutical company, from January 1, 2015 until Cubist was acquired by Merck & Co., Inc. later that month. Mr. Perez joined Cubist in 2003 as Senior Vice President, Sales and Marketing, and led the launch of Cubicin® (daptomycin for injection). He served as Executive Vice President and Chief Operating Officer from 2007 to July 2012 and President and Chief Operating Officer from July 2012 to December 2014. Prior to joining Cubist, he served as Vice President of Biogen, Inc.'s CNS business unit from 2001 to 2003, where he was responsible for commercial leadership of an \$800 million neurology business unit, and from 1995 to 2001 he held positions of increasing responsibility within Biogen's CNS commercial organization. From 1987 to 1995 Mr. Perez held various sales and marketing positions at Zeneca Pharmaceuticals. Mr. Perez currently serves as a member of the Board of Trustees at the Dana-Farber Cancer Institute, Inc. and has been a member of the Board of Directors and the Compensation and Audit Committees of Cidara Therapeutics, Inc., a public biotechnology company, since March 2015 and a member of the Board of Directors and Compensation Committee of FlexPharma, a public biotechnology company, since September 2015. Mr. Perez has also been a member of the Board of Directors of Zafgen, Inc. a public biopharmaceutical company, since September 2015, where he has been a member of the Nominating and Governance Committee since March 2016. In addition, Mr. Perez has served as a member of the Board of Directors of Vir Biotechnology, Inc., a biotechnology company, since February 2017. Mr. Perez was a member of the Board of Directors of Cubist from April 2014 to January 2015. Mr. Perez received a B.S. from California State University, Los Angeles and an M.B.A. from the

Anderson Graduate School of Management at the University of California, Los Angeles. The Board believes that Mr. Perez's twenty plus years of sales and marketing experience within the pharmaceutical and biotechnology industries has provided him with valuable commercial and operational experience, as well as leadership skills that are important to the Board. In particular, Mr. Perez's experience leading the launch and commercialization of highly successful specialty pharmaceutical products, including his experience with life cycle management programs, is especially valuable to the Board as we continue to commercialize Makena and Feraheme, and as we seek to commercialize additional in-licensed or acquired products, such as Intrarosa and bremelanotide and grow the CBR business.

Lesley Russell, MB.Ch.B., MRCP, age 56, has been a director since December 2009. Since April 2016, Dr. Russell has served as Chief Medical Officer of Innocoll Holdings plc, a public pharmaceutical company. She previously served as Chief Operating Officer of TetraLogic Pharmaceuticals, Inc., a public biopharmaceuticals company ("TetraLogic"), from August 2013 to April 2016. Prior to TetraLogic, she was Senior Vice President and Global Head of Research and Development for Global Branded Products at Teva Pharmaceuticals, Inc. ("Teva"), a public pharmaceutical company, from 2011 to June 2012. Dr. Russell was appointed to such role upon Teva's acquisition of Cephalon Inc. ("Cephalon"), a public pharmaceutical

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company, where she served as Executive Vice President and Chief Medical Officer from 2006 to 2011. She joined Cephalon in 2000 as Vice President, Worldwide Clinical Research. Prior to Cephalon, Dr. Russell served as Vice President, Clinical Research at US Bioscience Inc., a public pharmaceutical company, and held positions of increasing responsibility within US Bioscience Inc. from 1996 to 1999. From 1995 to 1996, she was a clinical research physician at Eli Lilly U.K. and a Medical Director at Amgen U.K. from 1992 to 1995. Dr. Russell has served on the Board of Directors of Enanta Pharmaceuticals, Inc., a public biotechnology company, since November 2016, where she is also a member of its Audit Committee and Nominating and Governance Committee. Dr. Russell also serves on the Board of Directors of Endocyte, Inc., a public biopharmaceutical company, where she has been a director since January 2013 and Melmark, Inc., a non-profit organization. Dr. Russell was trained in Hematology/Oncology at Royal Infirmary of Edinburgh and at Royal Hospital for Sick Children, Edinburgh. She received an MB.Ch.B. from the University of Edinburgh, Scotland and is a member of the Royal College of Physicians, United Kingdom. Dr. Russell is registered with the General Medical Council, United Kingdom. The Board believes that Dr. Russell's broad-based expertise leading clinical research and development, medical, regulatory, and drug safety organizations, as well as her medical training, allow her to make valuable contributions to the medical and scientific understanding of the Board, which is particularly important as we implement the next generation development programs for Makena, interact with regulatory agencies, pursue an expanded label for Feraheme, work with developing partners such as Velo Bio LLC on a potential treatment for severe preeclampsia, develop our recently licensed bremelanotide product and as we evaluate additional potential merger and acquisition and in-licensing opportunities.

Gino Santini, age 60, has been a director since February 2012 and has served as Chairman of the Board of Directors since April 2014. From 1983 to 2010, Mr. Santini held a variety of commercial and operational roles at Eli Lilly and Company ("Eli Lilly"), a public pharmaceutical company, serving most recently from 2007 to 2010, as Senior Vice President, Corporate Strategy and Business Development, where he led corporate strategy and long-range planning, mergers and acquisitions, new product licensing and the expansion of Lilly Ventures in the U.S. and China. During his tenure at Eli Lilly, Mr. Santini held various leadership positions of increasing responsibility, including manager of various international regions, Senior Vice President of Corporate Strategy and Policy from 2004 to 2007, President of U.S. operations from 1999 to 2004 and President of the women's health franchise from 1997 to 1999. Mr. Santini has served on the Board of Directors of Intarcia Therapeutics, Inc., a biopharmaceutical company, since July 2013 and on the Board of Directors of Collegium Pharmaceuticals, Inc., a public pharmaceutical company, since July 2012, where he is also the chair of the Nominating & Corporate Governance Committee and a member of the Compensation Committee. Mr. Santini has also served on the Board of Directors of Allena Pharmaceuticals, Inc., a specialty pharmaceutical company, since 2012, Artax Biopharma Inc., a biopharmaceutical company, since April 2014 and Intercept Pharmaceuticals, Inc. a public biopharmaceutical company, since December 2015, where he is also the chair of the Compensation Committee and a member of the Audit Committee. Mr. Santini also serves on the Board of Directors, as well as the Chair of the Transactions Committee and a member of the Nominating and Corporate Governance Committee of the Board of Directors, of Horizon Pharma, Plc., a public biopharmaceutical company, where he has been a director since 2012. Mr. Santini was a member of the Board of Directors of Vitae Pharmaceuticals, Inc., a public pharmaceutical company, from September 2014 to November 2016 when it was acquired by Allergan plc in October 2016. He holds an undergraduate degree in mechanical engineering from the University of Bologna and an M.B.A. from the Simon School of Business, University of Rochester. The Board believes that Mr. Santini's long career at Eli Lilly and extensive domestic and international commercial, corporate strategy, business development and transaction experience are valuable skills sets for the Board as it seeks to continue to drive growth and profitability from its current product portfolio and seeks to acquire or in-license other assets or companies to further expand our product portfolio, such as our recently licensed Intrarosa and bremelanotide products. Davey S. Scoon, age 70, has been a director since December 2006. Mr. Scoon served as Chief Administrative and Financial Officer of Tom's of Maine, a company that manufactures natural care products from 2003 to 2005. From 2001 to 2003, Mr. Scoon served as Chief Financial and Administrative Officer for Sun Life Financial U.S., and from 1999 to 2001, Mr. Scoon served as Vice President and Chief Financial Officer for Sun Life Financial U.S. From 1985 to 1999, Mr. Scoon was employed by Liberty Funds Group of Boston (formerly Colonial Management) in various

capacities, including Chief Financial Officer and Chief Operating Officer. Since May 2012, Mr. Scoon has been a member of the Board of Directors and the Chairman of the Audit Committee of Albireo Pharma, Inc. (formerly known as Bidel Inc.), a public biopharmaceutical company. Mr. Scoon currently serves as Chairman of the Board of Trustees of Allianz Funds, a registered investment company, where he has been a director since January 2006. Mr. Scoon was also a member of the Board of Directors and the Audit Committee of Orthofix International, N.V., a medical device company, from 2011 to June 2015. Mr. Scoon has been an Adjunct Professor at the University of Wisconsin-Madison since 2011. Mr. Scoon holds a B.B.A. from the University of Wisconsin and an M.B.A. from Harvard Business School. The Board believes that Mr. Scoon's extensive financial, accounting and operational experience gained through the various executive and board positions he has held over the past thirty years provides the Board with valuable and highly specialized expertise and advice, particularly in Mr. Scoon's role as the Chair of the Audit Committee.

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James R. Sulat, age 66, has been a director since April 2014. From 2009 to June 2013, Mr. Sulat served as Chief Executive Officer and Chief Financial Officer of Maxygen, Inc., a public biopharmaceutical company. Mr. Sulat served in several roles for Memory Pharmaceuticals Corp. ("Memory"), including as President and Chief Executive Officer from 2005 until 2008, Chief Financial Officer from February 2008 to November 2008. Mr. Sulat has served on the Board of Directors of Arch Therapeutics, Inc., a public medical device company, since August 2015. Since 2008, Mr. Sulat has served as the Chairman of the Board of Directors for Momenta Pharmaceuticals, Inc. ("Momenta"), a public biotechnology company, and is a member of its Audit Committee and Nomination and Corporate Governance Committee. Since 2005, Mr. Sulat has served on the Supervisory Board of Intercell AG or, its successor company, Valneva SE, both public European biotechnology companies. Mr. Sulat currently serves as Vice Chairman of Valneva's Supervisory Board and as Chairman of its Audit Committee. Mr. Sulat served on the Board of Directors of Diadexus, Inc., a public diagnostics company, from January 2015 to June 2016 as well as Chairman of its Audit Committee and a member of its Nominating and Corporate Governance Committee. Mr. Sulat also served as a member of the Board of Directors for Tolero Pharmaceuticals, Inc., a private biopharmaceutical company, from April 2015 to January 2017, when it was acquired by Sumitomo Dainippon Pharma Co., Ltd. Mr. Sulat received his B.S. in Administrative Sciences from Yale University. He received his M.B.A. and his M.S. in Health Services Administration from Stanford University. The Board believes that Mr. Sulat's qualifications to sit on our Board include his strong executive experience and extensive financial accounting, corporate finance, operations and business development expertise garnered through his executive roles, as well as his board-level experience, at various public companies.

Required Vote

Each nominee must receive more votes cast "For" such nominee's election than the votes cast "Against" such nominee's election (i.e., a majority of the votes cast). Our Corporate Governance Guidelines provide that if an incumbent director is not elected by a majority of votes cast, the Governance and Risk Committee shall promptly consider his or her resignation, and make a recommendation to the Board as to whether to accept or reject the resignation, or whether other action should be taken. The Board will act on the Governance and Risk Committee's recommendation within 30 days following certification of the stockholder vote, as further described below under "Information Regarding The Board Of Directors And Corporate Governance -Director Resignation Policy".

**OUR BOARD UNANIMOUSLY RECOMMENDS
A VOTE "FOR" EACH OF THE NOMINEES LISTED ABOVE**

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**INFORMATION REGARDING THE BOARD OF DIRECTORS AND CORPORATE GOVERNANCE
INDEPENDENCE OF THE BOARD OF DIRECTORS**

The Board has determined that, other than Mr. Heiden, each current director and each director who served during 2016, and thus each nominee, other than Mr. Heiden, is "independent" as such term is defined in the listing standards of the NASDAQ Global Select Market ("NASDAQ"). The Board has affirmatively determined that no independent director has any material relationship with us that would interfere with the exercise of his or her independent judgment.

BOARD LEADERSHIP STRUCTURE

Our Board is led by an independent Chair, currently Mr. Santini, who has authority, among other things, to call and preside over Board meetings, including meetings of the independent directors, to set meeting agendas, and to determine the materials distributed to the Board. During 2016, our Chief Executive Officer, Mr. Heiden, was and continues to be the only member of our Board who is not an independent director. Our Corporate Governance Guidelines provide our Board with flexibility to determine the appropriate leadership structure based on the specific needs of the business and the best interests of our stockholders. Although we do not have a formal policy regarding whether the offices of Chair of the Board and Chief Executive Officer should be separate, our Board believes that the existing leadership structure, with the separation of the Chair of the Board and Chief Executive Officer roles, is appropriate at the current time. The Board believes that the current structure enhances the accountability of the Chief Executive Officer to the Board and strengthens the Board's independence from management, including helping to ensure that any potential strategic transactions involving AMAG are evaluated independently of management's interest and in light of the best interests of our stockholders. Separating these roles also alleviates the administrative burden on our Chief Executive Officer and allows that person to focus his or her efforts on managing our business in the best interests of our stockholders. The Board recognizes that, depending on the circumstances, other leadership models, such as combining the role of Chair and Chief Executive Officer, might be appropriate and accordingly, the Board may periodically review its leadership structure.

DIRECTOR RESIGNATION POLICY

Under Delaware law, an incumbent director may remain in office notwithstanding the failure to receive the required vote for re-election until the director's successor is duly elected. To address this "holdover rule," our Corporate Governance Guidelines include a director resignation policy, whereby our Board will nominate for re-election or fill vacancies with only those directors who tender an irrevocable, contingent resignation in writing that will become effective upon (a) the failure to receive the required vote at the next annual meeting at which they face election and (b) the Board's acceptance of such resignation. If a director fails to receive the required vote for re-election, the Governance and Risk Committee, will promptly consider the director's resignation and the circumstances that led to such director's failure to receive the required vote for re-election (if known), and recommend to the full Board whether to accept or reject the resignation. Our Board expects the director whose resignation is under consideration to abstain from participating in any decision regarding that resignation. In considering whether to accept or reject a director's resignation, the Governance and Risk Committee and Board may consider any factors it deems relevant. Within 30 days after the date of the certification of the election results for the applicable stockholders' meeting, our Board will act on the resignation, taking into account the Governance and Risk Committee's recommendation, and publicly disclose its decision in a Current Report on Form 8-K.

THE BOARD'S ROLE IN RISK OVERSIGHT

The Board acknowledges that the successful development and commercialization of products and services is an enterprise of inherent risk, including significant risk in each of the drug development, regulatory approval and commercialization stages. Accordingly, the Board believes that the identification, prioritization and management of risks are an integral part of establishing, updating and executing on our business strategy. The Board, both as a whole and at the committee level, has oversight responsibility relating to risks that could affect the corporate strategy, business objectives, compliance, operations, financial condition, and performance of the Company. Although the Board maintains ultimate responsibility for such enterprise risk assessment, the Board has delegated to the Governance and Risk Committee the responsibility of providing oversight with respect to our risk management

process. Such oversight responsibilities include a review of the steps management has taken to monitor control and report such exposures, periodic reviews of our policies with respect to risk assessment and risk management, including periodic enterprise risk management assessments, and reporting on such reviews to the full Board. In that capacity, during 2016, the Governance and Risk Committee delegated responsibility to our Disclosure Committee to monitor the Company's enterprise risk assessment program, including updating the Governance and Risk Committee on risk exposures and mitigation planning. In addition, the Disclosure Committee may facilitate the development of

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policies with respect to risk assessment and risk management in conjunction with direction and oversight from the Governance and Risk Committee.

Our senior executives regularly attend meetings of the Board, the Governance and Risk Committee and other committees and provide the Board and its committees with regular reports regarding our operations, strategies, and objectives and the risks inherent within them. Board and committee meetings also provide a venue for directors to discuss issues with, request additional information from, and provide guidance to, senior management. The Board and its committees call special meetings and request information and reports from senior management when necessary to address specific issues. In addition, our directors have direct access to senior management to discuss any matters of interest, including those related to risk. Those members of management most knowledgeable of the issues regularly attend Board and committee meetings to provide additional insight into items being discussed, including risk exposures.

The Board believes that risks can arise from any decision or action taken by the Company, whether strategic or operational. The Board approves our high level goals, strategies, and policies to set the tone and direction for appropriate risk taking within the business. The Board and its committees then emphasize this tone and direction in their oversight of management's implementation of our goals, strategies, and policies. As such, the Board has delegated general oversight of enterprise risk to the Governance and Risk Committee and, for matters involving certain specific areas of risk exposure, to other standing committees, such as the Audit Committee and Compensation Committee. Each of these committees reports to the Board at regularly scheduled Board meetings, as needed, and more frequently if appropriate, with respect to the matters and risks for which the committee provides oversight. Each committee is also authorized and empowered to retain such independent advisors as the committee deems to be appropriate in order to discharge its responsibilities under such committee's charter, and such independent advisors attend committee meetings as appropriate. The committees of the Board execute their risk oversight responsibility for risk management as follows:

The Governance and Risk Committee is responsible for providing oversight with respect to our risk management process, including reviewing the steps management has taken to monitor, control and report such exposures, our policies with respect to risk assessment and risk management, including periodic enterprise risk management assessments. In addition, the Governance and Risk Committee has historically overseen risks related to our corporate governance, including Board and director performance, director succession, director education and the review of our Corporate Governance Guidelines and other governance documents. The Governance and Risk Committee also oversees our overall compliance program, with particular emphasis on the risks associated with our healthcare compliance program.

The Audit Committee oversees the integrity of our financial statements, reporting process and internal controls, the relationship with our independent registered public accounting firm, including its qualifications, independence and performance, and our corporate finance matters, including our capital structure. The Audit Committee also provides oversight with respect to our risk management process, discussing with management our significant financial risk exposures, steps management has taken to monitor, control and report such exposures, and our policies with respect to risk assessment and risk management.

The Compensation Committee is responsible primarily for the design and oversight of our executive compensation policies, plans and practices. A key objective of the Compensation Committee is to ensure that our overall executive compensation program appropriately links pay to performance and aligns the interests of our executives with our stockholders. The Compensation Committee also monitors the design and administration of our overall incentive compensation programs to ensure that they include appropriate safeguards to avoid encouraging unnecessary or excessive risk taking by company employees. Elements of our executive compensation program that mitigate excessive risk taking, such as our combination of short- and long-term incentives, are described below under "Compensation Discussion and Analysis."

RISK CONSIDERATIONS IN OUR COMPENSATION POLICIES AND PRACTICES

Our Compensation Committee believes that risks arising from our compensation policies and practices for our employees are not likely to have a material adverse effect on AMAG. In addition, the Compensation Committee

believes that the mix and design of the elements of executive compensation do not encourage management to take excessive risks. The considerations which led the Compensation Committee to these conclusions include the following:

We provide executives with a competitive base salary, which we believe mitigates risk-taking behavior by providing reasonable predictability in the base level of income earned by each executive and alleviating pressure on executives to focus exclusively on near-term stock price performance or annual bonus awards to the detriment of building long-term stockholder value;

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We utilize a mixture of compensation elements intended to be competitive to compensation packages offered to similarly-situated executives at comparable companies within our industry, with significant weighting towards long-term incentive compensation, which has retention value and which discourages short-term risk taking; Our performance goals for our annual cash bonus awards reflect a balanced mix of performance measures, including objective performance measures, to avoid excessive weight on any one goal or performance measure and are intended to be challenging yet attainable, so that it is more likely than not that the executives will earn a substantial portion of their target bonus annually, which mitigates the potential that our executives will take excessive risks; Short-term incentives in the form of annual performance bonus payouts are capped at 200% of the target amount, which the Compensation Committee believes mitigates the likelihood that our executives will take excessive risks; Equity incentive awards are granted annually and generally vest over three to four years, discouraging excessive risk-taking as our executives generally have a significant amount of unvested awards that could decrease significantly in value if our business is not managed for the long-term;

The Compensation Committee approved a long-term incentive plan in February 2017 in order to provide further incentive for superior work, to further align the goals and interests of executives and senior management to the long-term interests of the Company and our stockholders and to enable us to attract and retain highly qualified executives and employees, which included awards of performance-based RSUs, which will vest, if at all, based on the Company's total shareholder return ("TSR") performance measured against the median TSR of a defined comparator group of companies over a three-year period;

Compliance, ethical behavior and adherence to our corporate values and policies are integral factors considered in all performance assessments and serve to mitigate the potential that our executives will take excessive risks. The Board and the Compensation Committee retain discretion to adjust compensation based on both the quality of Company and individual performance and adherence to our corporate governance and compliance programs, among other things; To minimize the risk of certain transactions related to our securities, we have adopted policies prohibiting directors, officers and other employees from engaging in the following transactions with respect to our securities: (a) selling short, (b) buying or selling puts or calls, (c) purchasing on margin or (d) pledging or creating any other encumbrance with respect to our securities;

To further align the interests of our executives with our stockholders, our executive officers are subject to stock ownership guidelines;

Our executive officers are subject to a clawback policy under which we can recover incentive compensation from certain officers in the event we are required to prepare an accounting restatement due to material noncompliance with financial statement requirements; and

We have a robust system of internal controls and a comprehensive compliance program, which includes extensive training of all employees, which we believe promotes a culture of ethical behavior and compliance, as well as an appropriate attitude toward minimizing risk-taking.

POLICY ON PLEDGING, HEDGING AND TRADING OF COMPANY STOCK

Certain transactions in our securities (such as purchases and sales of publicly traded put and call options, and short sales) create a heightened compliance risk or could create the appearance of misalignment between management and stockholders. In addition, securities held in a margin account or pledged as collateral may be sold without consent if the owner fails to meet a margin call or defaults on the loan, thus creating the risk that a sale may occur at a time when an officer or director is aware of material, non-public information or otherwise is not permitted to trade in Company securities. Therefore, we have adopted policies prohibiting directors, officers and other employees from selling short, buying or selling puts or calls, purchasing on margin and pledging or creating any other encumbrance with respect to our securities.

MEETINGS OF THE BOARD OF DIRECTORS

Our Board met six times during the year ended December 31, 2016. Each director participated in at least 75% of the aggregate number of meetings of the Board and of each committee of the Board on which he or she served during the portion of the last fiscal year for which such person was a director or committee member. It is our policy that our directors are expected to attend each annual meeting of stockholders. All of our then-serving directors attended our

annual meeting of stockholders held on May 19, 2016.

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In addition, our independent directors meet regularly, and in any event at least twice a year, in executive session without the presence of management.

COMMITTEES OF THE BOARD OF DIRECTORS**Standing Committees**

Under our by-laws, our Board may designate committees comprised of members of the Board to exercise the power and authority of the Board in the management of our business and affairs, subject to limitations imposed by law. Our Board currently has the following standing committees: an Audit Committee, a Compensation Committee, and a Governance and Risk Committee. The following table provides membership information for the current composition of these committees:

Name	Audit Committee	Compensation Committee	Governance and Risk Committee
Barbara Deptula	—	X	—
William K. Heiden	—	—	—
John A. Fallon, M.D.	—	X	X*
Brian P. Kelley	—	—	—
Robert J. Perez	X	—	X
Lesley Russell, MB.Ch.B., MRCP	—	X*	—
Gino Santini	—	X	—
Davey S. Scoon	X*	—	X
James R. Sulat	X	—	—

* Committee Chair

Audit Committee

Our Board has a standing Audit Committee, which conducted ten formal meetings during the year ended December 31, 2016. Throughout 2016 and to the present, the Audit Committee was comprised of Messrs. Scoon (Chair), Sulat and Perez, each of whom is "independent" as such term is defined in the listing standards of NASDAQ and applicable SEC rules. Based on Mr. Scoon's and Mr. Sulat's extensive financial and accounting experience gained through their various executive and board positions, including respective tenures as Chief Financial Officer and/or Chief Administrative Officer of several companies, our Board has determined that Messrs. Scoon and Sulat each qualify as an "audit committee financial expert" as defined by SEC rules. The Board has also determined that Mr. Perez possesses the requisite financial sophistication to qualify him for service on the Audit Committee in accordance with SEC rules. The current charter of the Audit Committee is available on our website at www.amagpharma.com, under the heading "Investors."

Pursuant to its charter, the Audit Committee's general responsibilities include, among other things, the following:

- Evaluating and selecting our independent registered public accounting firm;
- Reviewing our audited and unaudited financial statements;
 - Reviewing and discussing the adequacy of our internal financial and accounting processes and internal control over financial reporting with management and our independent registered public accounting firm;
- Supervising the relationship between us and our independent registered public accounting firm;
- Reviewing and authorizing the scope of both audit and non-audit services and related fees;
- Evaluating the independence of our independent registered public accounting firm;
- Reviewing and approving related person transactions; and
- To the extent deemed necessary by the Audit Committee to carry out its duties, engaging and compensating independent counsel and other advisers to review any matter under its responsibility.

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Compensation Committee

Our Board has a standing Compensation Committee, which conducted ten formal meetings during the year ended December 31, 2016. Throughout 2016 and to the present, the Compensation Committee was comprised of Drs. Russell (Chair) and Fallon, Mr. Santini and Ms. Deptula, each of whom is "independent" as such term is defined in the listing standards of NASDAQ, is a "non-employee director" within the meaning of Rule 16b-3 under the Exchange Act and is an "outside director" as defined in Section 162(m) of the Internal Revenue Code, as amended (the "Code"). The current charter of the Compensation Committee is available on our website at www.amagpharma.com, under the heading "Investors."

Pursuant to its charter, the Compensation Committee's general responsibilities include, among other things, the following:

The review, authorization and approval of the recruitment, hiring and compensation for any of our executive officers and any other of our officers with a title of Senior Vice President or higher, including our Chief Executive Officer or President;

The exercise of all rights, authority and functions of the Board under all of our stock option, stock incentive, employee stock purchase and other equity-based plans, including the authority to interpret their terms, to grant options, and to make stock awards (provided, however, that, except as otherwise expressly authorized to do so by a plan or resolution of the Board, the Compensation Committee shall not be authorized to amend any such plan);

The review and recommendation to the full Board with respect to director compensation;

Oversight regarding our public disclosure of director and executive compensation information; and

The engagement of compensation consultants and other advisers as it deems necessary or appropriate to carry out its responsibilities. The Compensation Committee assesses the independence and any potential conflicts of interest of compensation advisors in accordance with applicable law and NASDAQ listing standards.

Governance and Risk Committee

Our Board has established a standing Governance and Risk Committee, which is currently comprised of Dr. Fallon (Chair), and Messrs. Perez and Scoon, each of whom is "independent" as such term is defined in the listing standards of NASDAQ and each of whom served on the Governance and Risk Committee throughout 2016. The Governance and Risk Committee conducted four formal meetings during the year ended December 31, 2016. The current charter for the Governance and Risk Committee is available on our website at www.amagpharma.com, under the heading "Investors."

Pursuant to its charter, the Governance and Risk Committee's general responsibilities include, among other things, the following:

Assisting the Board in determining the desired experience, mix of skills and other criteria and qualities appropriate for Board membership;

Actively seeking individuals qualified to become members of the Board, consistent with criteria approved by the Board, and recommending director nominees for selection by the Board for nomination to fill expiring terms of directors at each annual meeting of stockholders;

Periodically reviewing and assessing the adequacy of the Corporate Governance Guidelines and recommending any modifications to the Corporate Governance Guidelines to the Board for approval;

Performing a self-evaluation by Board members and by members of the Governance and Risk Committee from time to time to determine whether they are functioning effectively and to improve the performance of the Board and/or Committee as a whole;

Providing oversight and guidance to senior management concerning the assessment and management of the Company's risk and assist the Board in providing oversight of our risk management process, including conducting periodic enterprise risk management assessments;

Providing oversight of and guidance with respect to our internal compliance program;

To the extent required or advisable, develop, implement, review and monitor an orientation and education program for members of the Board; and

Retaining and terminating any search firm to be used to identify director candidates, including approving the search firm's fees and other retention terms. The Governance and Risk Committee shall also have authority to obtain advice and assistance from internal or external legal, accounting or other advisors.

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Our Corporate Governance Guidelines set forth certain general criteria for nomination as a director and provide that in identifying prospective director candidates, the Governance and Risk Committee may consider all facts and circumstances that it deems appropriate or advisable, including, among other things, the skills of the prospective director candidate, his or her depth and breadth of business experience or other background characteristics, his or her independence and the needs of the Board. The backgrounds and qualifications of a nominee should be considered in the context of the backgrounds and qualifications of the current directors as a group, which should provide a significant breadth of experience, knowledge and abilities that shall assist the Board in fulfilling its responsibilities. The Board has the authority to consider and approve from time to time the criteria that it deems necessary or advisable for prospective director candidates. The Board has delegated to the Governance and Risk Committee the responsibility for assisting the Board in determining the desired experience, mix of skills and other criteria and qualities appropriate for Board membership. As part of its evaluation, the Governance and Risk Committee conducts periodic assessments of key competencies needed to be an effective and contributing member of the Board, which aids the Governance and Risk Committee in determining which specific skills or attributes in potential new directors would benefit the Board as a whole. The Board has determined that such criteria, at a minimum, includes the following:

- Nominees should have experience at a strategic or policymaking level;

- Nominees should be highly accomplished in his or her respective field, with superior credentials and recognition and demonstrated ability to exercise sound judgment in matters that relate to our current and long-term objectives;

- Nominees should have a long-term reputation for integrity, honesty and adherence to high ethical and moral standards;

- Nominees should have the commitment and ability to understand our business and industry, as well as the

- sometimes conflicting interests of our various constituencies, which include stockholders, employees, customers, governmental units, creditors and the general public, and to act in the interests of all stockholders;

- Nominees should have sufficient time and availability to devote to the Company's affairs, particularly in light of the number of boards of directors on which such nominee may serve and should be willing and able to contribute positively to the decision-making process of the Company; and

- Nominees should not have, nor appear to have, a conflict of interest that would impair such nominee's ability to represent the interests of all our stockholders and to fulfill the responsibilities of a director.

Further, nominees shall not be discriminated against on the basis of race, religion, national origin, sex, sexual orientation, disability or any other basis proscribed by law. The Governance and Risk Committee believes that the value of diversity on the Board should be considered as one of a number of factors that it takes into account in evaluating nominees and the Board as a whole. For this purpose, the Governance and Risk Committee evaluates diversity in terms of race, religion, national origin, gender, sexual orientation, and disability, as well as differences of viewpoint, professional experience, education, skill, and other individual qualities and attributes that contribute to heterogeneity on the Board.

Our Corporate Governance Guidelines also provide that the renomination of existing directors should not be viewed as automatic, but should be based on continuing qualification under the criteria set forth above or otherwise determined by the Board. The Governance and Risk Committee considers the existing directors' performance on our Board and its committees in making its nomination recommendations. In seeking new candidates for directors, members of our Governance and Risk Committee may use their business, professional and personal contacts, accept recommendations from other Board members or management, or engage a professional search firm. In 2016, the Board retained Perspective Group LLC to conduct a search to identify candidates to serve on the Board. This search resulted in the appointment of Mr. Kelley in December 2016.

The Governance and Risk Committee will also consider director nominee candidates who are recommended by our stockholders. Our Corporate Governance Guidelines provide the procedures stockholders should follow in making such a recommendation, which generally provide that all stockholder recommendations for director candidates must be submitted to us not less than 120 calendar days prior to the date on which our proxy statement was released to stockholders in connection with the previous year's annual meeting. All stockholder recommendations for director candidates must include the following information:

• The name and address of record of the stockholder;

• A representation that the stockholder is a record holder of the Company's securities, or if the stockholder is not a record holder, evidence of ownership in accordance with Rule 14a-8(b)(2) of the Exchange Act;

• The name, age, business and residential address, educational background, current principal occupation or employment, and principal occupation or employment for the preceding five full fiscal years of the proposed director candidate;

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A description of the qualifications and background of the proposed director candidate which addresses the criteria for Board membership approved by the Board and set forth in the Corporate Governance Guidelines and/or the charter of the Governance and Risk Committee;

A description of all arrangements or understandings between the stockholder and the proposed director candidate;

The consent of the proposed director candidate (a) to be named in the proxy statement relating to our annual meeting of stockholders and (b) to serve as a director if elected at such annual meeting;

A statement that the proposed director candidate will tender an irrevocable resignation, effective upon such person's failure to receive the required vote for election at the next meeting at which such person would face election (or re-election) and upon acceptance of such resignation; and

Any other information regarding the proposed director candidate that is required to be included in a proxy statement filed pursuant to the rules of the SEC.

In considering stockholder recommendations for nominees, the Governance and Risk Committee may request additional information concerning the nominee or the applicable stockholder or stockholders. Stockholder recommendations will be considered using the same criteria as other candidates. The foregoing applies only to recommendations. Actual nominations by stockholders or others, if and to the extent permitted, must be made in accordance with our by-laws and applicable state and federal laws. See the discussion below under "Stockholder Proposals."

The nominations for the election of directors at the Annual Meeting contained in this Proxy Statement are based upon the unanimous recommendation of the Governance and Risk Committee to the full Board in March 2017.

Other Committees of the Board

Transaction Committee

Our Board has established a Transaction Committee to, on an ad hoc basis, oversee, advise and assist our management with respect to the identification, evaluation, structuring, negotiation and execution of potential acquisition, in-license, merger and other strategic transactions involving AMAG and to make recommendations with respect thereto to the full Board, and to undertake such other responsibilities as may be delegated to the Transaction Committee by the Board from time to time. Throughout 2016 and to the present, the Transaction Committee was comprised of Ms. Deptula (Chair), Dr. Russell, and Messrs. Santini and Sulat, each of whom is "independent" as such term is defined in the listing standards of NASDAQ. The Transaction Committee conducted four formal meetings during the year ended December 31, 2016.

Financing Committee

Our Board has established a Financing Committee to, on an ad hoc basis, oversee the execution and consummation of potential financing transactions involving AMAG, including delegation by the Board to approve certain financing parameters in connection with such fundraising activities as well as other responsibilities as may be delegated to the Financing Committee by the Board from time to time, such as the establishment and execution of our share repurchase program in 2016. In 2016, the Financing Committee was comprised of Messrs. Scoon and Sulat, each of whom is "independent" as such term is defined in the listing standards of NASDAQ. The Financing Committee conducted one formal meeting during the year ended December 31, 2016.

In addition, our Board may, as needed or advisable, form temporary or ad hoc committees to oversee, identify, evaluate or negotiate a specific issue or opportunity and to make recommendations to the full Board.

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REPORT OF THE AUDIT COMMITTEE¹

The Audit Committee has reviewed and discussed our audited financial statements for the year ended December 31, 2016 with our management. The Audit Committee has discussed with PricewaterhouseCoopers LLP, our independent registered public accounting firm, the matters required to be discussed by Auditing Standard No. 1301, Communications with Audit Committees, as adopted by the Public Company Accounting Oversight Board ("PCAOB"). The Audit Committee has met with PricewaterhouseCoopers LLP, with and without management present, to discuss the results of its examinations, its evaluation of our internal control over financial reporting, and the overall quality of our financial reporting. The Audit Committee has also received the written disclosures and the letter from PricewaterhouseCoopers LLP required by applicable requirements of the PCAOB regarding the independent accountant's communications with the Audit Committee concerning independence. The Audit Committee has discussed with PricewaterhouseCoopers LLP that firm's independence from management and AMAG and considered the compatibility of the firm's provision of non-audit services with maintaining the firm's independence and found the provision of such services to be compatible with the firm's independence.

Based on the reviews and discussions referred to above, the Audit Committee concluded that it would be reasonable to recommend, and on that basis did unanimously recommend, to the Board (and the Board has approved) that the audited financial statements be included in AMAG's Annual Report on Form 10-K for the year ended December 31, 2016 for filing with the SEC.

Respectfully submitted by the Audit Committee of the Board of Directors of AMAG Pharmaceuticals, Inc.,

Davey S. Scoon, Chair

Robert J. Perez

James R. Sulat

The material in this report is not "soliciting material," is furnished to, but not deemed "filed" with, the SEC and is not deemed to be incorporated by reference in any filing of AMAG under the Securities Act of 1933 (as amended, ¹ the "Securities Act") or the Exchange Act, other than AMAG's Annual Report on Form 10-K, where it shall be deemed to be "furnished," whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

STOCKHOLDER COMMUNICATION WITH THE BOARD OF DIRECTORS

Our Board believes it is important for stockholders to be able to send communications to the members of our Board. Accordingly, any stockholder who desires to communicate with our directors, individually or as a group, may do so by e-mailing the party or parties to whom the communication is intended at contactus@amagpharma.com or by writing to the party or parties to whom the communication is intended, to our principal executive offices at AMAG Pharmaceuticals, Inc., 1100 Winter Street, Waltham, Massachusetts 02451, attention: Secretary. Our Secretary will then deliver any communication to the appropriate party or parties.

COMPENSATION COMMITTEE INTERLOCKS AND INSIDER PARTICIPATION

Our Compensation Committee is currently comprised of Drs. Russell (Chair) and Fallon, Mr. Santini and Ms. Deptula. No one who served as a member of the Compensation Committee during 2016 is or has been an officer or employee of AMAG or had any relationship that is required to be disclosed as a transaction with a related party. During the year ended December 31, 2016, none of our executive officers served as a member of the board of directors or compensation committee of another company (or other entity) that has one or more of its executive officers serving on our Board or our Compensation Committee.

CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

In accordance with its charter and AMAG's written related person transactions policy contained in our Corporate Governance Guidelines, discussed below, the Audit Committee reviews, approves and ratifies any related person transaction and monitors compliance with and periodically reviews the related person transactions policy. The term "related person transaction" refers to any transaction required to be disclosed in our filings with the SEC pursuant to Item 404 of Regulation S-K.

In considering any related person transaction, the Audit Committee considers the facts and circumstances regarding such transaction, including, among other things, the amounts involved, the relationship of the related person (including those persons

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identified in the instructions to Item 404(a) of Regulation S-K) with our company and the terms that would be available in a similar transaction with an unaffiliated third-party. The Audit Committee also considers its fiduciary duties, our obligations under applicable securities law, including disclosure obligations and director independence rules, and other applicable law in evaluating any related person transaction. The Audit Committee reports its determination regarding any related person transaction to our full Board.

In addition, our Board has adopted a written related person transactions policy, which provides that any related person transaction shall be consummated or shall continue only if:

The Audit Committee approves or ratifies such transaction in accordance with our related person transactions policy and if the transaction is on terms comparable to those that could be obtained in arm's length dealings with an unrelated third person;

The transaction is approved by the majority of the disinterested members of the Board; or

If the transaction involves compensation, it is approved by the Compensation Committee or the Board.

Under our related person transactions policy, transactions between a related person and AMAG that are available to all employees generally and transactions with a related person in a given fiscal year that involve an aggregate of less than \$10,000 must be reported to the Board but do not require approval. In addition, related person transactions should be submitted to the Audit Committee for approval or preliminarily entered into by management subject to ratification by the Audit Committee, provided, that, if such ratification shall not be forthcoming, management must make all reasonable efforts to cancel or annul such transaction. In determining whether to approve a related person transaction, consideration is given to whether approval thereof would affect the independent status of any current member of our Board. If approval of a transaction would cause less than a majority of our Board to be independent, such transaction will not be approved.

No related person transactions were brought to the attention of the Audit Committee for consideration in 2016.

CODE OF ETHICS

Our Board has adopted a code of ethics that applies to our officers, directors and employees. We have posted the text of our code of ethics on our website at www.amagpharma.com in the "Investors" section. In addition, and in accordance with Item 5.05 of Form 8-K, when changes are made to the provisions of our code of ethics enumerated in Item 406(b) of Regulation S-K, we intend to disclose within four business days, on our website (or in any other medium required by law or NASDAQ): (a) the date and nature of any such amendment to our code of ethics that applies to our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions and (b) the nature of any such waiver, including an implicit waiver, from a provision of our code of ethics that is granted to one of these specified officers, the name of such person who is granted the waiver, and the date of the waiver.

DIRECTOR COMPENSATION

Overview

We seek to attract exceptional talent to serve on the Board and, therefore, our policy is to compensate directors competitively relative to comparable companies. In addition, our Corporate Governance Guidelines provide that directors should be incentivized to focus on long-term stockholder value. The Board believes that including equity as part of director compensation helps align the interests of directors with those of our stockholders. Accordingly, director compensation is comprised of a mix of cash and equity compensation. The Board also believes that it is appropriate for the Chair of the Board and the Chair of each standing committee of the Board to receive additional compensation for the additional workload and time commitment required for Board members who serve in such capacities.

Non-Employee Director Compensation Policy

Our Non-Employee Director Compensation Policy applies to each director of AMAG who is not an employee or affiliate of AMAG. Under its charter, the Compensation Committee is charged with periodically reviewing and making recommendations to the Board with respect to director compensation. In addition, our Corporate Governance Guidelines provide that management and/or the Compensation Committee shall, from time to time, present a report to the Board comparing our director compensation to that of comparable peer companies.

In September 2015, the Compensation Committee retained Radford, a part of Aon Hewitt, a business unit of Aon plc ("Radford"), an independent compensation consulting firm, to conduct a comprehensive independent review of our overall non-employee director compensation practices relative to our peer group based on data collected from our peer companies' proxy

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statements. The peer group used by Radford in conducting its evaluation was comprised of 17 public biotechnology companies that were comparable in terms of the number of employees, revenue and market capitalization at that time, as detailed below under "Compensation Discussion and Analysis." In May 2016, based primarily on the recommendations of the Compensation Committee and Radford's assessment, the Board amended our Non-Employee Director Compensation Policy, effective as of July 1, 2016 (the "Director Compensation Plan") to bring the Board's compensation in line with the market 50th percentile. These amendments included (a) an increase in the annual retainer fees for members of the Board and the Chair by \$5,000 to \$45,000 and \$95,000, respectively, and (b) a change in the timing of the delivery of RSUs granted to directors after July 1, 2016 so that delivery of any vested shares of common stock underlying such RSUs shall be deferred until the earlier of (i) the first anniversary of the date of grant (previously the third anniversary of the date of grant) or (ii) the date a director's service to the Company terminates.

The following is a summary of compensation under our Director Compensation Plan:

Equity Grant Upon Initial Appointment or Election as a Director

Under the Director Compensation Plan, each new non-employee director, on the date of his or her initial appointment or election to the Board, receives the following two equity awards:

Appointment Grant: an award of a non-qualified stock option to purchase 6,000 shares of our common stock pursuant to our Equity Incentive Plan as may be amended from time to time, with such option to vest in equal monthly installments over a period of two years from the date of his or her election to the Board, provided such non-employee director continues to serve as a member of the Board; and

Pro-rated Annual Grant: an equity grant of non-qualified stock options and RSUs on the date of his or her appointment or election as described below under the heading "Annual Equity Grant"; provided, that the amount of options and RSUs will be pro-rated based on the number of expected months of service before the next annual meeting of stockholders, and provided further that the awards will vest in equal monthly installments beginning on the first day of the first full month following his or her appointment or election and continuing on the first day of each month thereafter through the first day of the month in which the next annual meeting of stockholders is to be held so long as the director continues to serve as a member of the Board.

Annual Equity Grant

At the first meeting of the Board following the annual meeting of stockholders, each non-employee director, including the Chair, receives an equity grant with a target value of approximately \$175,000, with 50% of such value to be delivered in the form of options and the remaining 50% of such value to be delivered in the form of RSUs. These annual equity grants vest in twelve equal monthly installments beginning on the first day of the first full month following the annual meeting of stockholders and continuing on the first day of each of the following eleven months thereafter, so long as the director continues to serve as a member of the Board. In addition, for annual equity grants awarded after July 1, 2016, the Director Compensation Plan, as amended, provides that the delivery of any vested shares of common stock underlying the foregoing RSUs is deferred until the earlier of (a) the first anniversary of the date of grant and (b) the date of the director's separation from service.

Early Termination of Options or RSUs Upon Termination of Service

If a non-employee director ceases to be a member of the Board for any reason, any then vested and unexercised options granted to such non-employee director may be exercised by the departing director (or, in the case of the director's death or disability, by the director's personal representative, or the director's survivors) within three years after the date the director ceases to be a member of the Board and in no event later than the expiration date of the option. In addition, all then vested and undelivered shares underlying any RSUs held by such director shall be delivered to him or her (or, in the case of the director's death or disability, to the director's personal representative, or the director's survivors) as of the date he or she ceases to be a member of the Board. If a non-employee director ceases to be a member of the Board for any reason, or otherwise ceases to continue a business relationship with AMAG, any unvested options and RSUs are immediately terminated and forfeited.

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Retainer and Per Meeting Fees

The annual Board retainer fees under the Director Compensation Plan are payable in four equal quarterly installments, to each non-employee director for membership on our Board and for membership on each of the Board's standing committees. The annual Board and committee retainer fees are included in the table below, along with the per meeting fees that our non-employee directors are entitled to receive for ad hoc committee attendance.

Membership	Retainer Fees (\$)	Per Meeting Fees (\$)
Board		
Non-chair member(1)	45,000	N/A
Chair(1)	95,000	N/A
Audit Committee		
Non-chair member	12,500	N/A
Chair	25,000	N/A
Compensation Committee		
Non-chair member	10,000	N/A
Chair	20,000	N/A
Governance and Risk Committee		
Non-chair member	7,500	N/A
Chair	15,000	N/A
Ad Hoc Committees		
Non-chair member	N/A	1,000
Chair	N/A	2,000

In May 2016, based on the Board's annual assessment of director compensation, including recommendations of the Compensation Committee and Radford, the Board amended the Director Compensation plan, effective as of July 1, (1)2016, to increase the annual retainer fees for members of the Board and the Chair by \$5,000 to \$45,000 and \$95,000, respectively, in order to align the average cash compensation with the 50th percentile as compared to our peers.

Under the Director Compensation Plan, the Board has reserved the right to institute a per meeting fee for each Board or committee meeting which is meaningfully in excess of the regularly scheduled meetings (a "Special Meeting"), including a per meeting fee of \$1,000 for each Special Meeting of the Board and a per meeting fee of \$500 for each meeting which is meaningfully in excess of the regularly scheduled meetings of the Audit, Compensation, and Governance and Risk Committees attended by such non-employee director. It is expected that Special Meetings of the Board and the committees may be called when necessary to address material matters faced by the Company outside of the ordinary course of business.

Expenses

Upon presentation of documentation of such expenses reasonably satisfactory to the Company, each non-employee director is reimbursed for his or her reasonable out-of-pocket business expenses incurred in connection with attending meetings of the Board, committees thereof or in connection with other Board-related business.

Indemnification and Insurance

We provide standard indemnification agreements and director and officer insurance for all directors.

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Summary of Director Compensation for Fiscal 2016

The following table summarizes the compensation paid to or earned by our non-employee directors during the year ended December 31, 2016.

Name(1)	Fees			Total (\$)
	Earned or Paid in Cash (\$)(2)	Stock Awards (\$)(3)	Option Awards (\$)(3)	
Barbara Deptula(4)	60,500	87,493	87,463	235,456
John A. Fallon, M.D.(5)	63,750	87,493	87,463	238,706
Brian P. Kelley(6)	—	36,423	116,316	152,739
Robert J. Perez(7)	66,250	87,493	87,463	241,206
Lesley Russell, MB.Ch.B., MRCP(8)	66,500	87,493	87,463	241,456
Gino Santini(9)	106,500	87,493	87,463	281,456
Davey S. Scoon(10)	76,000	87,493	87,463	250,956
James Sulat(11)	60,000	87,493	87,463	234,956

(1) Mr. Heiden, who is also our employee, received no additional compensation for his service on our Board and is therefore not included in this table.

(2) Represents the aggregate dollar amount of 2016 fees earned or paid in cash for services as a director, including annual retainer fees, committee fees and per meeting fees.

Amounts shown do not reflect compensation actually received by the listed directors but represent the aggregate grant date fair value of equity awards, which consist of RSUs and stock option awards granted to our non-employee directors calculated in accordance with current accounting guidance for stock-based compensation, disregarding adjustments for forfeiture assumptions. The assumptions used to value the stock option awards are set forth in Note L to our Annual Report on Form 10-K for the year ended December 31, 2016 filed with the SEC on February 21, 2017. The reported value of the RSUs awarded in 2016 was calculated by multiplying the closing market price of a share of our common stock on the grant date by the number of RSUs granted.

(4) As of December 31, 2016, Ms. Deptula held outstanding stock options to purchase 29,012 shares and RSUs covering 8,390 shares of our common stock.

(5) As of December 31, 2016, Dr. Fallon held outstanding stock options to purchase 24,896 shares and RSUs covering 7,624 shares of our common stock.

(6) Mr. Kelley was appointed to the Board in December 2016. As of December 31, 2016, Mr. Kelley held outstanding stock options to purchase 8,739 shares and RSUs covering 1,026 shares of our common stock.

(7) As of December 31, 2016, Mr. Perez held outstanding stock options to purchase 46,562 shares and RSUs covering 8,390 shares of our common stock.

(8) As of December 31, 2016, Dr. Russell held outstanding stock options to purchase 38,695 shares and RSUs covering 8,390 shares of our common stock.

(9) As of December 31, 2016, Mr. Santini held outstanding stock options to purchase 38,512 shares and RSUs covering 9,890 shares of our common stock.

(10) As of December 31, 2016, Mr. Scoon held outstanding stock options to purchase 44,778 shares and RSUs covering 8,390 shares of our common stock.

(11) As of December 31, 2016, Mr. Sulat held outstanding stock options to purchase 26,479 shares and RSUs covering 8,582 shares of our common stock.

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Director Stock Ownership Guidelines

The Board believes that it is important that directors be incentivized to focus on long-term stockholder value to ensure that the Board's interests are aligned with those of our stockholders and as such maintains stock ownership guidelines to further align the interests of our non-employee directors with the interests of our stockholders and to promote our commitment to sound corporate governance.

Our non-employee director stock ownership guidelines require all non-employee directors to hold shares of our common stock with a value equal to three times the amount of the annual cash retainer fee paid to non-employee directors for service on the Board, excluding additional committee retainer fees and any per meeting fees, if any. These ownership guidelines are initially calculated using the base annual retainer fee for service as a non-employee director as of the date the person first became subject to the guidelines as a non-employee director and are re-calculated annually on the date of the annual meeting of stockholders based on the applicable annual Board retainer fee in effect on such calculation date. For purposes of this calculation, the value of a share is measured on the date of our annual meeting of stockholders each year based on the average closing price over the 30 days preceding the date of calculation.

Non-employee directors are required to achieve the applicable level of ownership within five years of the later of the date the guidelines were adopted and the date the person first became a non-employee director. In the event that a non-employee director does not meet the foregoing stock ownership guidelines, such non-employee director is prohibited from selling any stock acquired through vesting of RSUs or similar full-value awards or upon the exercise of stock options, except to pay for applicable taxes or the exercise price, and must use the entire net after tax amount of his or her base annual retainer fee, excluding additional committee retainer and meeting fees, if any, to purchase shares of Company common stock until the director satisfies the requirements.

Shares that count toward satisfaction of the guidelines include shares owned outright by the director or his or her immediate family members residing in the same household and shares held in trust for the benefit of the director or his or her family. Unexercised and/or unvested equity awards do not count toward satisfaction of the guidelines.

Our non-employee director stock ownership guidelines may be waived, at the discretion of the Governance and Risk Committee, for directors joining the Board from government, academia, or similar professions. The guidelines may also be waived at the discretion of the Governance and Risk Committee if compliance would create undue hardship or prevent a director from complying with a court order, as in the case of a divorce settlement. It is expected that these instances will be rare.

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PROPOSAL 2: APPROVAL OF THE FOURTH AMENDED AND RESTATED 2007 EQUITY INCENTIVE PLAN
Overview

Our Board believes that stock options and other stock-based incentive awards can play an important role in our success by encouraging and enabling our (and our subsidiaries') employees, officers, non-employee directors and consultants upon whose judgment, initiative and efforts we largely depend for the successful conduct of our business to acquire an equity interest in AMAG. Our Board anticipates that providing such persons with a direct stake in AMAG will assure a closer identification of the interests of such individuals with those of AMAG and our stockholders, thereby stimulating their efforts on our behalf and strengthening their desire to remain with AMAG. On April 6, 2017, our Board approved an amendment and restatement of our Equity Incentive Plan, subject to stockholder approval, in the form of the Fourth Amended and Restated 2007 Equity Incentive Plan (the "Equity Incentive Plan"). The Equity Incentive Plan increases the aggregate number of shares authorized for issuance under the Equity Incentive Plan by 2,485,000 shares from 6,995,325 shares to 9,480,325 shares and increases the aggregate number of shares that may be issued in the form of incentive stock options from 6,995,325 shares to 9,480,325 shares. Shares underlying any awards under our Amended and Restated 2000 Stock Plan (the "2000 Plan") that are forfeited, canceled or otherwise terminated (other than by exercise) on or after November 27, 2007 shall be added to the shares available for issuance under the Equity Incentive Plan.

In addition to the share increase, the Equity Incentive Plan will also prohibit us from paying any dividends or dividend equivalents with respect to an award until the award has vested. The expiration of the Equity Incentive Plan will be extended until May 18, 2027, which is ten years from the date of the annual meeting, and incentive stock options may be granted until April 6, 2027, which is ten years from the date the Board approved the Equity Incentive Plan.

This amendment and restatement was designed to ensure that we can continue to grant stock options and other awards to our officers, employees, non-employee directors and consultants and to such persons at levels determined to be appropriate by the Compensation Committee. If the proposed amendment and restatement or our Equity Incentive Plan is not approved by our stockholders, we currently anticipate that we will exhaust all the shares available for issuance under our Equity Incentive Plan by mid-2017 and such shares may be exhausted sooner if we continue to increase the size of our organization, including increases in headcount, which may be necessary to support our business growth. The inability to make competitive equity awards to attract and retain talented employees in a highly competitive market could have an adverse impact on our business. A copy of the Equity Incentive Plan is attached to this Proxy Statement as Appendix A and is incorporated herein by reference.

As of December 31, 2016, we have granted options and RSUs covering 9,844,647 shares of common stock under our Equity Incentive Plan, of which 3,713,695 stock options and 935,687 RSUs have expired or terminated, and of which 1,402,476 options have been exercised and 860,163 shares of common stock were issued upon settlement of vested RSUs. Therefore, the actual number of options and RSUs outstanding under this plan as of December 31, 2016 was 2,158,822 and 773,804, respectively, and there were 1,786,672 shares of common stock available for grant under the Equity Incentive Plan, not including any shares that might in the future be added back to the shares available for issuance under the Equity Incentive Plan as a result of forfeiture, cancellation or other termination (other than by exercise).

As of the Record Date, we have granted options and RSUs covering 10,899,813 shares of common stock under our Equity Incentive Plan, of which 3,764,391 stock options and 962,644 RSUs have expired or terminated, and of which 1,411,541 options have been exercised and 1,003,219 shares of common stock were issued upon settlement of vested RSUs. Therefore, the actual number of options and RSUs outstanding under this plan as of the Record Date was 2,421,271 and 1,336,747, respectively, and there were 205,931 shares of common stock available for grant under the Equity Incentive Plan, not including any shares that might in the future be added back to the shares available for issuance under the Equity Incentive Plan as a result of forfeiture, cancellation or other termination (other than by exercise). A total of 34,445,394 shares of our common stock were outstanding as of the Record Date.

Proposal 2 seeks stockholder approval of the Equity Incentive Plan. Stockholder approval of Proposal 2 will also allow certain awards granted under the Equity Incentive Plan to qualify as performance-based compensation exempt from the cap imposed by Section 162(m) of the Code on the Company's tax deduction with respect to compensation

paid to certain executive officers.

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SUMMARY OF MATERIAL FEATURES OF THE EQUITY INCENTIVE PLAN

While our Board is aware of and has considered the potential dilutive effect of additional awards and option grants, it also recognizes the competitive necessity and benefits of equity compensation and believes that the Equity Incentive Plan, including the increase in available shares contemplated by the Equity Incentive Plan, is consistent with our executive compensation philosophy and the compensatory practices of other bio-pharmaceutical companies in our peer group. The exercise price of any option grants under the Equity Incentive Plan will be at or above the fair market value of our common stock on the close of business on the date such option is granted thereby aligning the interests of stockholders and our employees to create increased stockholder value over time. Furthermore, since our Board typically grants awards to employees that vest over a three or four year period, employees must generally remain with AMAG in order to realize the potential benefits of their equity awards.

The following material features of the Equity Incentive Plan are designed to protect our stockholders' interests and to reflect corporate governance best practices including:

Maximum Number of Shares. The maximum number of shares of our common stock to be issued under the Equity Incentive Plan is 9,480,325.

Flexibility in designing equity compensation scheme. The Equity Incentive Plan allows us to provide a broad array of equity incentives, including awards of stock options (both incentive and non-qualified options), stock appreciation rights, restricted stock, restricted stock units, unrestricted stock, performance units, dividend equivalent rights, and cash-based awards.

Share counting provisions. Grants of "full value" awards are deemed for purposes of determining the number of shares available for grants under the Equity Incentive Plan as an award for 1.7 shares for each share of common stock subject to the award (the "Fungible Share Ratio"). Grants of stock option or stock appreciation rights are deemed to be an award of one share for each share of common stock subject to the award. This helps to ensure that management and our Compensation Committee are using the share reserve effectively and with regard to the value of each type of equity award.

No Liberal Share Recycling. Shares tendered or held back for taxes will not be added back to the reserved pool under the Equity Incentive Plan. Upon the exercise of a stock appreciation right, the full number of shares underlying the award will be charged to the reserved pool. Additionally, shares reacquired by AMAG on the open market or otherwise using cash proceeds of option exercises will not be added to the reserved pool.

Types of Awards. The award of stock options (both incentive and non-qualified options), stock appreciation rights, restricted stock, restricted stock units, unrestricted stock, performance shares, dividend equivalent rights and cash-based awards is permitted.

Minimum vesting provisions. Minimum vesting provisions apply to certain "full value" awards to participants.

Limited vesting acceleration. Subject to limited exceptions, the Equity Incentive Plan provides that the vesting of awards may only be accelerated upon death, disability, retirement or a Sale Event (as defined in the Equity Incentive Plan) unless provided for in the terms of the original grant.

Repricing is not allowed. The exercise price of stock options and stock appreciation rights will not be decreased in any manner without stockholder approval nor may stock options or stock appreciation rights be cancelled in exchange for a cash payment.

Stockholder approval is required for additional shares. The Equity Incentive Plan does not contain an "evergreen" provision. Thus, any increase to the maximum share reserve in the Equity Incentive Plan is subject to approval by our stockholders allowing our stockholders the ability to have a say on our equity compensation programs.

Broad-based eligibility for equity awards. We grant equity awards to a large portion of our employees. By doing so, we tie our employees' interests with stockholder interests and motivate our employees to act as owners of the business.

Reasonable limit on equity awards. The Equity Incentive Plan limits the number of shares of common stock available for equity awards such that no employee may be granted an equity award covering more than 500,000 shares in a single calendar year for options and stock appreciation awards and in a single performance cycle for performance-based awards.

Clawback Policy. Awards to certain officers will be subject to clawback in the event we are required to prepare an accounting restatement due to the material noncompliance with financial statement requirements.

- Ownership Guidelines. Awards under the Equity Incentive Plan will assist directors and executives in attaining the stock ownership requirements specified in our stock ownership guidelines.

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No Current Dividends Paid for Unvested Awards. In no event will any dividends or dividend equivalents be paid with respect to an award until the award has vested.

- Plan Expiration. The Equity Incentive Plan will expire on May 18, 2027.

Based solely on the closing price of our common stock as reported by NASDAQ on March 31, 2017 and the maximum number of shares that would have been available for awards under the Equity Incentive Plan as of such date taking into account the proposed increase described herein, the maximum aggregate market value of the common stock that could potentially be issued under the Equity Incentive Plan is \$60,680,491. The shares of common stock underlying any awards under the Equity Incentive Plan or the 2000 Plan that are forfeited, canceled or are otherwise terminated (other than by exercise) are added back to the shares of common stock available for issuance under the Equity Incentive Plan. The following shares will not be added back to the shares authorized for issuance under the Equity Incentive Plan: shares tendered or held back upon exercise of an option or settlement of an award to cover the exercise price or tax withholding, and shares subject to a stock appreciation right that are not issued in connection with the stock settlement of the stock appreciation right upon exercise.

Qualified Performance-Based Compensation under Code Section 162(m)

To ensure that certain awards granted under the Equity Incentive Plan to a "Covered Employee" (as defined in the Code) qualify as "performance-based compensation" under Section 162(m) of the Code, the Equity Incentive Plan provides that the Compensation Committee may require that the vesting of such awards be conditioned on the satisfaction of performance criteria that may include any or all of the following: (1) total stockholder return; (2) earnings before interest, taxes, depreciation and/or amortization; (3) net income (loss) (either before or after interest, taxes, depreciation and/or amortization); (4) changes in the market price of the stock; (5) economic value-added; (6) funds from operations or similar measure; (7) sales or revenue; (8) acquisitions or strategic transactions; (9) operating income (loss); (10) cash flow (including, but not limited to, operating cash flow and free cash flow); (11) return on capital, assets, equity or investment; (12) return on sales; (13) gross or net profit levels; (14) productivity; (15) expense; (16) margins; (17) operating efficiency; (18) customer satisfaction; (19) working capital; (20) earnings (loss) per share of stock; (21) sales or market shares; and (22) number of customers, any of which may be measured in absolute terms or as compared to any incremental increase or as compared to results of a peer group. Performance goals may be based upon specified levels of AMAG, subsidiary, affiliate or division performance under one or more of the criteria set forth above relative to the performance of other entities, divisions or subsidiaries. The Compensation Committee will select the particular performance criteria within the time period specified by Section 162(m) of the Code. Subject to adjustments for stock splits and similar events, the maximum award granted to any one individual that is intended to qualify as "performance-based compensation" under Section 162(m) of the Code will not exceed 500,000 shares of common stock for any performance cycle and options or stock appreciation rights with respect to no more than 500,000 shares of common stock may be granted to any one individual during any calendar year period. If a performance-based award is payable in cash, it cannot exceed \$5,000,000 for any calendar year.

Rationale for Share Increase

We currently anticipate that we will exhaust all the shares available for issuance under our Equity Incentive Plan by mid-2017 if the Equity Incentive Plan is not approved (and such shares may be exhausted sooner if we continue to increase the size of our organization, including increases in headcount). In connection with our 2014 acquisition of Lumara Health Inc. ("Lumara Health") and our 2015 acquisition of Cord Blood Registry® ("CBR"), we increased our employee base from approximately 150 in February 2014 to 550 in February 2017 and, in connection with certain of these new employees, utilized approximately 442,200 shares and 389,700 shares in 2015 and 2014, respectively. In addition, we anticipate that our headcount will increase significantly in 2017 by approximately 300 employees, including the addition of a 150-employee dedicated sales force to support the launch of Intrarosa, which we licensed from Endoceutics, Inc. in April 2017. The share increase contemplated by the Equity Incentive Plan is critical to attract and retain talented employees to support these efforts in order to build stockholder value.

Our equity incentive program is broad-based and equity incentive awards are an important component of our executive and non-executive employees' compensation. Our Compensation Committee and Board believe we must continue to offer a competitive equity compensation program in order to attract, retain and motivate the talented and qualified employees necessary for our continued growth and success in an increasingly competitive market environment.

We manage our long-term stockholder dilution by limiting the number of equity incentive awards granted annually. The Compensation Committee carefully monitors our annual net burn rate, total dilution, and equity expense in order to maximize stockholder value by granting only the appropriate number of equity incentive awards that it believes is necessary to attract, reward, and retain employees. Our compensation philosophy reflects broad-based eligibility for equity incentive awards, and we grant awards to substantially all of our employees based upon level, performance and contribution. By doing so, we link

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employee interests with stockholder interests throughout the organization and motivate our employees to act as owners of the business.

Other Compensation Policies

Awards made pursuant to the Equity Incentive Plan and our other plans and programs are in some cases subject to restrictions and obligations outlined in our Policy for Recoupment of Incentive Compensation as well as our stock ownership guidelines. Our Policy for Recoupment of Incentive Compensation and our executive stock ownership guidelines are discussed below in further detail under the heading "Executive Officers and Compensation-Compensation Recoupment/Clawback" and "Executive Officers and Compensation-Executive Stock Ownership Guidelines," respectively. Our non-employee director stock ownership guidelines are discussed above in further detail under the heading "Director Compensation-Director Stock Ownership Guidelines."

Burn Rate

The following table sets forth information regarding historical awards granted and earned for the 2014 through 2016 period, and the corresponding burn rate, which is defined as the number of shares subject to certain equity-based awards granted in a year divided by the weighted average common shares outstanding for that year, for each of the last three fiscal years:

	2016		2015		2014	
RSUs:						
RSUs granted	799,458	(1)(2)	448,029	(2)	291,626	(2)
Less: Acquisition-related RSU grants	—		—		(20,000)	
Less: Acquisition-related RSU inducement grants	—		(37,750)		(22,600)	
Total RSUs granted	799,458		410,279		249,026	
RSU multiplier	2		2		2	
Total Adjusted RSUs Granted(3)	1,598,916		820,558		498,052	
Stock Options:						
Stock options granted	784,048	(1)	1,215,675		1,391,776	
Less: Acquisition-related stock option grants	—		(297,950)		(42,500)	
Less: Acquisition-related stock option inducement grants	—		(106,500)		(304,600)	
Total Stock Options Granted(4)	784,048		811,225		1,044,676	
Total Adjusted Grants	2,382,964		1,631,783		1,542,728	
Weighted average common shares outstanding during the fiscal year	34,445,394		31,471,219		22,415,592	
Annual Burn Rate	6.92	%	5.19	%	6.88	%
Three-Year Average Burn Rate			6.33	%		

These RSUs and stock options granted in 2016 include 130,345 shares that were forfeited in 2016 without issuance (1) upon termination of employment, resulting in 1,453,161, of the 1,583,506 awards granted in 2016, outstanding at December 31, 2016.

The RSUs granted in 2016 include 73,840 shares with respect to our 2014 Performance Stock Awards, which were earned in 2016 (65,000 shares with respect to our 2014 Performance Stock Awards were excluded from the 2014 (2) RSUs granted). In addition, RSUs granted in 2015 includes 36,600 shares earned as of December 31, 2015 with respect to our 2013 performance-based awards.

"Total Adjusted RSUs Granted" is the product of RSUs granted less acquisition-related RSU grants and acquisition-related RSU inducement grants awarded in connection with our 2015 acquisition of CBR and our 2014 (3) acquisition of Lumara Health and a multiplier determined by Institutional Shareholder Services based on our recent historic stock price volatility. We have utilized an RSU multiplier of 2.0 for purposes of calculating the 2014-2016 average burn rate.

(4) "Total Stock Options Granted" represents stock options granted less acquisition-related stock option grants and acquisition-related stock option inducement grants awarded in connection with our 2015 acquisition of CBR and

our 2014 acquisition of Lumara Health.

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If the Equity Incentive Plan, including the request to increase the share reserve by an additional 2,485,000 shares, is approved by stockholders, we will have approximately 2,690,931 shares available for grant after the Annual Meeting, which is based on 205,931 shares available for grant under the Equity Incentive Plan at March 31, 2017 and the 2,485,000 shares subject to this proposal. Our Compensation Committee determined the size of the requested share increase based on projected equity awards to anticipated new hires, projected annual equity awards to existing employees, and an assessment of the magnitude of increase that our stockholders would likely find acceptable. We anticipate that if our request to increase the share reserve is approved by stockholders, it will be sufficient to provide equity incentives to attract, retain, and motivate employees through late 2018.

Summary of the Equity Incentive Plan

The following is a summary of certain significant features of the Equity Incentive Plan. This summary is subject to the specific provisions contained in the full text of the Equity Incentive Plan set forth in Appendix A to this Proxy Statement.

Plan Administration. The Equity Incentive Plan is administered by the Compensation Committee. The Compensation Committee has full power to select, from among the individuals eligible for awards, the individuals to whom awards will be granted, to make any combination of awards to participants, and to determine the specific terms and conditions of each award, subject to the provisions of the Equity Incentive Plan. The Compensation Committee may delegate to the Chief Executive Officer the authority to grant stock options and/or restricted stock units to employees who are not subject to the reporting and other provisions of Section 16 of the Exchange Act and not subject to Section 162(m) of the Code, subject to certain limitations and guidelines.

Eligibility. Persons eligible to participate in the Equity Incentive Plan will be those full- or part-time officers, employees, non-employee directors and other key persons (including consultants) of AMAG and our subsidiaries or affiliates as selected from time to time by the Compensation Committee in its discretion. As of the Record Date, approximately 568 individuals were eligible to participate in the Equity Incentive Plan, which included six executive officers, 554 employees who are not officers, and eight non-employee directors.

Plan Limits. The maximum award of stock options or stock appreciation rights granted to any one individual will not exceed 500,000 shares of common stock (subject to adjustment for stock splits and similar events) for any calendar year period. If any award of restricted stock, restricted stock units or performance shares granted to an individual is intended to qualify as "performance-based compensation" under Section 162(m) of the Code, then the maximum award shall not exceed 500,000 shares of common stock (subject to adjustment for stock splits and similar events) to any one such individual in any performance cycle. If any cash-based award is intended to qualify as "performance-based compensation" under Section 162(m) of the Code, then the maximum award to be paid in cash in any performance cycle may not exceed \$5,000,000. In addition, no more than 9,480,325 shares may be issued in the form of incentive stock options.

Effect of Awards. For purposes of determining the number of shares of common stock available for issuance under the Equity Incentive Plan, the grant of any "full value" award, such as a restricted stock award, restricted stock unit or performance share will be counted as 1.7 shares for each share of common stock actually subject to the award. The grant of any stock option or stock appreciation right will be counted for this purpose as one share from each share of common stock actually subject to the award.

Stock Options. The Equity Incentive Plan permits the granting of (1) options to purchase common stock intended to qualify as incentive stock options under Section 422 of the Code and (2) options that do not so qualify. Options granted under the Equity Incentive Plan will be non-qualified options if they fail to qualify as incentive options or exceed the annual limit on incentive stock options. Incentive stock options may only be granted to employees of AMAG and our subsidiaries. Non-qualified options may be granted to any persons eligible to receive incentive options and to non-employee directors, consultants and key persons. The exercise price of each option will be determined by the Compensation Committee but may not be less than 100% of the fair market value of the common stock on the date of grant. Fair market value for this purpose will be the closing price of the shares of common stock on NASDAQ on the date of grant. The exercise price of an option may not be reduced after the date of the option grant, other than to appropriately reflect changes in our capital structure.

The term of each option will be fixed by the Compensation Committee and may not exceed ten years from the date of grant. The Compensation Committee will determine at what time or times each option may be exercised. Options may be made exercisable in installments and the exercisability of options may be accelerated by the Compensation Committee. In general, unless otherwise permitted by the Compensation Committee, no option granted under the Equity Incentive Plan is transferable by the optionee other than by will or by the laws of descent and distribution or pursuant to a qualified domestic relations order, and options may be exercised during the optionee's lifetime only by the optionee, or by the optionee's legal representative or guardian in the case of the optionee's incapacity. In no event may options be transferred for value.

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Upon exercise of options, the option exercise price must be paid in full either in cash, by certified or bank check or other instrument acceptable to the Compensation Committee or by delivery (or attestation to the ownership) of shares of common stock that are beneficially owned by the optionee for at least six months or were purchased in the open market. Subject to applicable law, the exercise price may also be delivered to AMAG by a broker pursuant to irrevocable instructions to the broker from the optionee. In addition, the Compensation Committee may permit non-qualified options to be exercised using a net exercise feature which reduces the number of shares issued to the optionee by the number of shares with a fair market value equal to the exercise price.

To qualify as incentive options, options must meet additional federal tax requirements, including a \$100,000 limit on the value of shares subject to incentive options that first become exercisable by a participant in any one calendar year. Stock Appreciation Rights. The Compensation Committee may award stock appreciation rights, subject to such conditions and restrictions as the Compensation Committee may determine. Stock appreciation rights entitle the recipient to shares of common stock equal to the value of the appreciation in the stock price over the exercise price. The exercise price may not be less than the fair market value of the common stock on the date of grant. The term of a stock appreciation right shall be determined by the Compensation Committee, but may not exceed ten years.

Restricted Stock. The Compensation Committee may award shares of common stock to participants subject to such conditions and restrictions as the Compensation Committee may determine. These conditions and restrictions may include the achievement of certain performance criteria, as summarized above, and/or continued employment with us through a specified restricted period. A holder of restricted stock shall be treated as a stockholder for all purposes (including with respect to voting rights and the right to receive dividends); provided that in no event shall any dividends be paid until the related restricted stock has vested.

Restricted Stock Units. The Compensation Committee may award restricted stock units to any participant. Restricted stock units are ultimately payable in the form of shares of common stock and may be subject to such conditions and restrictions as the Compensation Committee may determine. These conditions and restrictions may include the achievement of certain performance criteria, as summarized above, and/or continued employment with AMAG through a specified vesting period.

Unrestricted Stock Awards. The Compensation Committee may also grant shares of common stock which are free from any restrictions under the Equity Incentive Plan. Unrestricted stock may be granted to any participant in recognition of past services or other valid consideration and may be issued in lieu of cash compensation due to such participant.

Performance Share Awards. The Compensation Committee may grant performance share awards to any participant which entitle the recipient to receive shares of common stock upon the achievement of certain performance criteria, as summarized above, and such other conditions as the Compensation Committee shall determine.

Dividend Equivalent Rights. The Compensation Committee may grant dividend equivalent rights to participants which entitle the recipient to receive credits for dividends that would be paid if the recipient had held specified shares of common stock. Dividend equivalent rights shall only be paid upon vesting and, if granted as a component of another award subject to vesting, may be paid only if the related award becomes vested.

Cash-Based Awards. The Compensation Committee may grant cash bonuses under the Equity Incentive Plan to participants. The cash bonuses may be subject to the achievement of certain performance criteria, as summarized above.

Minimum Vesting Requirements. Except in the case of death, disability, retirement or a Sale Event, and with certain exceptions applicable to awards granted on or after the Effective Date (as defined below) or awards with respect to no more than 5% of shares reserved for issuance under the Equity Incentive Plan, the minimum restriction or vesting period with respect to any "full value" award (i.e. an award other than an option or a stock appreciation right) granted to participants on or after the Effective Date, shall be no less than one year, and no restriction may lapse nor vesting event occur before the first anniversary of the grant date of the award except for acceleration in accordance with any employment or award agreement.

Change of Control Provisions. The Equity Incentive Plan provides that upon the effectiveness of a Sale Event, except as otherwise provided by the Compensation Committee in the award agreement, the parties to the Sale Event may

agree that awards shall be assumed or continued by the successor entity. In the event awards are not assumed or continued by the successor entity, upon the effective time of the Sale Event, the plan and all awards will terminate. In the event of such termination, except as otherwise may be provided in the award agreement, all options and stock appreciation rights with time-based vesting shall become fully exercisable as of the effective time of the Sale Event, all other awards with time-based vesting, conditions or restrictions shall become fully vested and nonforfeitable as of the effective time of the Sale Event, and all awards with conditions and restrictions relating to the attainment of performance goals shall be deemed to vest and become nonforfeitable as of the Sale Event assuming the higher of (a) achievement of all relevant performance goals at the "target" level (prorated based upon the length of time within the performance period that elapsed prior to the Sale Event) or (b) actual

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achievement as of the date of such Sale Event. In addition, in the event of such termination, (a) we shall have the option, in our sole discretion, to make or provide for a payment, in cash or in kind, to participants holding options and stock appreciation rights equal to the difference between the per share consideration and the exercise price of the options or stock appreciation rights or (b) each grantee will be permitted, within a specified period of time prior to the Sale Event, to exercise all outstanding options and stock appreciation rights, to the extent then exercisable. We shall also have the option (in our sole discretion) to make or provide for a payment, in cash or in kind, to holders of other awards in an amount equal to the consideration paid in the transaction multiplied by the number of vested shares subject to the award.

Adjustments for Stock Dividends, Stock Splits, Etc. The Equity Incentive Plan requires the Compensation Committee to make appropriate adjustments to the number of shares of common stock that are subject to the Equity Incentive Plan, to certain limits in the Equity Incentive Plan, and to any outstanding awards to reflect stock dividends, stock splits, extraordinary cash dividends and similar events.

Tax Withholding. Participants in the Equity Incentive Plan are responsible for the payment of any federal, state or local taxes that we are required by law to withhold upon the exercise of options or stock appreciation rights or vesting of other awards. Subject to approval by the Compensation Committee, participants may elect to have the tax withholding obligations satisfied by authorizing us to withhold shares of common stock to be issued pursuant to the exercise or vesting.

Amendments and Termination. The Board may at any time amend or discontinue the Equity Incentive Plan and the Compensation Committee may at any time amend or cancel any outstanding award for the purpose of satisfying changes in the law or for any other lawful purpose. However, no such action may adversely affect any rights under any outstanding award without the holder's consent. To the extent required under the rules of NASDAQ, any amendments that materially change the terms of the Equity Incentive Plan will be subject to approval by our stockholders. Amendments shall also be subject to approval by our stockholders if and to the extent determined by the Compensation Committee to be required by the Code to preserve the qualified status of incentive options or to ensure that compensation earned under the Equity Incentive Plan qualifies as performance-based compensation under Section 162(m) of the Code.

Effective Date of Equity Incentive Plan. The Board approved the Equity Incentive Plan on April 6, 2017, and the Equity Incentive Plan becomes effective on the date it is approved by stockholders (the "Effective Date"). No awards may be granted under the Equity Incentive Plan after May 18, 2027 and no incentive stock options may be granted after April 6, 2027.

If the Equity Incentive Plan is not approved by stockholders, our Third Amended and Restated 2007 Equity Incentive Plan, as amended, will continue in effect until it expires, and awards may be granted thereunder, in accordance with its terms.

NEW PLAN BENEFITS

Because the grant of awards under the Equity Incentive Plan is within the discretion of the Compensation Committee, we cannot determine the dollar value or number of shares of common stock that will in the future be received by or allocated to any participant in the Equity Incentive Plan. Accordingly, in lieu of providing information regarding benefits that will be received under the Equity Incentive Plan, the following table provides information concerning the benefits that were received by the following persons and groups during 2016 under the Equity Incentive Plan: (a) each named executive officer; (b) all current executive officers, as a group; (c) all current directors who are not executive officers, as a group; and (d) all employees who are not executive officers, as a group.

Name and Position	Options		RSUs	
	Average Exercise Price(\$)(1)	Number	Dollar Value(\$)(2)	Number
William K. Heiden, Chief Executive Officer	25.18	85,000	906,480	36,000
Edward Myles, Chief Financial Officer, Senior Vice President of Finance & Treasurer	—	—	—	—

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Frank E. Thomas, President and Chief Operating Officer	25.18	40,000	428,060	17,000
Nicholas Grund, Chief Commercial Officer	—	—	—	—
Julie Krop, Chief Medical Officer	25.18	22,500	226,620	9,000
Joseph D. Vittiglio, General Counsel, Senior Vice President, Legal Affairs, Technical Operations and Quality	25.18	20,000	226,620	9,000
All current executive officers, as a group	25.18	167,500	1,787,780	71,000
All current non-employee directors, as a group	19.88	98,248	648,873	34,402
All employees who are not executive officers, as a group	25.15	255,350	9,081,078	403,766

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(1) The average exercise price was calculated using a weighted average basis.

(2) The amount shown in this column was calculated by multiplying the number of RSUs by the fair market value on the date of grant.

TAX ASPECTS UNDER THE CODE

The following is a summary of the principal federal income tax consequences of certain transactions under the Equity Incentive Plan. It does not describe all federal tax consequences under the Equity Incentive Plan, nor does it describe state or local tax consequences.

Incentive Options. No taxable income is generally realized by the optionee upon the grant or exercise of an incentive option. If shares of common stock issued to an optionee pursuant to the exercise of an incentive option are sold or transferred after two years from the date of grant and after one year from the date of exercise, then (a) upon sale of such shares, any amount realized in excess of the option price (the amount paid for the shares) will be taxed to the optionee as a long-term capital gain, and any loss sustained will be a long-term capital loss, and (b) AMAG will not be entitled to any deduction for federal income tax purposes. The exercise of an incentive option will give rise to an item of tax preference that may result in alternative minimum tax liability for the optionee.

If shares of common stock acquired upon the exercise of an incentive option are disposed of prior to the expiration of the two-year and one-year holding periods described above (a "disqualifying disposition"), generally (a) the optionee will realize ordinary income in the year of disposition in an amount equal to the excess (if any) of the fair market value of the shares of common stock at exercise (or, if less, the amount realized on a sale of such shares of common stock) over the option price thereof, and (b) we will be entitled to deduct such amount. Special rules will apply where all or a portion of the exercise price of the incentive option is paid by tendering shares of common stock.

If an incentive option is exercised at a time when it no longer qualifies for the tax treatment described above, the option is treated as a non-qualified option. Generally, an incentive option will not be eligible for the tax treatment described above if it is exercised more than three months following termination of employment (or one year in the case of termination of employment by reason of disability). In the case of termination of employment by reason of death, the three-month rule does not apply.

Non-Qualified Options. No income is realized by the optionee at the time the option is granted. Generally (a) at exercise, ordinary income is realized by the optionee in an amount equal to the difference between the option price and the fair market value of the shares of common stock on the date of exercise, and we receive a tax deduction for the same amount, and (b) at disposition, appreciation or depreciation after the date of exercise is treated as either short-term or long-term capital gain or loss depending on how long the shares of common stock have been held. Special rules will apply where all or a portion of the exercise price of the non-qualified option is paid by tendering shares of common stock. Upon exercise, the optionee will also be subject to Social Security taxes on the excess of the fair market value over the exercise price of the option.

Other Awards. AMAG generally will be entitled to a tax deduction in connection with an award under the Equity Incentive Plan in an amount equal to the ordinary income realized by the participant at the time the participant recognizes such income. Participants typically are subject to income tax and recognize such tax at the time that an award is exercised, vests or becomes non-forfeitable, unless the award provides for a further deferral.

Parachute Payments. The vesting of any portion of an option or other award that is accelerated due to the occurrence of a change in control may cause a portion of the payments with respect to such accelerated awards to be treated as "parachute payments" as defined in the Code. Any such parachute payments may be non-deductible to AMAG, in whole or in part, and may subject the recipient to a non-deductible 20% federal excise tax on all or a portion of such payment (in addition to other taxes ordinarily payable).

Limitation on Deductions. Under Section 162(m) of the Code, our deduction for certain awards under the Equity Incentive Plan may be limited to the extent that the Chief Executive Officer or other executive officer whose compensation is required to be reported in the summary compensation table (other than the Principal Financial Officer) receives compensation in excess of \$1 million a year (other than performance-based compensation that otherwise meets the requirements of Section 162(m) of the Code). The Equity Incentive Plan is structured to allow certain awards to qualify as performance-based compensation.

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EQUITY COMPENSATION PLAN INFORMATION

The following table presents information at December 31, 2016 regarding shares of common stock that may be issued under our equity compensation plans (consisting of the Equity Incentive Plan, the 2000 Plan, the Lumara Health Inc. Amended and Restated 2013 Incentive Compensation Plan (the "2013 Lumara Health Equity Incentive Plan") and the 2015 Employee Stock Purchase Plan (the "2015 ESPP")) and pursuant to awards granted outside of such plans to new hires as inducement grants made in reliance on NASDAQ Listing Rule 5635(c)(4) ("Inducement Awards").

Plan Category	Equity Compensation Plan Information		
	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted average exercise price of outstanding options, warrants and rights(1)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities referenced in column (a))
	(a)	(b)	(c)
Equity compensation plans approved by security holders(2)	2,937,826	\$31.83	1,907,348
Equity compensation plans not approved by security holders(3)	1,112,306	\$32.28	9,710
Total	4,050,132(4)		1,917,058

(1) Since RSUs do not have any exercise price, such units are not included in the weighted average exercise price calculation.

(2) Includes 2,932,626 shares to be issued pursuant to outstanding awards under the Equity Incentive Plan and 5,200 shares issuable upon exercise of outstanding awards issued pursuant to our 2000 Plan. As of December 31, 2016, there were 1,786,672 shares available for issuance under the Equity Incentive Plan and 120,676 shares available for issuance under the 2015 ESPP. No additional awards will be granted under the 2000 Plan.

(3) Includes 950,431 shares to be issued pursuant to Inducement Awards and 161,875 shares to be issued pursuant to awards under the 2013 Lumara Health Equity Incentive Plan, which was assumed in connection with our acquisition of Lumara Health. The weighted-average exercise price of the outstanding options under the 2013 Lumara Health Equity Incentive Plan as of December 31, 2016 was \$34.27. As of December 31, 2016 there were 9,710 shares available for future grants under the 2013 Lumara Health Equity Incentive Plan, which may be awarded to certain of our employees, officers, directors, consultants, and advisors of AMAG and our subsidiaries who are newly-hired or who previously performed services for Lumara Health.

(4) Includes 3,113,178 shares of common stock issuable upon the exercise of outstanding options and 936,954 shares of common stock issuable upon the vesting of RSUs. The weighted average exercise price for the outstanding options was \$31.97 and the weighted average remaining contractual term is 7.4 years.

Please see Note L to our Annual Report on Form 10-K for the year ended December 31, 2016 filed with the SEC on February 21, 2017 for additional information regarding our Equity Incentive Plan, 2000 Plan, the 2013 Lumara Health Equity Incentive Plan, 2015 ESPP and the Inducement Awards.

Required Vote

The affirmative vote of the holders of a majority of the shares of our common stock present or represented and voting at the Annual Meeting is required to approve the Equity Incentive Plan.

OUR BOARD UNANIMOUSLY RECOMMENDS, AND DEEMS ADVISABLE, THAT
STOCKHOLDERS VOTE "FOR" THE APPROVAL OF THE EQUITY INCENTIVE PLAN

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PROPOSAL 3: ADVISORY VOTE ON EXECUTIVE COMPENSATION

Pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (the "Dodd-Frank Act") and Section 14A of the Exchange Act, we are conducting a stockholder advisory vote on the compensation paid to our named executive officers. This proposal, commonly known as "say-on-pay," gives our stockholders the opportunity to express their views on our named executive officers' compensation. The vote is advisory, and, therefore, it is not binding on the Board, the Compensation Committee, or the Company. Nevertheless, the Compensation Committee will take into account the outcome of the vote when considering future executive compensation decisions. We currently intend to conduct this advisory vote annually, subject to the outcome of the advisory vote on the frequency of future advisory votes on named executive officer compensation, as discussed in Proposal 4.

As described in detail in the "Compensation Discussion and Analysis" section of this Proxy Statement, our executive compensation program is designed to attract, motivate and retain our named executive officers who are critical to our success. Our Board believes that our executive compensation program is well tailored to retain and motivate key executives while recognizing the need to align our executive compensation program with the interests of our stockholders and our "pay-for-performance" philosophy. We encourage our stockholders to read the "Compensation Discussion and Analysis" section as well as the "Summary Compensation Table for the 2016, 2015 and 2014 Fiscal Years" table below and other related compensation tables and narrative disclosures, which describe our executive compensation philosophy, programs, and practices and the 2016 compensation of our named executive officers. We are asking our stockholders to indicate their support for the compensation of our named executive officers as described herein. This vote is not intended to address any specific item of compensation, but rather the overall compensation of our named executive officers and our executive compensation philosophy, programs, and practices as described in this Proxy Statement.

Accordingly, we ask our stockholders to vote "FOR" the approval, on an advisory basis, of the compensation of our named executive officers, as described in this Proxy Statement.

Required Vote

Advisory approval of this proposal requires the affirmative vote of the holders of a majority of shares of common stock present or represented and voting at the Annual Meeting. The say-on-pay vote is advisory, and therefore not binding on our Board, the Compensation Committee or the Company. However, our Board and our Compensation Committee value the opinions of our stockholders, and to the extent there is a significant vote against the compensation of our named executive officers as disclosed in this Proxy Statement, we will consider our stockholders' concerns, and the Compensation Committee will evaluate whether any actions are necessary to address those concerns.

OUR BOARD UNANIMOUSLY RECOMMENDS A VOTE "FOR" THE APPROVAL OF, ON AN ADVISORY BASIS, THE COMPENSATION OF OUR NAMED EXECUTIVE OFFICERS

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EXECUTIVE OFFICERS AND COMPENSATION

Set forth below is a description of our current executive officers and of compensation received by our named executive officers for the year ended December 31, 2016.

EXECUTIVE OFFICERS

Please refer to "Proposal 1: Election of Directors" for Mr. Heiden's biography.

Edward Myles, age 45, joined us as Senior Vice President of Finance, Chief Financial Officer and Treasurer in April 2016. Prior to joining us, Mr. Myles served in various positions at Ocata Therapeutics, Inc. ("Ocata"), a public biotechnology company, from June 2013 to April 2016, most recently as Chief Financial Officer and Chief Operating Officer. During his tenure at Ocata he led the turnaround of the company which ultimately resulted in its acquisition by Astellas Pharma Inc. in February 2016. Prior to Ocata, Mr. Myles served as Chief Financial Officer and Vice President of Operations at PrimeraDx, Inc., a molecular diagnostics company, from 2008 to June 2013. He also served as Senior Vice President of Finance and Chief Financial Officer at Pressure Biosciences, Inc. from 2006 to 2008 and Controller at EMD Pharmaceuticals, Inc. (a wholly-owned subsidiary of Merck KGaA) from 2003 to 2006. Earlier in his career, Mr. Myles was an Associate in the healthcare investment banking group at SG Cowen Securities Corporation and served as Corporate Controller for Boston Biomedica, Inc., a public diagnostic and life science tools company. Mr. Myles began his career at PricewaterhouseCoopers LLP where he served a variety of clients in the life sciences and technology industries. Mr. Myles holds a B.A. in business administration from University of Hartford and an M.B.A. from the John M. Olin School of Business, Washington University.

Frank E. Thomas, age 47, joined us in 2011 as our Executive Vice President, Chief Financial Officer and Treasurer and served as Executive Vice President and Chief Operating Officer until his promotion to President and Chief Operating Officer in April 2015. From November 2011 to May 2012, he also served as our Interim President and Chief Executive Officer. Prior to joining us, Mr. Thomas served as Senior Vice President, Chief Operating Officer and Chief Financial Officer for Molecular Biometrics, Inc. ("Molecular Biometrics"), a commercial stage medical diagnostics company, from 2008 to 2011. Prior to Molecular Biometrics, Mr. Thomas spent four years at Critical Therapeutics, Inc. ("Critical Therapeutics"), a public biopharmaceutical company, from 2004 to 2008, where he was promoted to President in June 2006 and Chief Executive Officer in December 2006 from the position of Senior Vice President and Chief Financial Officer. He also served on the Board of Directors of Critical Therapeutics from 2006 to 2008. Prior to 2004, Mr. Thomas served as the Chief Financial Officer and Vice President of Finance and Investor Relations at Esperion Therapeutics, Inc., a biopharmaceutical company, which was sold to Pfizer Inc. in March 2004. From 2007 to 2015, Mr. Thomas was a member of the Board of Directors of the Massachusetts Biotechnology Council and has served as a member of the Board of Directors of Zafgen, Inc., a public biopharmaceutical company, since June 2014. Mr. Thomas holds a B.B.A. from the University of Michigan, Ann Arbor. In March 2017, we announced that Mr. Thomas is resigning from the Company, effective April 30, 2017, at which time Mr. Heiden will assume the title of President.

Nicholas Grund, age 47, joined us as Chief Commercial Officer in January 2016. Prior to joining us, Mr. Grund served from 2002 to December 2015, in various positions of increasing responsibility at Genzyme Corporation, a Sanofi company ("Genzyme"), most recently as Head of Specialty Care. Prior to Genzyme, Mr. Grund progressed through a number of senior finance roles in the Critical Care Business Unit of Bayer Diagnostics from 1995 to 2002. Mr. Grund holds a B.S. in business administration from the University of Massachusetts and an M.B.A. from Northeastern University.

Julie Krop, M.D., age 51, joined us as Chief Medical Officer and Senior Vice President, Clinical Development and Regulatory Affairs in June 2015. Prior to joining us, Dr. Krop served from 2012 to May 2015 in roles of increasing responsibility at Vertex Pharmaceuticals, Inc. ("Vertex"), a public biotechnology company, where she most recently served as Vice President, Clinical Development. Prior to Vertex, Dr. Krop held various positions at Stryker Corporation, a public medical technology company, from 2006 to 2011, where she most recently served as Vice President, Clinical Development and Regulatory Affairs. Prior to her work at Stryker Corporation, Dr. Krop served as Vice President, Clinical Research at Peptimmune Inc., a biotechnology company, from 2003 to 2006, Director of Clinical Research at Millennium Pharmaceuticals, Inc., a public biopharmaceutical company (which was subsequently

acquired by Takeda Pharmaceutical Company Limited), from 2001 to 2003 and Associate Director at Pfizer Inc., a public biopharmaceutical company, from 1999 to 2001. Dr. Krop holds a B.S. from Brown University and her medical degree from the Warren Alpert Medical School of Brown University. She completed her residency in the Department of Medicine at Georgetown University Hospital and a fellowship in the Department of Endocrinology at the Johns Hopkins University School of Medicine. In addition, Dr. Krop was a Robert Wood Johnson Foundation Clinical Scholar.

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Joseph D. Vittiglio, age 45, joined us in August 2015 as our Senior Vice President, Legal Affairs, General Counsel and Secretary and currently serves as General Counsel, Senior Vice President, Legal Affairs, Technical Operations and Quality and Secretary. Prior to joining us, Mr. Vittiglio served from March 2015 to August 2015 as Vice President of Legal Affairs and a member of the Management Committee at Flexion Therapeutics, Inc. ("Flexion"), a public pharmaceutical company. Prior to Flexion, Mr. Vittiglio was the General Counsel and Secretary of AVEO Pharmaceuticals, Inc., a public biopharmaceutical company, from 2007 to March 2015. From 2005 to 2007, he served as Director of Corporate Legal Affairs at Oscient Pharmaceuticals Corporation ("Oscient"), a public pharmaceutical company. Prior to Oscient, Mr. Vittiglio was a senior corporate associate from 1998 to 2005 at Mintz, Levin, Cohn, Ferris, Glovsky and Popeo PC. Mr. Vittiglio holds a B.A. in International Relations from Tufts University and a J.D. from Northeastern University School of Law.

COMPENSATION DISCUSSION AND ANALYSIS

Executive Summary

Overview

Our Compensation Committee believes that our executive compensation program is appropriately designed and balanced as it both encourages our executive officers to work for our long-term prosperity and reflects a pay-for-performance philosophy, without encouraging our employees to assume excessive risks.

2016 Advisory Vote on Executive Compensation

At our 2016 annual meeting of stockholders, we held our fifth advisory vote on executive compensation.

Approximately 93% of the votes cast on the proposal were in favor of our named executive officer compensation as disclosed in our proxy statement for the 2016 meeting, consistent with the results of our say-on-pay vote in 2015. Our Compensation Committee reviewed the final 2016 say-on-pay vote results and determined that, given the significant level of support and the Compensation Committee's overall satisfaction with the program, no material changes to our executive compensation policies and programs were necessary at that time. We are again holding an advisory vote to approve executive compensation at our 2017 annual meeting of stockholders. In addition, as required, we are holding a vote on the frequency of future advisory votes on named executive compensation, which we are recommending to continue to be held annually, as discussed below in Proposal 4.

Important Features of Our Compensation Program

Our compensation program is administered under a rigorous process which includes the solicitation by the Compensation Committee of advice of an independent third-party consultant (which reports directly to the Compensation Committee, not to management) and long-standing, consistently applied practices with respect to the timing of equity grants, the pricing of stock options and the periodic review of peer group practices.

Other important features of our compensation program include:

In accordance with our pay-for-performance philosophy, base salary is the only component of our executive officers' total compensation that is "fixed" and all other components of our executive officers' compensation are performance-based and variable or "at risk." The amount of each executive officer's annual bonus is based primarily, or in the case of Mr. Heiden, entirely, on pre-established company performance goals. Further, the actual economic value of the long-term incentives granted to our executive officers in the form of equity awards depends on the performance of our stock price over the period during which the awards vest and, with respect to stock options and certain performance-based RSU awards, could be as little as zero if our stock price is less than the exercise price of such stock options at the time of vesting or if our stock price appreciation underperforms defined parameters. We also make a 401(k) plan contribution for our executive officers that is consistent with the contribution we make for all employees who participate in our 401(k) plan.

In order to provide long-term incentives for our executive officers to continue their employment with us, equity awards generally vest over three or four years and our Compensation Committee typically applies an annual vesting schedule or, in some cases, quarterly vesting after the first year, to such awards granted to our executive officers. In addition, the Compensation Committee believes it is appropriate to grant, and has granted, certain executive officers equity awards with performance or market condition-based vesting provisions to further align the interests of such executives with those of our stockholders. For example, the Compensation Committee approved a long-term incentive

plan in February 2017 in order to provide further incentive for superior work, to further align the goals and interests of executives and senior management to the long-term interests of the Company and our stockholders, and to enable us to attract and retain highly qualified executives and employees, which included awards of performance-

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based RSUs, which will vest, if at all, based on the Company's total shareholder return ("TSR") performance measured against the median TSR of a defined comparator group of companies over a three-year period.

We review the external marketplace and make internal comparisons among the executive officers when making compensation determinations. For 2016 executive compensation, the Compensation Committee, with advice from Radford, evaluated our executive compensation based on a balanced review of public data from selected peer group companies as well as published survey data from the Radford Global Life Sciences Survey for public biopharmaceutical companies, (together, "Radford's market compensation data"), as described further under "Independent Compensation Consultants." The Compensation Committee endeavors to establish base salaries, total target cash and long-term equity incentives at approximately the 50th percentile of Radford's market compensation data.

In line with our pay-for-performance philosophy, we offer employment agreements that do not contain multi-year guarantees for salary increases, or non-performance-based guaranteed bonuses or equity compensation.

We have adopted a clawback policy that allows us to recover cash and equity-based incentive compensation from certain officers in the event we are required to prepare an accounting restatement due to material noncompliance with financial statement requirements.

Neither cash benefits nor acceleration of equity awards are automatically provided to our executive officers in the event of a change of control of the Company unless either the acquirer does not assume the equity awards or there is also a termination of service (or the executive officer resigns for good reason) within one year from the date a change of control of the Company occurs.

We do not provide any tax gross-up benefits for excise taxes associated with change in control compensation nor do we provide any executive with excessive perquisites or fringe benefits, such as access to personal security, private airplanes, financial planning advice, tax preparation services, car allowance, club memberships or similar benefits. We have adopted ownership guidelines to align the interests of our non-employee directors and executive officers and our stockholders. These guidelines encourage our non-employee directors and executive officers to maintain a significant ownership interest in our stock. We expect each non-employee director and executive officer to attain the applicable share ownership within five years following the later of the date he or she became subject to these guidelines or the adoption of the guidelines. Our executive stock ownership guidelines are discussed below in further detail under the heading "Executive Officers and Compensation - Executive Stock Ownership Guidelines."

Executive Compensation Philosophy

Our executive compensation program has consistently and meaningfully been focused on pay-for-performance principles, and has included payouts above or below target under our annual incentive plan when the Company's performance was above or below expectations. The following is a summary of our overall executive compensation philosophy, as approved by our Compensation Committee and our Board.

Objectives of Our Executive Compensation Program

Our key executive compensation objectives are to attract and retain the highest quality executive talent, motivate executives by aligning their short- and long-term interests with those of our stockholders, and reward short- and long-term individual and Company performance. We use the following principles to guide our decisions regarding executive compensation:

External Competitiveness. We strive to ensure that our executives' total compensation levels are competitive with peer companies so that we can attract and retain high performing key executive talent. Given the highly competitive landscape for top talent in the biotechnology and pharmaceuticals industry and our relative position to compete for that talent, we recognize that it may, in some instances, be necessary to pay above market rates to attract critical talent. To ensure that our executives' total compensation levels are competitive, our Compensation Committee, in consultation with its independent advisors and our senior management, periodically reviews the compensation policies and practices of other companies in our peer group, which we define to include companies with the following characteristics:

Publicly-traded;

Primary operations in the biotechnology/pharmaceuticals industries;

Commercial-stage companies with similar amount of revenues;
Comparable number of employees; and

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Comparable market capitalization.

The Compensation Committee also periodically reviews the composition of the peer group itself, in consultation with its independent advisors and senior management, to ensure that the peer group continues to accurately reflect comparable companies as our business evolves.

Pay-for-Performance. Total compensation should reflect a "pay-for-performance" philosophy such that a substantial portion of executive compensation should include short- and long-term incentive awards that are tied to the achievement of the short- and long-term performance objectives of both the Company and the individual.

Alignment with Stockholders' Interests. Total compensation levels should include a component that reflects absolute stockholder returns and the Company's overall performance through the use of equity-based awards.

Internal Parity. To the extent practicable, base salary levels and short- and long-term incentive target levels for similarly-situated executives within the Company should be comparable to avoid divisiveness and encourage teamwork, collaboration, and a cooperative working environment.

Simplicity and Flexibility. Our executive compensation program should be straightforward and easy to understand for both our employees and stockholders. The compensation program should also be sufficiently flexible to be able to adapt to rapid changes in the competitive environment for executives in the biotechnology and pharmaceuticals sectors.

Avoidance of Excessive Perquisites. Although we will consider certain perquisites that are common and appropriate for similarly-situated executives of public companies, as a general matter, we intend to avoid the payment of excessive, unusual, or unnecessary perquisites to executives.

Elements of Our Executive Compensation Program

Consistent with our executive compensation objectives, we have developed an executive compensation program consisting of the following elements:

• Base Salary;

• Short-term incentives in the form of annual cash bonus opportunities;

• Long-term incentives in the form of equity-based awards (stock options and RSUs); and

• Benefits.

To further our guiding compensation principles, the relative mix of the foregoing components of each executive's total potential compensation should be weighted more toward incentive compensation, both short- and long-term. In addition, the value of such variable compensation is generally weighted more heavily toward long- than short-term incentives to ensure the interests of the executives are more closely aligned with those of our stockholders.

In determining the appropriate level of each element of total executive compensation, we seek to accomplish the goals set out below.

Base salary. Base salary levels are generally designed to provide fixed annual cash compensation that is competitive with base salary levels provided to executives of similar position, responsibility, experience, qualifications, and performance, to the extent such comparable positions exist, to (a) allow us to recruit and retain the best qualified executives in a very competitive market for talent in the biotechnology and pharmaceuticals sectors, and (b) provide executives with reasonable predictability regarding their basic annual standard of living. Base salaries of executives are reviewed annually as part of our annual review process in light of the executive's individual performance and the Company's performance during the year as well as the then current competitive conditions. We believe that it is appropriate during most years to provide an upward adjustment to executive salaries if the executive's performance warrants such adjustment, our financial condition permits, and/or in order to adhere to our executive compensation philosophy of maintaining base salary levels near the 50th percentile as compared to our peers.

Short-term incentives. Short-term incentives in the form of an annual cash bonus opportunity are intended to provide motivation for executives to achieve both the Company's annual operating goals and the individual's annual performance goals. The target amount for the annual bonus opportunity is generally established at the outset of the fiscal year or in the executive officer's employment agreement and is generally based on a percentage of the executive's base salary that is intended to be competitive with that offered to similarly-situated executives, to the extent such comparable positions exist. The actual amount paid for short-term incentives is generally based on a

combination of Company and individual performance with higher weighting to Company performance as an executive's level of responsibility increases to reflect the executive's ability to

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influence overall Company performance. In addition, the Compensation Committee has the flexibility to award additional discretionary bonuses to recognize and reward outstanding individual performance in excess of measurable performance objectives or to decrease the size of an executive officer's bonus based on individual performance in a given year.

Long-term incentives. Long-term incentives in the form of annual equity-based awards are intended to align the interests of executives with those of our stockholders and to provide executives with a continuing ownership stake in our long-term success. The Compensation Committee and the Board believe that the amount of a new hire and an annual equity-based award should be competitive to that offered to similarly-situated executives, to the extent such comparable positions exist, and total executive compensation should be more heavily weighted toward long-term incentive compensation to ensure that the interests of our executives are aligned with those of our stockholders. In addition, the Compensation Committee and the Board believe that the proportion of total at-risk compensation should rise as an executive's level of responsibility increases because of the executive's increased ability to influence overall Company performance. Equity-based awards are generally subject to three to four-year annual vesting, or in some cases quarterly vesting after the first year, to promote retention and align the executive's long-term interests with those of our stockholders. In certain instances the Compensation Committee and the Board believe that it is appropriate to grant to certain executive officers equity awards with performance or market condition-based vesting provisions to further align the interests of such executives with those of our stockholders. As a general rule, equity awards to executive officers are reviewed by the Compensation Committee once per year in connection with our annual performance review process.

Benefits. We seek to provide an overall benefits package that is intended to be competitive to that offered by companies similar to us to ensure that we do not lose talented candidates or employees as a result of an inferior benefits package.

Executive Compensation Decisions and Processes

General

The Compensation Committee typically meets at least four times per year, with additional meetings planned as necessary. The Compensation Committee met ten times during 2016. The agenda for each meeting is usually developed by the Chair of the Compensation Committee, in close consultation, as appropriate, with our Chief Executive Officer, President and Chief Operating Officer, Senior Vice President of Human Resources, General Counsel, and other executives who may have input on a given agenda item. From time to time, various members of management as well as outside advisors and consultants may be invited to make presentations, to provide background information or advice, or to otherwise participate in a given meeting; however, the Compensation Committee meets regularly in executive session. Our Chief Executive Officer is often present and actively participates in discussions and deliberations regarding the compensation of our executive officers. However, our Chief Executive Officer is not present during deliberations regarding his own compensation, performance, or objectives.

Establishing Annual Performance Goals

At the beginning of each year, the Board agrees upon a defined list of goals against which it will evaluate the Company's performance at the end of the year for purposes of making executive compensation decisions, based upon the recommendation of the Compensation Committee. The Compensation Committee develops these goals in consultation with senior management, and endeavors to make the goals consistent with the Company's financial budget and operating plan for the year, with the expectation that the Company will achieve our baseline goals for the year and that scoring of the goals at the end of the year will likely yield a bonus payout at or about the target amount. The weight given to the various Company goals is based on the Compensation Committee's and the Board's subjective determination of the Company's relative strategic and operating priorities for the upcoming fiscal year. Whenever possible, the Compensation Committee attempts to develop quantitative measures of performance to provide clarity throughout the year as to how the Company is progressing against its goals.

In addition, our Chief Executive Officer works with each executive officer to establish his or her individual annual performance goals and objectives. Individual executive performance goals are not established or scored based on a mathematical calculation (other than our Chief Executive Officer whose bonus is determined by the Company's

performance score), in contrast to the manner in which the overall Company performance goals are established and scored. Rather, individual executive performance goals are established in a manner that allows for more qualitative and subjective assessment. Accordingly, each specific goal established for our executive officers is not scored on an individual basis, but rather, our Chief Executive Officer evaluates the executive's overall achievement of his or her performance goals as well as his or her contributions to the Company's corporate goals and recommends a bonus amount based on the executive's target bonus for each executive officer to the Compensation Committee. The Compensation Committee believes that our Chief Executive Officer is in the best position to evaluate the performance of the executives, other than himself, and the Compensation Committee believes that substantial deference to our Chief Executive Officer's evaluation of such executives and his related recommendations is generally appropriate.

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Annual Executive Compensation Decision-Making Processes

The Compensation Committee conducts an annual review of the performance and compensation of each of our executive officers, including our Chief Executive Officer. This review is typically conducted over a series of Compensation Committee meetings toward the end and just after the end of the completed fiscal year, and is intended to coincide with the Company's annual Company-wide performance review process.

As discussed in further detail under "Executive Compensation Decisions and Processes - Establishing Annual Performance Goals" above, our Chief Executive Officer and certain members of senior management typically report to the Compensation Committee and the Board on the Company's overall performance on a regular basis throughout the year. At the end of the year, our Chief Executive Officer and certain members of the senior management team present the Compensation Committee with a proposed score based on the Company's actual performance as calculated against the performance goals and targets established by the Compensation Committee and the Board at the outset of the year. Because the Company's overall performance goals allow for some amount of subjective and qualitative assessment, there are typically a series of meetings and discussions among senior management, the Compensation Committee and the Board as to the exact and appropriate scoring of the Company's performance against the goals established by the Board at the outset of the year. At the conclusion of the foregoing discussions, the Compensation Committee exercises its discretion to determine a final Company performance score for the completed fiscal year. The Company's overall performance score is used to determine the size of the Company-wide bonus pool. In addition, the Company's annual performance score determines the Chief Executive Officer's bonus for the year. For other executive officers, the Compensation Committee reviews each individual executive's contribution and performance against the Company's corporate goals, as well as performance against any individual goals that may have been established, to determine his or her bonus for the year as discussed under "Establishing Annual Performance Goals" above. In addition, the Company has a policy that provides that no bonus awards will be issued in excess of 200% of the executive's target bonus.

As noted above, the Compensation Committee generally gives substantial weight to our Chief Executive Officer's views because he is in the best position to evaluate the performance of and determine the appropriate level at which each of the Company's executive officers should be compensated for past performance and to ensure that they remain incentivized and engaged. Given our pay-for-performance principles, the Compensation Committee determines each executive officer's final bonus amount by weighing the corporate score against each executive's performance during the applicable year. For our 2016 named executive officers (other than Mr. Heiden), each individual had 80% weight assigned to his or her corporate score. Notwithstanding this framework, the Compensation Committee may, in its discretion, increase or decrease an executive's bonus based on its assessment of his or her performance contribution or potential.

With respect to our Chief Executive Officer, he generally reports to the Compensation Committee and the Board on his performance for the completed fiscal year and they provide him feedback regarding that performance. The Compensation Committee generally considers all of the foregoing and makes a determination as to the appropriate level of his base salary, bonus and equity awards. Given that our Chief Executive Officer has ultimate operational responsibility for the overall performance of the Company, the Compensation Committee and the Board believe that his individual annual performance goals and the Company's overall annual performance goals should be the same and, therefore, that his bonus is entirely based on the Company's overall performance score.

Generally, at or around the time the Compensation Committee reviews and approves the bonus amount for the executives for the completed fiscal year, it also reviews the salary level of each executive and determines the amount of the annual equity grant to each executive for the then current fiscal year. In accordance with our executive compensation philosophy, the Compensation Committee seeks to ensure that each executive's salary and the value of the annual equity grant to each executive are competitive with that of similarly situated executives, to the extent such comparable positions exist.

Independent Compensation Consultants

Under its charter, the Compensation Committee is authorized to engage such independent advisors as it deems necessary or appropriate to carry out its responsibilities. The Compensation Committee conducts a thorough

independent review of the Company's overall executive compensation practices relative to its peer group, as well as the composition of the peer group itself, as frequently as every year, or as needed. Consistent with past practice, in September 2015, the Compensation Committee retained Radford to perform an executive compensation study for fiscal year 2016 and to provide ad hoc general compensation consulting and advisory services to the Compensation Committee during 2016, including, but not limited to, executive and equity compensation and incentive design. The Compensation Committee has assessed the independence of Radford pursuant to NASDAQ and SEC rules, including evaluating whether other services will be provided by Radford to the Company, the amount of the fees anticipated to be received by Radford, and Radford's policies and procedures designed to prevent conflicts

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of interest. Based on this evaluation, the Compensation Committee concluded that no conflict of interest exists that would prevent Radford from serving as an independent consultant to the Compensation Committee.

During 2016, our Senior Vice President of Human Resources engaged Radford as a resource to assist us in determining appropriate compensation packages for certain employees we hired during 2016, including Nicholas Grund. In total, fees paid to Radford during 2016 for these services, which were not related to Radford's work with our Compensation Committee, were not material.

In January 2016, Radford provided the Compensation Committee with a report in which Radford compared the overall compensation then provided by the Company to each of our executive officers, including annual salary, annual bonus opportunity, and annual equity grants against publicly available compensation information from 17 peer companies, described below, identified in consultation with senior management and the Compensation Committee (the "Radford Report"). The peer group companies were selected primarily on the basis of industry, market capitalization, stage of development, annual revenue and number of employees. In addition to publicly available proxy data from the selected peer group companies, Radford utilized its own proprietary market compensation data for the industry.

With input from senior management, the Compensation Committee discussed, reviewed and approved the following criteria, which Radford then used to develop a proposed updated peer group for purposes of the Compensation Committee's 2016 evaluation of our executive compensation practices:

- 17 publicly-traded U.S. companies to ensure a meaningful market sample;
- Similarity in business model, industry, complexity, and size;
- Market capitalization;
- Commercial stage companies with at least one approved drug product;
- Similar annual revenue; and
- Employee headcount.

Radford solicited input from senior management before making its final recommendation regarding the Company's peer group to the Compensation Committee. After review and discussion with Radford, the Compensation Committee accepted the recommendations proposed by Radford with respect to our compensation peer group. Accordingly the Compensation Committee based its 2016 executive compensation review utilizing the following peer group:

- Acorda Therapeutics, Inc.
- Akorn, Inc.*
- ARIAD Pharmaceuticals, Inc.*
- Depomed, Inc.
- Dyax Corp.
- Emergent BioSolutions, Inc.
- Horizon Pharma Public Limited Company
- Insys Therapeutics, Inc.
- Ironwood Pharmaceuticals, Inc.*
- Ionis Pharmaceuticals, Inc.*
- Medivation, Inc.*
- Nektar Therapeutics
- Pacira Pharmaceuticals, Inc.*
- Seattle Genetics, Inc.*
- Sucampo Pharmaceuticals, Inc.
- Supernus Pharmaceuticals, Inc.*
- The Medicines Company

* New addition to our peer group for purposes of determining 2016 executive compensation based on the Company's evolving parameters.

In addition, to the companies added to our peer group, as noted above, the following companies were removed from our peer group for purposes of determining 2016 executive compensation based on our evolving parameters, primarily due to our 2014 and 2015 acquisitions of Lumara Health and CBR, respectively: Aegerion Pharmaceuticals, Inc., Auxilium Pharmaceuticals, Inc., Avanir Pharmaceuticals, Inc., Hyperion Therapeutics, Inc., NPS Pharmaceuticals, Inc., SciClone Pharmaceuticals, Inc., Spectrum Pharmaceuticals, Inc. and Vivus, Inc.

The Radford Report confirmed that our then existing executive compensation practices were generally in line with our overall executive compensation philosophy. In particular, the Radford Report confirmed that we had been adhering to our philosophy that total executive compensation should be more heavily weighted toward long-term incentive compensation to

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ensure that the interests of our executives are aligned with those of our stockholders and that the proportion of total compensation at risk should rise as an executive's level of responsibility increases.

Summary of Executive Compensation

The following table sets forth for the fiscal years ended December 31, 2016, 2015 and 2014 compensation awarded, paid to, or earned by, our Chief Executive Officer (our principal executive officer), our Chief Financial Officer (our principal financial officer), our President and Chief Operating Officer (who served as our principal financial officer until April 2016), and our three other most highly compensated executive officers at December 31, 2016 (our "named executive officers").

SUMMARY COMPENSATION TABLE FOR THE 2016, 2015 and 2014 FISCAL YEARS

Name and Principal Position	Year	Salary (\$)(1)	Bonus (\$)	Stock Awards (\$)(2)	Option Awards (\$)(2)	Non-Equity Incentive Plan Compensation (\$)	All Other Compensation \$(3)	Total (\$)
William K. Heiden Chief Executive Officer	2016	632,107	—	906,480	931,787	543,500	7,950	3,021,824
	2015	583,719	—	1,483,800	1,257,954	399,600	7,950	3,733,023
	2014	534,610	—	698,378	838,666	579,200	7,800	2,658,654
Edward Myles(4) Chief Financial Officer, Senior Vice President of Finance & Treasurer	2016	276,923	34,300	(5) 491,600	(6)379,033	(6)115,726	7,950	1,305,532
Frank E. Thomas President and Chief Operating Officer	2016	510,877	—	428,060	438,488	372,180	7,950	1,757,555
	2015	474,861	—	618,250	524,148	216,700	7,950	1,841,909
	2014	435,831	—	487,078	302,206	321,300	7,800	1,554,215
Nicholas Grund(7) Chief Commercial Officer	2016	432,692	100,000	(8) 914,560	(6)567,824	(6)231,750	7,950	2,254,776
Julie Krop, M.D.(9) Chief Medical Officer and Senior Vice President, Clinical and Regulatory Affairs	2016	398,615	—	226,620	246,650	160,800	7,950	1,040,635
	2015	211,923	70,000	(10)1,513,820	(6)875,358	(6)69,200	6,358	2,746,659
Joseph D. Vittiglio(11) General Counsel, Senior Vice President, Legal Affairs, Technical Operations and Quality	2016	361,323	—	226,620	219,244	158,789	7,950	973,926
	2015	111,154	65,000	(12)864,000	(6)728,586	(6)51,000	3,785	1,823,525

(1) Amounts shown represent base salary amounts earned by our named executive officers in fiscal years 2016, 2015 and 2014. Salary increases generally occur once each year and are not retroactive to the beginning of that year. For

this reason, the amount earned by the named executive officer in a given fiscal year may be lower than such officer's base salary rate for the majority of the year.

The amounts shown do not reflect compensation actually received by the named executive officers but represent the aggregate grant date fair value of stock options or RSUs granted to our named executive officers and are calculated in accordance with current guidance under accounting for stock-based compensation, disregarding adjustments for the forfeitures. The assumptions used to value the stock option awards and RSUs whose vesting is contingent on market or performance conditions for all periods presented above are set forth in Note L to our Annual Report on Form 10-K for the year ended December 31, 2016 filed with the SEC on February 21, 2017. In the case of certain performance/market-based RSU grants awarded in August 2014 (the "2014 Performance Stock Awards"), the fair value is reported in 2014 for the probable outcome, which for this purpose was determined to be the target level of achievement of the performance conditions. The fair value of the 2014 Performance Stock Awards at the maximum level of achievement for each of Mr. Heiden and Mr. Thomas was \$483,450. For further information on the 2014 Performance Stock Awards, see footnote 6 to the "Outstanding Equity Awards at December 31, 2016" table below. The reported value of the time-based RSUs awarded was calculated by multiplying the closing market price of a share of our common stock on the grant date by the number of RSUs granted. Further information regarding our 2016 awards is included in the "Grants of Plan-Based Awards Table for the 2016 Fiscal Year" and "Outstanding Equity Awards at December 31, 2016" tables below.

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- (3) Represents Company 401(k) contributions for the applicable named executive officer.
Mr. Myles joined us in April 2016 and therefore compensation information is not provided for 2015 or 2014. Mr.
- (4) Myles' 2016 salary and bonus payments reflect a pro-rated amount for the time he was employed by the Company in 2016.
- (5) Reflects a one-time special bonus paid to Mr. Myles to recognize his significant contributions to the Company in 2016.
- (6) Reflects the value of RSUs and stock options that were granted as new hire awards in connection with the commencement of the named executive officer's respective employment with the Company.
- (7) Mr. Grund joined us in January 2016 and therefore compensation information is not provided for 2015 or 2014.
- (8) Reflects a sign-on bonus paid to Mr. Grund in connection with his joining the Company in January 2016, \$50,000 of which was paid in January 2016 and \$50,000 of which was paid in March 2017.
- (9) Dr. Krop joined us in June 2015 and therefore compensation information is not provided for 2014. Dr. Krop's 2015 salary and bonus payments reflect a pro-rated amount for the time she was employed by the Company in 2015.
- (10) Reflects a one-time special bonus paid to Dr. Krop to recognize her significant contributions to the Company's success in 2015.
Mr. Vittiglio joined us in August 2015 and therefore compensation information is not provided for 2014.
- (11) Mr. Vittiglio's 2015 salary and bonus payments reflect a pro-rated amount for the time he was employed by the Company in 2015.
Includes a one-time \$50,000 bonus paid to Mr. Vittiglio to recognize his contributions to the Company's success
- (12) in 2015 and a \$15,000 sign-on bonus paid to Mr. Vittiglio in connection with his joining the Company in August 2015.

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Grants of Plan-Based Awards

The following table sets forth grants of plan-based awards to each of our named executive officers for the year ended December 31, 2016. Grants of equity incentive plan awards to each named executive officer were made pursuant to our Equity Incentive Plan, unless otherwise noted, and grants of non-equity incentive plan awards to each named executive officer were made pursuant to the executive bonus program described below under "2016 Annual Cash Bonus."

GRANTS OF PLAN-BASED AWARDS TABLE FOR THE 2016 FISCAL YEAR

Name	Grant Date	Grant Type	Estimated Payouts Under Non-Equity Incentive Plan Awards	Estimated Possible Payouts Under Non-Equity Incentive Plan Awards	All Other Stock Awards: Number of Shares of Stock or Units (#)	All Other Option Awards: Number of Underlying Options (#)	Exercise or Base Price of Option Awards (\$)	Grant Date Fair Value of Stock and Option Awards (\$)(2)
William K. Heiden		Incentive Plan	543,490	1,086,980	—	—	—	—
	3/1/2016	Stock Options	—	—	—	85,000	25.18	931,787
	3/1/2016	RSUs	—	—	36,000	—	—	906,480
Edward Myles		Incentive Plan	115,720	231,440	—	—	—	—
	4/11/2016	Stock Options(3)	—	—	—	35,000	24.58	379,033
	4/11/2016	RSUs(3)	—	—	20,000	—	—	491,600
Frank E. Thomas		Incentive Plan	361,340	722,680	—	—	—	—
	3/1/2016	Stock Options	—	—	—	40,000	25.18	438,488
	3/1/2016	RSUs	—	—	17,000	—	—	428,060
Nicholas Grund		Incentive Plan	225,000	450,000	—	—	—	—
	1/4/2016	Stock Options(3)	—	—	—	45,000	28.58	567,824
	1/4/2016	RSUs(3)	—	—	32,000	—	—	914,560
Julie Krop, M.D		Incentive Plan	160,800	321,600	—	—	—	—
	3/1/2016	Stock Options	—	—	—	22,500	25.18	246,650
	3/1/2016	RSUs	—	—	9,000	—	—	226,620
Joseph D. Vittiglio		Incentive Plan	146,080	292,160	—	—	—	—
	3/1/2016	Stock Options	—	—	—	20,000	25.18	219,244
	3/1/2016	RSUs	—	—	9,000	—	—	226,620

(1) The amounts reported in these columns represent the 2016 target and maximum cash incentive compensation award potential for each named executive officer. Based on our policy that no bonus awards will be issued in excess of 200% of the executive's target bonus, for purposes of this table, we have assumed that the maximum bonus amount payable to any named executive officer is equal to 200% of his or her target bonus amount. The Board and the Compensation Committee do not establish threshold bonus amounts. In February 2017, the Compensation Committee determined each executive officer's bonus amounts, resulting in the payouts detailed in

the column labeled "Non-Equity Incentive Plan Compensation" in the Summary Compensation Table above. The target and maximum amounts reported for Mr. Myles are prorated based on his 2016 start date.

(2) Amounts shown represent the aggregate grant date fair value of stock options and RSUs granted to our named executive officers and are calculated in accordance with current guidance under accounting for stock-based compensation, disregarding adjustments for forfeitures. The reported value of the RSUs awarded in 2016 was calculated by multiplying the closing market price of a share of our common stock on the grant date by the number of RSUs granted. The fair value shown in the table may not be indicative of the value realized on the date the options are exercised or the RSUs vest due to variability in the share price of our common stock.

(3) These RSUs and stock options were granted to Mr. Myles and Mr. Grund as new hire awards in connection with the commencement of their respective employment with the Company during 2016. These grants were made outside of our stockholder approved equity plans in reliance on NASDAQ Listing Rule 5635(c)(4).

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Discussion of Summary Compensation and Grants of Plan-Based Awards Tables

2016 Base Salary

The Radford Report noted that for 2016 the majority of our named executive officers fell below the 50th percentile, as compared to Radford's market compensation data. As such, based on the Radford Report, in February 2016 the Compensation Committee approved merit increases between approximately 7.2% and 8.0% in order to align the base salaries of our named executive officers on or about the 50th percentile. Accordingly, the base salaries, on an annualized basis, of our named executive officers (other than Mr. Myles and Mr. Grund, who joined the Company in 2016) were increased, effective March 2016, as follows:

Name	2015	2016
	Base Salary (\$)	Base Salary (\$)
William K. Heiden	592,000	639,400
Edward Myles	N/A	400,000
Frank E. Thomas	481,600	516,200
Nicholas Grund	N/A	450,000
Julie Krop, M.D.	380,000	402,000
Joseph D. Vittiglio	340,000	365,200

2016 Annual Cash Bonus

Achievement of Overall Company Performance Goals

In accordance with the process detailed above under "Establishing Annual Performance Goals," and based on the recommendation of the Compensation Committee after consultation with senior management, in early 2016 the Board established the Company's 2016 performance goals, which also served as the 2016 performance goals of our Chief Executive Officer, Mr. Heiden. In early 2017, the Compensation Committee scored the 2016 goals and awarded the Company 100 out of 100 points based on the following conclusions:

40 out of a targeted 40 points were awarded for the Company's financial performance achievements. The Company recognized approximately \$550.0 million of net product and non-GAAP services sales during 2016, which resulted in above-targeted points for this goal. Non-GAAP services included \$17.0 million of purchase accounting adjustments related to CBR deferred revenue. However, the above-target top-line sales performance was offset by below-target results for falling slightly below its 2016 adjusted EBITDA goal. Adjusted EBITDA for 2016 was \$266.0 million and reflects net income under U.S. Generally Accepted Accounting Principles adjusted to account for purchase accounting adjustments, depreciation and amortization, net interest expense, provision for income taxes, stock-based compensation and certain other non-cash and non-recurring adjustments. These results exclude costs associated with the license transactions for Intrarosa or bremelanotide, as these transactions were not contemplated at the time the goals were established.

20 out of a targeted 20 points were awarded for the Company's next generation development program goals. The Company received a below-target score for its Makena auto-injector program, which was offset by above-target points awarded to recognize the completion of enrollment in the Feraheme label expansion study well ahead its 2016 goal.

24 out of a targeted 20 points were awarded for the Company's achievement of portfolio expansion goals based on the license of bremelanotide, a late-stage product opportunity with significant commercial opportunity, expanding the Company's women's health portfolio.

16 out of a targeted 20 points were awarded for the Company's manufacturing and human resources goals. The Company was awarded below-targeted points for its manufacturing goals as a result of a slight delay from the original planned timeline in establishing a second source manufacturing supplier for Feraheme. The Company was awarded below-target points for organizational development goals primarily due to delayed progress on the integration of certain technology solutions to be implemented across the organization.

2016 Individual Performance Goals

As discussed above, Mr. Heiden's individual annual performance goals are the same as the Company's overall performance goals. Accordingly, Mr. Heiden's 2016 performance score was 100% and the Compensation Committee therefore awarded Mr. Heiden 100% of his target bonus amount.

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Mr. Myles' individual achievements included several high quality staff additions, substantial progress on a large system upgrade project and strong cross-functional collaboration. Based in part on the recommendation of Mr. Heiden, the Compensation Committee determined that Mr. Myles had achieved 100% of his individual performance goals. After reviewing Mr. Myles' performance in light of the Company's performance score of 100%, the Compensation Committee awarded Mr. Myles 100% of his target bonus amount, prorated for the time he was with the Company in 2016. In addition, Mr. Myles received a special bonus of \$34,300 to recognize his contributions to the Company in 2016.

Mr. Thomas' individual achievements included progress in business development, including the bremelanotide licensing agreement, and his overall leadership of the Company's operations. Based in part on the recommendation of Mr. Heiden, the Compensation Committee determined that Mr. Thomas had exceeded his individual objectives and was determined to have achieved his individual performance goals at 115%. After reviewing Mr. Thomas' performance in light of the Company's performance score of 100%, the Compensation Committee awarded Mr. Thomas 103% of his target bonus amount.

Mr. Grund's individual achievements included achieving revenue growth of 27% in 2016 over 2015, primarily due to Makena sales growth of 33%. Based in part on the recommendation of Mr. Heiden, the Compensation Committee determined that Mr. Grund had exceeded his individual objectives and was determined to have achieved his individual performance goals at 115%. After reviewing Mr. Grund's performance in light of the Company's performance score of 100%, the Compensation Committee awarded Mr. Grund 103% of his target bonus amount. In addition, Mr. Grund received a sign-on bonus of \$100,000 when he joined the Company in 2016, \$50,000 of which was paid in January 2016 and \$50,000 of which was paid in March 2017.

Dr. Krop's individual achievements included leadership of the Company's scientific due diligence on numerous potential and completed business development opportunities considered by us in 2016, as well as completion of the Makena subcutaneous auto-injector pharmacokinetic study and full enrollment (six months ahead of schedule) of the Feraheme label expansion study. Based in part on the recommendation of Mr. Heiden, the Compensation Committee determined that Dr. Krop had achieved 100% of her individual performance goals. After reviewing Dr. Krop's performance in light of the Company's performance score of 100%, the Compensation Committee awarded Dr. Krop 100% of her target bonus amount.

Mr. Vittiglio's individual achievements included his contributions in key business development negotiations, oversight of commercial contracting and other legal matters. He also provided strong support to the various committees of the Board and successfully led key projects, including the Company's enterprise risk management program. Based in part on the recommendation of Mr. Heiden, the Compensation Committee determined that Mr. Vittiglio exceeded his individual objectives and was determined to have achieved his individual performance goals at 120%. After reviewing Mr. Vittiglio's performance in light of the Company's performance score of 100%, the Compensation Committee awarded Mr. Vittiglio 104% of his target bonus amount.

Actual 2016 Annual Cash Bonus

In February 2017, the Compensation Committee approved, based on the performance results discussed above, a 2016 performance bonus to each of the named executive officers as follows:

Name	2016 Target Bonus (as a % of Base Salary)(1)	2016 Target Bonus (\$)	2016 Target Bonus Percentage Awarded	2016 Actual Annual Bonus (\$)
William K. Heiden	85%	543,490	100%	543,500
Edward Myles(2)	40%	115,720	100%	115,726
Frank E. Thomas	70%	361,340	103%	372,180
Nicholas Grund	50%	225,000	103%	231,750
Julie Krop, M.D.	40%	160,800	100%	160,800
Joseph D. Vittiglio	40%	146,080	104%	158,789

In February 2016, the Compensation Committee, in connection with its overall compensation review of our named executive officers and based on the recommendation of Radford, determined the 2016 target bonus as a percentage (1) of base salary for each of our named executive officers. As a result of this evaluation and to align the total cash compensation of Mr. Heiden and Mr. Thomas on or about the 50th percentile, the Compensation Committee increased the target bonus

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percentage of Mr. Heiden and Mr. Thomas from 70% to 85% and from 50% to 70%, respectively. Mr. Myles' target bonus was set pursuant to his April 2016 employment agreement.

(2) Mr. Myles' bonus payment reflects a pro-rated amount for the time he was employed by the Company in 2016.
2016 Annual Equity Awards

The Company's philosophy is to award a portion of each executive's total annual equity grant to executives in the form of a mix of stock options and RSUs, with the value of the annual equity awards at or above the 50th percentile relative to similarly situated executives in our peer group. Accordingly, based upon recommendations contained in the Radford Report and Mr. Heiden (with respect to the executive officers other than Mr. Heiden), in February 2016, the Compensation Committee awarded our executive officers with a stock option grant and a time-based RSU grant (detailed below), which when combined, and valuing the RSUs at a ratio of one-to-two as compared to stock options, provided the executive officers an award at approximately the 50th percentile as compared to Radford's market compensation data.

Mr. Myles and Mr. Grund did not receive annual equity awards, as they received new hire awards when they began employment with the Company, as discussed below.

Stock options to purchase the following number of shares of our common stock pursuant to our Equity Incentive Plan at an exercise price of \$25.18, which was the fair market value of a share of our common stock on the date of grant. These options have a ten-year term and vest over four years after the grant date as follows: (a) 25% on the first anniversary of the grant date and (b) equal quarterly installments over the next three years thereafter.

Name	Number of Shares
William K. Heiden	85,000
Frank E. Thomas	40,000
Julie Krop, M.D.	22,500
Joseph D. Vittiglio	20,000

An RSU grant covering the following number of shares of our common stock pursuant to our Equity Incentive Plan. These RSUs vest in equal installments over a three-year period beginning on the first anniversary of the grant date.

Name	Number of Shares
William K. Heiden	36,000
Frank E. Thomas	17,000
Julie Krop, M.D.	9,000
Joseph D. Vittiglio	9,000

Upon their respective start dates, based upon compensation survey data compiled by Radford, Mr. Myles and Mr. Grund received the following equity awards:

Name	Stock Options (#)	Exercise Price (\$)	RSUs (#)
Edward Myles	35,000	24.58	20,000
Nicholas Grund	45,000	28.58	32,000

The awards detailed above were granted outside of our stockholder-approved equity plans. The stock option awards vest in four annual equal installments beginning on the first anniversary of the date of grant, and have a ten-year term. The RSUs vest in three annual equal installments beginning on the first anniversary of the date of grant. In addition, in line with our compensation philosophy, these new hire equity awards were, by design, more heavily weighted with stock options versus RSUs. In the case of Mr. Myles, his stock option awards totaled 64% of his total equity award and his RSUs totaled 36% of his total equity award. In the case of Mr. Grund, his stock option awards totaled 58% of his total equity awards and his RSUs totaled 42% of his total equity awards.

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OUTSTANDING EQUITY AWARDS AT DECEMBER 31, 2016

The following table sets forth certain information regarding outstanding equity awards held by each of our named executive officers at December 31, 2016:

Name	Grant Date	Option Awards(1)			Option Expiration Date(1)	Stock Awards(1)			
		Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price (\$)(1)		Number of Shares or Units of Stock That Have Not Vested (#)(1)	Market Value of Shares or Units of Stock That Have Not Vested (\$)(2)	Equity Incentive Plan Awards: Number of Unearned Shares, or Other Rights That Have Not Vested (#)	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, or Other Rights That Have Not Vested (\$)(2)
William K. Heiden	5/14/2012	210,000(3)(4)	—	12.99	5/14/2022	—	—	—	—
	2/28/2013	80,906	5,394	16.55	2/28/2023	—	—	—	—
	2/28/2013	—	—	—	—	3,600 (4)	125,280 (4)	—	—
	2/27/2014	64,487	29,313	21.13	2/27/2024	—	—	—	—
	2/27/2014	—	—	—	—	7,800 (4)	271,440 (4)	—	—
	8/19/2014	—	—	—	—	5,000 (5)	174,000 (5)	—	—
	8/19/2014	—	—	—	—	—	—	13,700 (6)	476,760 (6)
	2/26/2015	26,250	33,750	49.46	2/26/2025	—	—	—	—
	2/26/2015	—	—	—	—	20,001	696,035	—	—
	3/1/2016	—	85,000	25.18	3/1/2026	—	—	—	—
	3/1/2016	—	—	—	—	36,000	1,252,800	—	—
Edward Myles	4/11/2016	—	35,000 (3)(4)	24.58	4/11/2026	—	—	—	—
	4/11/2016	—	—	—	—	20,000(3)(4)	696,000	—	—
Frank E. Thomas	8/1/2011	45,000 (4)	—	14.91	8/1/2021	—	—	—	—
	2/28/2013	35,156	2,344	16.55	2/28/2023	—	—	—	—
	2/28/2013	—	—	—	—	1,575 (4)	54,810 (4)	—	—
	2/27/2014	23,237	10,563	21.13	2/27/2024	—	—	—	—
	2/27/2014	—	—	—	—	2,800 (4)	97,440 (4)	—	—
	8/19/2014	—	—	—	—	5,000 (5)	174,000 (5)	—	—
	8/19/2014	—	—	—	—	—	—	13,700 (6)	476,760 (6)

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	2/26/2015	10,937	14,063	49.46	2/26/2025	—	—	—	—
	2/26/2015	—	—	—	—	8,334	290,023	—	—
	3/1/2016	—	40,000	25.18	3/1/2026	—	—	—	—
	3/1/2016	—	—	—	—	17,000	591,600	—	—
Nicholas Grund	1/4/2016	—	45,000	(3)(4)28.58	1/4/2026	—	—	—	—
	1/4/2016	—	—	—	—	32,000	(3)(4)1,113,600	—	—
Julie Krop, M.D.	6/1/2015	7,500	(3)(4)22,500	(3)(4)68.81	6/1/2025	—	—	—	—
	6/1/2015	—	—	—	—	14,668	(3)(4)510,446	(3)—	—
	3/1/2016	—	22,500	25.18	3/1/2026	—	—	—	—
	3/1/2016	—	—	—	—	9,000	313,200	—	—
Joseph D. Vittiglio	8/24/2015	7,500	(3)(4)22,500	(3)(4)57.60	8/24/2025	—	—	—	—
	8/24/2015	—	—	—	—	10,001	(3)(4)348,035	(3)—	—
	3/1/2016	—	20,000	25.18	3/1/2026	—	—	—	—
	3/1/2016	—	—	—	—	9,000	313,200	—	—

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- Unless otherwise specified: (a) all option and RSU awards were granted under our Equity Incentive Plan; (b) all option awards have a ten-year term; (c) all option awards vest over four years from the grant date, with 25% vesting on the first anniversary of the grant date and the remainder vesting in equal quarterly installments over the next three years thereafter; and (d) all RSU awards vest in equal annual installments over a three-year period beginning on the first anniversary of the grant date. In addition, the exercise price for all stock option awards set forth in this table is the fair market value of a share of our common stock on the date of grant.
- (1) Each RSU entitles the holder thereof to receive one share of our common stock for each RSU granted upon vesting or settlement. The market value is calculated by multiplying \$34.80, the closing price of a share of our common stock on the last trading day of 2016 (December 30, 2016) as reported on NASDAQ, by the number of unvested shares or units.
- (2) Represents a new hire grant awarded outside of our stockholder approved equity plans in reliance on NASDAQ Listing Rule 5635(c)(4).
- (3) This award vests in equal annual installments over a four-year period beginning on the first anniversary of the grant date.
- (4) This award vested in two equal installments on each of January 4, 2016 and January 2, 2017. This award vested upon the achievement of certain strategic initiatives related to the timing and value of the Company's portfolio expansion activities and AMAG's share price, in each case measured as of both January 4, 2016 and January 2, 2017. In January 2016, the Compensation Committee determined that based on the achievement of the strategic initiatives at the maximum level of performance and then adjusted by the achievement of the share price at the target level of performance as of January 4, 2016, the performance metrics approximated achievement at 61.5% of the maximum level. Accordingly, 18,460 shares were deemed eligible RSUs, 50% of which (9,230 shares) were delivered to each of Mr. Heiden and Mr. Thomas in January 2016. In January 2017, the Compensation Committee determined that as of January 2, 2017, the second vesting date, based on the achievement of the strategic initiatives at the maximum level of performance and then adjusted by the achievement of the share price at the target level of performance, each of Mr. Heiden and Mr. Thomas earned 76.4% of the maximum level (229% of target), or 22,930 total shares, of which 13,700 shares were due to be delivered to each of Mr. Heiden and Mr. Thomas as of January 2017.

OPTION EXERCISES AND STOCK VESTED IN FISCAL 2016

The following table sets forth certain information regarding option exercises and stock vested during the year ended December 31, 2016 with respect to each of our named executive officers:

Name	Option Awards		Stock Awards	
	Number of Shares Acquired on Exercise (#)	Value Realized (\$)	Number of Shares Acquired on Vesting (#)	Value Realized (\$)(1)
William K. Heiden(2)(4)	—	—	56,729	1,311,122
Edward Myles	—	—	—	—
Frank E. Thomas(3)(4)	—	—	21,371	576,081
Nicholas Grund	—	—	—	—
Julie Krop, M.D.	—	—	7,332	162,257
Joseph D. Vittiglio	—	—	4,999	124,225

- (1) Unless otherwise specified, value is calculated by multiplying the number of underlying shares by the closing price of a share of our common stock on the vesting date.

(2) Pursuant to certain RSU award arrangements and due to the timing of Company blackout periods, the delivery of certain shares to Mr. Heiden was deferred for a period of time past the vesting date. Therefore, the realized value of 14,230 RSUs was determined using the stock prices on the respective dates the shares underlying such RSUs were delivered.

(3) Pursuant to certain RSU award arrangements and due to the timing of Company blackout periods, the delivery of certain shares to Mr. Thomas was deferred for a period of time past the vesting date. Therefore, the realized value of 14,230 RSUs was determined using the stock prices on the respective dates the shares underlying such RSUs were delivered.

(4) Includes 9,230 shares acquired on vesting of Messrs. Heiden and Thomas' 2014 Performance Stock Award. This award vested upon the achievement of certain strategic initiatives related to the timing and value of the Company's portfolio expansion activities and AMAG's share price, in each case measured as of both January 4, 2016 and January 2, 2017. In

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January 2016, the Compensation Committee determined that 18,460 shares were deemed eligible RSUs, 50% of which (9,230 shares) were due to be delivered to each of Mr. Heiden and Mr. Thomas in January 2016 and included in the table above. In January 2017, the Compensation Committee determined that as of January 2, 2017, the second vesting date, each of Mr. Heiden and Mr. Thomas earned 76.4% of the maximum level, or 22,930 total shares, of which 13,700 shares were delivered to each of Mr. Heiden and Mr. Thomas in January 2017. Of the 13,700 shares, 9,230 shares were earned in 2016.

CHANGE OF CONTROL AND SEVERANCE COMPENSATION

Our change of control and severance compensation arrangements are designed to meet the following objectives:

Change of Control

Our philosophy is that appropriate provision should be made for our executive officers both upon the occurrence of a change of control of the Company and in the event their employment is terminated within one year following such a change of control. We believe that providing severance compensation if an executive officer is terminated as a result of a change of control promotes the ability of our executives to act in the best interests of our stockholders even where a transformative transaction may result in termination of the executive's employment. We also believe that these mutually-agreed to severance arrangements are appropriate because they are necessary to recruit, retain and motivate key executive talent.

Termination Without Cause

Our philosophy is that appropriate provision should be made for our executive officers in the event of a termination of their employment with us without cause or if they resign for good reason. We believe that providing such severance compensation encourages our executives to exercise independent business judgment in what they believe to be in the best interests of the Company and those of our stockholders without concern of being terminated without appropriate compensation. We also believe that these mutually-agreed to severance arrangements are appropriate because they are necessary to recruit, retain and motivate key executive talent.

Chief Executive Officer

We have entered into an employment agreement with Mr. Heiden, which provides that in the event that we terminate the employment of Mr. Heiden, other than for death, disability or cause, or Mr. Heiden resigns for good reason, and he has complied with all his obligations under all agreements with us and signs a general release of claims in a form acceptable to us, then we are obligated to pay severance to Mr. Heiden in an amount equal to 24 months of his then current base salary, paid in equal installments over the severance period in accordance with our usual payroll schedule. In addition, all time-based stock options and other time-based equity awards which would have vested if Mr. Heiden had been employed for an additional 24 months following the date of termination will vest. These provisions are not applicable during the one-year period following a change of control.

Further, in the event that upon a change of control, the Company or the successor to or acquirer of the Company's business elects not to assume all the then unvested outstanding stock options, RSUs and other equity incentives that were granted to Mr. Heiden prior to the change of control, such securities will become vested in full as of the date of the change of control.

In addition, in the event that within one year from the date a change of control of the Company occurs, we or our successor terminates the employment of Mr. Heiden other than for death, disability or cause, or Mr. Heiden resigns for good reason, and he has complied with all his obligations under all agreements with us and signs a general release of claims in a form acceptable to us or our successor, then we or our successor are obligated to provide Mr. Heiden with the following benefits post-termination pursuant to his employment agreement:

• 24 months of base salary, paid in equal installments over the severance period in accordance with our usual payroll schedule;

• A lump sum equal to two times Mr. Heiden's target annual bonus amount for the year in which the change of control occurs;

• Payment or reimbursement of the premiums for continued health and dental benefits until the earlier of (a) 12 months following termination and (b) health and dental coverage being provided to Mr. Heiden under another employer's health and dental plans; and

The full acceleration of vesting of any time-based unvested outstanding stock options, RSUs and other equity incentives that were granted before such change of control.

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In addition, Mr. Heiden's employment agreement contains a provision which provides that any payments otherwise due to Mr. Heiden in connection with a change of control shall be reduced to the extent necessary so that no excise taxes would be due on any such payment.

Mr. Heiden's employment agreement also provides that, in the event of the death or permanent disability of Mr. Heiden, all unvested equity awards then held by him shall become immediately vested in full. In addition, in the event of his death, Mr. Heiden's estate shall be eligible to receive a pro rata portion of his performance bonus for such year based upon the Board's determination of progress against corporate performance objectives as of the time of Mr. Heiden's death.

Mr. Heiden is also subject to the terms of a Non-Disclosure, Non-Competition, Non-Solicitation, and Invention Assignment Agreement with us, and the terms of this agreement survive the termination of Mr. Heiden's employment for a period of one year.

Other Named Executive Officers

We have entered into employment agreements with all of our other named executive officers. These employment agreements provide that, in the event that we terminate the named executive officer's employment, other than for death, disability or cause, or he or she resigns for good reason, and he or she has complied with all his obligations under all agreements with us and signs a general release of claims in a form acceptable to us, then we are obligated to pay severance to the executive in an amount equal to 12 months of his or her then current base salary, paid in equal installments over the severance period in accordance with our usual payroll schedule. In addition, all time-based stock options and other time-based equity awards which would have vested if the executive had been employed for an additional 12 months following the date of termination will vest. These provisions are not applicable during the one-year period following a change of control. In addition, certain RSUs granted to the named executive officers contain terms that provide for acceleration of a portion of the outstanding RSUs in the event that we terminate the named executive officer's employment, other than for death, disability or cause, or he or she resigns for good reason. Further, in the event that upon a change of control, the Company or the successor to or acquirer of the Company's business elects not to assume all the then unvested outstanding stock options, RSUs and other equity incentives that were granted to the executive officer prior to the change of control, such securities will become vested in full as of the date of the change of control.

In addition, in the event that within one year from the date a change of control of the Company occurs, we or our successor terminates the employment of the named executive officer, other than for death, disability or cause, or he or she resigns for good reason, and he or she has complied with all his obligations under all agreements with us and signs a general release of claims in a form acceptable to us or our successor, then we or our successor, are obligated to provide the executive with the following benefits post-termination pursuant to their respective employment agreements:

• 12 months of base salary, paid in equal installments over the severance period in accordance with our usual payroll schedule;

• A lump sum equal to one times the executive's target annual bonus amount for the year in which the change of control occurs;

• Payment or reimbursement of the premiums for continued health and dental benefits until the earlier of (a) 24 months following termination and (b) health and dental coverage being provided to the executive under another employer's health and dental plan; and

• The full acceleration of vesting of any time-based unvested outstanding stock options, RSUs and other equity incentives that were granted before such change of control.

In addition, these employment agreements contain a provision which allows any payments otherwise due to the executive in connection with a change of control to be modified to the extent necessary to provide the best economic outcome on such payments, but only if such reduction would result in the executive retaining a larger portion of such

payments on an after-tax basis than if no reduction was made and the excise taxes had been paid. These employment agreements also provide that, in the event of the death or permanent disability of the executive, all unvested equity awards then held by such executive shall become immediately vested in full. In addition, in the event of the executive's death, such named executive officer's estate shall be eligible to receive a pro rata portion of such officer's performance bonus for such year based upon the Board's determination that any individual performance objectives were met as of the time of such officer's death.

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Our named executive officers are also subject to the terms of a Non-Disclosure, Non-Competition, Non-Solicitation, and Invention Assignment Agreement with us, and the terms of these agreements survive the termination of the named executive officer's employment for a period of one year.

2014 Performance Stock Award

Pursuant to the terms of the 2014 Performance Stock Award, if Messrs. Heiden and Thomas' employment terminates within 12 months of a change of control other than for death, disability or cause, or Messrs. Heiden and Thomas resign for good reason on or following January 4, 2016 but prior to January 2, 2017, Messrs. Heiden and Thomas' 2014 Performance Stock Award will vest at the greater of (i) 100% of target or (ii) the level of payout based on the satisfaction of performance goals as of January 4, 2016. In January 2016, the Compensation Committee determined that as of January 4, 2016, the first vesting date, based on the achievement of the strategic initiatives at the maximum level of performance and then adjusted by the achievement of the share price at the target level of performance, Messrs. Heiden and Thomas each earned 61.5% of the maximum level. Accordingly, 18,460 shares were deemed eligible RSUs, 50% of which (9,230 shares) were delivered in January 2016 to each of Messrs. Heiden and Thomas. In January 2017, the Compensation Committee determined that as of January 2, 2017, the second vesting date, based on the achievement of the strategic initiatives at the maximum level of performance and then adjusted by the achievement of the share price at the target level of performance, Messrs. Heiden and Thomas each earned 76.4% of the maximum level, or 22,930 total shares, of which 13,700 shares were due to be delivered to each of Messrs. Heiden and Thomas in January 2017.

POTENTIAL PAYMENTS UPON TERMINATION OR CHANGE OF CONTROL

The table below sets forth the estimated amount of payments and other benefits each named executive officer would have been entitled to receive upon the occurrence of the indicated event, assuming that the event occurred on December 31, 2016. The information is provided relative to the named executive officer's termination or change of control policies or arrangements in place on such date. The values relating to vesting of stock options and RSU awards are based upon a per share fair market value of our common stock of \$34.80, the closing price of a share of our common stock as reported on NASDAQ on December 30, 2016. Actual payments made at any future date will fluctuate based on various factors, including salary and bonus levels, the vesting schedules of the various equity-based awards, and the price of our common stock at the time of termination or change of control.

Name	Salary and Other Cash Payments (\$)(1)	Vesting of Stock Options (\$)(2)	Vesting of RSUs (\$)(3)	Health and Dental Benefits (\$)	Total (\$)
William K. Heiden					
Termination without cause or resignation for good reason other than in the context of a change of control	1,278,800	1,061,313	2,101,850	—	4,441,963
Termination without cause or resignation for good reason within 12 months following a change of control	2,365,780	1,316,849	2,840,759	23,629	6,547,017
Termination upon death	543,500	1,316,849	2,840,759	—	4,701,108
Termination upon disability	—	1,316,849	2,840,759	—	4,157,608
Edward Myles					
Termination without cause or resignation for good reason other than in the context of a change of control	400,000	89,425	231,977	—	721,402
Termination without cause or resignation for good reason within 12 months following a change of control	560,000	357,700	696,000	47,258	1,660,958
Termination upon death	150,026	357,700	696,000	—	1,203,726
Termination upon disability	—	357,700	696,000	—	1,053,700

Frank E. Thomas

Termination without cause or resignation for good reason other than in the context of a change of control	516,200	326,640	619,684	—	1,462,524
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Termination without cause or resignation for good reason within 12 months following a change of control	877,540	571,974	1,529,077	47,258	3,025,849
Termination upon death	372,180	571,974	1,529,077	—	2,473,231
Termination upon disability	—	571,974	1,529,077	—	2,101,051
Nicholas Grund					
Termination without cause or resignation for good reason other than in the context of a change of control	450,000	69,975	371,142	—	891,117
Termination without cause or resignation for good reason within 12 months following a change of control	675,000	279,900	1,113,600	47,258	2,115,758
Termination upon death	231,750	279,900	1,113,600	—	1,625,250
Termination upon disability	—	279,900	1,113,600	—	1,393,500
Julie Krop, M.D.					
Termination without cause or resignation for good reason other than in the context of a change of control	402,000	94,690	359,554	—	856,244
Termination without cause or resignation for good reason within 12 months following a change of control	562,800	216,450	823,646	—	1,602,896
Termination upon death	160,800	216,450	823,646	—	1,200,896
Termination upon disability	—	216,450	823,646	—	1,040,096
Joseph D. Vittiglio					
Termination without cause or resignation for good reason other than in the context of a change of control	365,200	84,175	278,365	—	727,740
Termination without cause or resignation for good reason within 12 months following a change of control	511,280	192,400	661,235	47,258	1,412,173
Termination upon death	158,789	192,400	661,235	—	1,012,424
Termination upon disability	—	192,400	661,235	—	853,635

(1) Amount represents the contractual amounts payable under the executive's employment agreement or as subsequently determined by the Compensation Committee.

(2) The amount shown in this column represents the difference between the exercise price and the fair market value of the accelerated options assuming a \$34.80 fair market value of a share of our common stock based on the reported closing price on NASDAQ on December 30, 2016. Any option with an exercise price of greater than \$34.80 was assumed to be cancelled for no consideration and, therefore, had no intrinsic value.

(3) The amount shown in this column was calculated by multiplying the executive's number of unvested shares at December 30, 2016 scheduled to vest upon the specified event by \$34.80, the fair market value of a single share of our common stock on December 30, 2016. Pursuant to the terms of the awards, 9,230 shares under the 2014 Performance Stock Awards, which were awarded to Mr. Heiden and Mr. Thomas, are included in the table above, which represents the level of payout based on the satisfaction of performance goals as of January 4, 2016, less the number of shares delivered to Mr. Heiden and Mr. Thomas in January 2016.

COMPENSATION RECOUPMENT/CLAWBACK

We have adopted a Policy for Recoupment of Incentive Compensation so that if the Company is required to prepare an accounting restatement due to our material non-compliance with any financial reporting requirements, then a committee of independent directors may require certain officers, including our named executive officers, to repay or forfeit any "excess compensation." "Excess compensation" refers to the portion of cash and equity-based incentive compensation received by a

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covered officer on or after the date the policy was adopted during the three-year period preceding the publication of the restated financial statements that the independent director committee determines was in excess of the amount that such officer would have received had such incentive compensation been determined based on the financial results reported in the restated financial statements. The policy also provides that the independent director committee may take into account any factors it deems reasonable in determining (1) whether to seek recoupment of previously paid excess compensation and (2) if so, how much excess compensation to recoup from the covered officer. Recouped amounts need not be the same amount or proportion for every covered officer and may reflect whether the committee concluded that a covered officer engaged in wrongdoing or committed grossly negligent acts or omissions.

EXECUTIVE STOCK OWNERSHIP GUIDELINES

The Board believes that it is important that our executives be incentivized to focus on long-term stockholder value to ensure that the executives' interests are aligned with those of our stockholders. Accordingly, the Board has adopted stock ownership guidelines to further align the interests of our executives with the interests of our stockholders and to promote our commitment to sound corporate governance.

Our stock ownership guidelines require all employees with a title of Senior Vice President or higher (each a "Covered Officer"), other than the Chief Executive Officer, to hold shares of our common stock with a value equal to one times the amount of his or her then-current annual base salary. Our Chief Executive Officer is required to hold shares of our common stock with a value equal to three times the amount of his or her then-current annual base salary. These ownership guidelines are calculated annually on the date of the annual meeting of stockholders based on the applicable annual base salary in effect on such calculation date. The value of a share will be measured on the date of our annual meeting of stockholders each year based on the average closing price over the 30 calendar days preceding the date of calculation. Such calculated ownership levels will be reported to the Governance and Risk Committee. Covered Officers are required to achieve the applicable level of ownership within five years of the later of the date the guidelines were adopted and the date the person first became a Covered Officer. In the event that a Covered Officer does not meet the foregoing stock ownership guidelines, such Covered Officer is prohibited from selling any stock acquired through vesting of RSUs or similar full-value awards or upon the exercise of stock options, except to pay for applicable taxes or the exercise price.

Shares that count toward satisfaction of the guidelines include shares owned outright by the Covered Officer or his or her immediate family members residing in the same household and shares held in trust for the benefit of the Covered Officer or his or her family. Unexercised and/or unvested equity awards do not count toward satisfaction of the guidelines.

Our stock ownership guidelines may be waived, at the discretion of the Board or the Governance and Risk Committee if compliance would create undue hardship or prevent a Covered Officer from complying with a court order, as in the case of a divorce settlement. It is expected that these instances will be rare.

401(K) PLAN

We provide a 401(k) Plan to our employees under which they may defer compensation for income tax purposes under Section 401(k) of the Code. Under our current 401(k) Plan, we provide a fully vested contribution equal to 3% of each employee's (including each named executive officer's) base salary and bonus payments for each plan year. All contributions to the 401(k) plan by or on behalf of employees, including the Company's 3% contribution, are subject to the aggregate annual limits prescribed by the Code.

TAX DEDUCTIBILITY OF EXECUTIVE COMPENSATION

Section 162(m) of the Code prohibits us from deducting compensation paid in any year to certain executives in excess of \$1 million but does not subject performance-based compensation to this limit. While our Board intends to design certain components of executive compensation to preserve deductibility under Section 162(m) of the Code, it believes that stockholder interests are best served by not restricting our Board's or the Compensation Committee's discretion and flexibility in crafting compensation programs, even though such programs may result in certain non-deductible compensation expenses. Accordingly, our Board and the Compensation Committee have from time to time approved, and our Board or the Compensation Committee may in the future approve, compensation arrangements for certain officers, including the grant of equity-based awards, that may not be fully deductible for federal corporate income tax

purposes.

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COMPENSATION COMMITTEE REPORT²

The Compensation Committee has reviewed the "Compensation Discussion and Analysis" section of this Proxy Statement and discussed such section with management. Based on its review and discussions and its ongoing involvement with executive compensation matters, the Compensation Committee recommended to the Board that the "Compensation Discussion and Analysis" section of this Proxy Statement be included in this Proxy Statement and incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2016. This report is provided by the following independent directors who comprise the Compensation Committee:

Lesley Russell, Chair

Barbara Deptula

John Fallon

Gino Santini

² The material in this report is not "soliciting material," is furnished to, but not deemed "filed" with, the SEC and is not deemed to be incorporated by reference in any filing of the Company under the Securities Act or the Exchange Act, other than the Company's Annual Report on Form 10-K, where it shall be deemed to be "furnished," whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

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PROPOSAL 4: ADVISORY VOTE ON THE FREQUENCY OF FUTURE ADVISORY VOTES ON NAMED EXECUTIVE OFFICER COMPENSATION

Under the Dodd-Frank Act and Section 14A of the Exchange Act, we are conducting a stockholder advisory vote on whether future "say-on-pay" advisory votes on executive compensation should occur every year, every two years, or every three years. Since we began holding an advisory "Say-on-Pay" vote in 2012, we have submitted our executive compensation to an advisory vote every year. After careful consideration, our Board has determined that an annual advisory vote on executive compensation continues to be the most appropriate alternative for our Company and, therefore, our Board recommends that you vote for a frequency of one-year intervals for future stockholder advisory votes on our executive compensation. We have found that an annual advisory vote on our executive compensation program enables our stockholders to provide regular, direct input to us regarding our executive compensation philosophy, policies and practices. We believe that an annual advisory vote will continue to enhance stockholder communication by providing a clear, simple means for us to ascertain general investor sentiment regarding our executive compensation program.

Accordingly, we ask our stockholders to vote "FOR" the approval, on an advisory basis, of our proposal that an advisory vote on the compensation of our named executive officers be held at an annual meeting of stockholders every year.

Vote Required

The frequency option that receives votes from the holders of at least a majority of shares present or represented and voting at the Annual Meeting will be considered the preferred frequency of future advisory votes on the compensation of our named executive officers by our stockholders. However, because this vote is advisory and not binding on the Board, the Compensation Committee, or the Company, the Board and the Compensation Committee may decide that it is in the best interests of our stockholders and the Company to hold an advisory vote on executive compensation more or less frequently than the option preferred by our stockholders.

OUR BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS A VOTE "FOR" THE PROPOSAL THAT AN ADVISORY VOTE ON THE COMPENSATION OF OUR NAMED EXECUTIVE OFFICERS BY OUR STOCKHOLDERS BE HELD EVERY YEAR.

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PROPOSAL 5: APPROVAL OF THE 2017 NOL RIGHTS AGREEMENT

Background and Purpose of the 2017 NOL Rights Agreement

At our 2015 annual meeting of stockholders held on May 21, 2015, our stockholders approved an amendment (the “NOL Amendment”) to our shareholder rights plan, that we originally entered into with American Stock Transfer & Trust Company, LLC, as Rights Agent, on September 4, 2009 (the “Original Rights Agreement” and as amended from time to time, including by the NOL Amendment, the “2014 NOL Rights Agreement”). The purpose of the NOL Amendment was to help preserve our substantial tax assets associated with net operating loss carryforwards and certain other deferred tax assets. The NOL Amendment shortened the expiration date of the Original Rights Agreement from September 17, 2019 to March 31, 2017, decreased the exercise price of the Rights (as defined below) from \$250 to \$80, and changed the definition of “beneficial ownership” to make the definition consistent with how ownership is defined under Section 382 of the Code (“Section 382”).

Following the expiration of the 2014 NOL Rights Agreement on March 31, 2017, we entered into a new shareholder rights agreement (the “2017 NOL Rights Agreement”) with American Stock Transfer & Trust Company, LLC, as Rights Agent on April 7, 2017. The 2017 NOL Rights Agreement is intended to help continue to preserve our substantial tax assets associated with net operating loss carryforwards and certain other deferred tax assets, and is essentially a restatement of the 2014 NOL Rights Agreement, but with an expiration date of April 6, 2018 (subject to earlier expiration as described below).

Our business operations have generated significant net operating losses and unrealized tax losses (collectively, “NOLs”), and we may generate additional NOLs in future years. Under federal tax laws, we generally can use our NOLs and certain related tax credits to offset ordinary income tax paid in our prior two tax years or on our future taxable income for up to 20 years, when they “expire” for such purposes. Until they expire, we can “carry forward” NOLs and certain related tax credits that we do not use in any particular year to offset taxable income in future years. As of December 31, 2016, we had approximately \$377.6 million of federal NOL carryforwards and up to \$122.0 million of state operating loss carryforwards. While we cannot estimate the exact amount of NOLs that we can use to reduce our future income tax liability because we cannot predict the amount and timing of our future taxable income, we believe our NOLs are very valuable assets.

Our ability to utilize our NOLs to offset future taxable income may be significantly limited if we experience an “ownership change,” as determined under Section 382. Under Section 382, an “ownership change” occurs if a stockholder or a group of stockholders that is deemed to own at least 5% of our outstanding stock increases its ownership by more than 50 percentage points over its lowest ownership percentage within a rolling three-year period. If an ownership change occurs, Section 382 would impose an annual limit on the amount of our NOLs that we can use to offset taxable income equal to the product of the total value of our outstanding equity immediately prior to the ownership change (reduced by certain items specified in Section 382) and the federal long term tax-exempt interest rate in effect for the month of the ownership change. A number of complex rules apply in calculating this annual limit.

If an ownership change were to occur, the limitations imposed by Section 382 could result in a material amount of our NOLs expiring unused and, therefore, significantly impair the value of our NOLs. While the complexity of Section 382’s provisions and the limited knowledge any public company has about the ownership of its publicly traded stock make it difficult to determine whether an ownership change has occurred, we do not currently believe that an ownership change has occurred. Accordingly, the 2017 NOL Rights Agreement is intended to reduce the likelihood of an ownership change. However, if no action is taken, we believe it is possible that we could experience an ownership change in the future.

The 2017 NOL Rights Agreement provides that the Rights (defined below) are not exercisable until the Distribution Date (as such term is defined in the 2017 NOL Rights Agreement) and will expire at the earliest of (i) April 6, 2018, (ii) the time at which the Rights are redeemed or exchanged, (iii) the effective date of the repeal of Section 382 or any successor statute if the Board determines that the 2017 NOL Rights Agreement is no longer necessary or desirable for the preservation the Company's tax benefits, (iv) the first day of a taxable year of the Company to which the Board determines that no tax benefits may be carried forward or (v) the day of our Annual Meeting (or any adjournments or postponements thereof) if our stockholders do not approve the 2017 NOL Rights Agreement at the Annual Meeting.

Material Features of the 2017 NOL Rights Agreement

On April 6, 2017, our Board declared a dividend of one preferred share purchase right (a "Right"), for each outstanding share of our common stock. The dividend will be effective as of April 17, 2017 (the "Rights Record Date"), with respect to the stockholders of record on that date. The Rights also attached to new common shares issued after the Rights Record Date. Each Right entitles the registered holder to purchase from AMAG one one thousandth of a share of Series A Junior Participating Preferred Stock, par value \$0.01 per share (the "Preferred Shares") of AMAG at a price of \$80 per one one-thousandth of a

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Preferred Share (the “Purchase Price”), subject to adjustment. Each Preferred Share is designed to be the economic equivalent of 1,000 common shares. The description and terms of the Rights are set forth in the 2017 NOL Rights Agreement.

Detachment and Transfer of Rights

Initially, the Rights are evidenced by the stock certificates representing common shares then outstanding, and no separate Right Certificates will be distributed. Until the earlier to occur of (i) the 10th day after a public announcement that a person or group of affiliated or associated persons, has become an “Acquiring Person” (as such term is defined in the 2017 NOL Rights Agreement) or (ii) 10 business days (or such later date as our Board may determine) following the commencement of, or announcement of an intention to make, a tender offer or exchange offer which would result in the beneficial ownership by an Acquiring Person of 4.99% (or, in the case of a Grandfathered Person, the Grandfathered Percentage applicable to such Grandfathered Person) or more of the outstanding common shares (the earlier of such dates being called the “Distribution Date”), the Rights will be evidenced, with respect to any of the common share certificates outstanding as of the Rights Record Date, by such common share certificate. Generally, the 2017 NOL Rights Agreement provides that any person or group (a “Grandfathered Person”), which beneficially owned 4.99% or more of our outstanding common shares as of 6:30 a.m., New York city time, on April 10, 2017 (the “Grandfathered Time”) (the percentage of such ownership, referred to as the “Grandfathered Percentage”) will not be deemed an “Acquiring Person” unless such Grandfathered Person exceeds its Grandfathered Percentage by more than 1/4%. If any Grandfathered Person shall sell, transfer or otherwise dispose of any outstanding common shares after the Grandfathered Time or if the percentage of our outstanding common shares that such Grandfathered Person beneficially owns is reduced as a result of the issuance of additional securities of AMAG, the related Grandfathered Percentage shall, subsequent to such sale, transfer, disposition or dilutive event, mean, with respect to the Grandfathered Person, the lesser of (a) the Grandfathered Percentage as in effect immediately prior to such sale, transfer, disposition or dilutive event or (b) the percentage of outstanding AMAG common shares that such Grandfathered Person beneficially owns immediately following such sale, transfer, disposition or dilutive event, plus an additional 1/4%; provided, however, if at any time after the Grandfathered Time, such Grandfathered Person is the beneficial owner of less than 4.99% of our outstanding common shares, then such person or group (including any affiliate or associate of such person or group) will cease to be a Grandfathered Person.

Additionally, the 2017 NOL Rights Agreement provides that any person who desires to effect any acquisition of our common shares that would, if consummated, result in such person (together with its affiliates and associates) beneficially owning 4.99% (or, in the case of a Grandfathered Person, the Grandfathered Percentage) or more of the then outstanding common shares (a “Requesting Person”), may, prior to the Shares Acquisition Date (as defined in the 2017 NOL Rights Agreement), and in accordance with this the 2017 NOL Rights Agreement, request that our Board grant an exemption with respect to such acquisition under the 2017 NOL Rights Agreement (an “Exemption Request”). Our Board will only grant an exemption in response to an Exemption Request if our Board determines, in its sole discretion, that the acquisition of beneficial ownership of our common shares by the Requesting Person will not jeopardize or endanger the availability to AMAG of any tax benefits. Any exemption granted may be granted in whole or in part, and may be subject to limitations or conditions (including that the exemption be of a limited duration, a requirement that the Requesting Person agree that it will not acquire beneficial ownership of our common shares in excess of the maximum number and percentage of shares approved by our Board or that it will not make another Exemption Request), in each case as and to the extent our Board shall determine necessary or desirable to provide for the protection of our tax benefits.

The 2017 NOL Rights Agreement provides that, until the Distribution Date (or earlier redemption or expiration of the Rights), the Rights are transferable with and only with our common shares. Until the Distribution Date (or earlier redemption or expiration of the Rights), new common share certificates issued after the Rights Record Date upon

transfer or new issuance of our common shares will contain a notation incorporating the 2017 NOL Rights Agreement by reference. Until the Distribution Date (or earlier redemption or expiration of the Rights), the surrender or transfer of any certificates for our common shares outstanding as of the Rights Record Date will also constitute the transfer of the Rights associated with the common shares represented by such certificate. As soon as practicable following the Distribution Date, separate certificates evidencing the Rights (the "Right Certificates") will be mailed to holders of record of our common shares as of the close of business on the Distribution Date and such separate Right Certificates alone will evidence the Rights.

Exercisability of Rights

The Rights are not exercisable until the Distribution Date. The Rights will expire on the Final Expiration Date (defined below), unless the Final Expiration Date is extended or unless the Rights are earlier redeemed or exchanged by AMAG, in each case as described below. Until a Right is exercised, the holder thereof, as such, will have no rights as a stockholder of AMAG, including, without limitation, the right to vote or to receive dividends. The Final Expiration Date means the earliest of the close of business on (1) April 6, 2018, (2) the effective date of the repeal of Section 382 or any successor statute if the Board

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determines that this 2017 NOL Rights Agreement is no longer necessary or desirable for the preservation of tax benefits, (3) the first day of a taxable year of AMAG to which our Board determines that no Tax Benefits may be carried forward or (4) the day of our Annual Meeting (or any adjournments or postponements thereof) if our stockholders do not approve the 2017 NOL Rights Agreement at the Annual Meeting.

The Purchase Price payable, and the number of Preferred Shares or other securities or property issuable or payable, upon exercise of the Rights are subject to adjustment from time to time to prevent dilution. The number of outstanding Rights and the number of one one thousandths of a Preferred Share issuable upon exercise of each Right are also subject to adjustment in the event of a stock split of our common shares or a stock dividend on the common shares payable in common shares ("subdivisions"), consolidations or combinations of the common shares occurring, in any such case, prior to the Distribution Date. With certain exceptions, no adjustment in the Purchase Price will be required until cumulative adjustments require an adjustment of at least 1% in such Purchase Price. No fractional Preferred Shares will be issued (other than fractions which are integral multiples of one one thousandth of a Preferred Share, which may, at AMAG's election, be evidenced by depositary receipts) and in lieu thereof, an adjustment in cash will be made based on the market price of the Preferred Shares on the last trading day prior to the date of exercise.

Terms of Preferred Shares

Preferred Shares purchasable upon exercise of the Rights will not be redeemable. Each Preferred Share will be entitled to a minimum preferential quarterly dividend payment of \$1 per share but will be entitled to an aggregate dividend of 1,000 times the dividend declared per common share. In the event of liquidation, the holders of the Preferred Shares will be entitled to a minimum preferential liquidation payment of \$80 per share but will be entitled to an aggregate payment of 1,000 times the payment made per common share. Each Preferred Share will have 1,000 votes, voting together with the common shares. Finally, in the event of any merger, consolidation or other transaction in which our common shares are exchanged, each Preferred Share will be entitled to receive 1,000 times the amount received per common share. These rights are protected by customary anti dilution provisions. Because of the nature of the Preferred Shares' dividend, liquidation and voting rights, the value of the one one thousandth interest in a Preferred Share purchasable upon exercise of each Right should approximate the value of one common share. The Preferred Shares would rank junior to any other series of our preferred stock.

Trigger of Flip In and Flip Over Rights

In the event that any person or group of affiliated or associated persons becomes an Acquiring Person, proper provision shall be made so that each holder of a Right, other than Rights beneficially owned by the Acquiring Person or any affiliate or associate thereof (which will thereafter be void), will thereafter have the right to receive upon exercise, in lieu of one one-thousandths of a Preferred Share, that number of common shares having a market value equal to two times the exercise price of the Right. This right will commence on the date that a person has become an Acquiring Person (or the effective date of a registration statement relating to the securities purchasable upon exercise of the Rights, if later).

In the event that AMAG is acquired in a merger or other business combination transaction or 50% or more of our consolidated assets or earning power are sold to an Acquiring Person, our affiliates or associates or certain other persons in which such persons have an interest, proper provision will be made so that each such holder of a Right will thereafter have the right to receive, upon the exercise thereof at the then current exercise price of the Right, that number of shares of common stock of the acquiring company which at the time of such transaction will have a market value of two times the exercise price of the Right.

Redemption and Exchange of Rights

At any time prior to the earlier of (i) the day that a person has become an Acquiring Person, or (ii) the Final Expiration Date, our Board may redeem the Rights in whole, but not in part, at a price of \$0.01 per Right (the “Redemption Price”), which may be paid in cash, common shares or any other consideration deemed appropriate by our Board. In general, the redemption of the Rights may be made effective at such time on such basis with such conditions as our Board in its sole discretion may establish. Immediately upon any redemption of the Rights, the right to exercise the Rights will terminate and the only right of the holders of Rights will be to receive the Redemption Price.

At any time after any Person becomes an Acquiring Person and prior to the acquisition by such person or group of affiliated or associated persons of 50% or more of our outstanding common shares, our Board may exchange the Rights (other than Rights owned by such person or group of affiliated or associated persons which will have become void), in whole or in part, at an exchange ratio of one common share per Right. Under certain circumstances set forth in the 2017 NOL Rights Agreement, in lieu of common shares, we may exchange cash, property or other AMAG securities, including fractions of a

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Preferred Share (or of a share of a class or series of our preferred stock having equivalent designations and the powers, preferences and rights, and the qualifications, limitations and restrictions) with value equal to such common shares.

Amendment of Rights

The terms of the Rights generally may be amended by our Board without the consent of the holders of the Rights, except that from and after the time that the Rights are no longer redeemable, no such amendment may adversely affect the interests of the holders of the Rights (excluding the interest of any Acquiring Person and any group of affiliated or associated persons).

Certain Considerations Related to the 2017 NOL Rights Agreement

Our Board believes that attempting to protect the tax benefits of our NOLs as described above is in our and our stockholders' best interests; however, we cannot eliminate the possibility that an ownership change will occur even if the 2017 NOL Rights Agreement is approved. Please consider the items discussed below in voting on Proposal 5.

The IRS could challenge the amount of our NOLs or claim we experienced an ownership change, which could reduce the amount of our NOLs that we can use or eliminate our ability to use them altogether.

The IRS has not audited or otherwise validated the amount of our NOLs. The IRS could challenge the amount of our NOLs, which could limit our ability to use our NOLs to reduce our future taxable income. In addition, the complexity of Section 382's provisions and the limited knowledge any public company has about the ownership of its publicly traded stock make it difficult to determine whether an ownership change has occurred. Therefore, we cannot assure you that the IRS will not claim that we experienced an ownership change and attempt to reduce or eliminate the benefit of our NOLs even if the NOL Amendment is in place.

Continued Risk of Ownership Change

Although the 2017 NOL Rights Agreement is intended to reduce the likelihood of an ownership change, we cannot assure you that it would prevent any transfers of our common stock that could result in such an ownership change.

Potential Anti Takeover Impact

The reason our Board approved the 2017 NOL Rights Agreement and is recommending that it be approved by our stockholders is to preserve the long term value of our NOLs. However, the 2017 NOL Rights Agreement could also be deemed to have an anti takeover effect because, among other things, it restricts the ability of a person, entity or group to accumulate more than 4.99% of our common stock and the ability of persons, entities or groups now owning more than 4.99% of our common stock to acquire additional shares of our common stock without the prior approval of our Board and because an Acquiring Person may be diluted upon the occurrence of a triggering event. Accordingly, the overall effects of the 2017 NOL Rights Agreement may render more difficult, or discourage, a merger, tender offer, proxy contest or assumption of control by a substantial holder of our securities.

The foregoing description of the terms of the 2017 NOL Rights Agreement summarizes only the material terms of the 2017 NOL Rights Agreement, does not purport to be complete and is qualified in its entirety by reference to the 2017 NOL Rights Agreement, which is set forth in Appendix B to this Proxy Statement and was filed as Exhibit 4.2 to our Current Report on Form 8 K filed with the SEC on April 10, 2017.

Required Vote

The affirmative vote of the holders of a majority of the shares of our common stock present or represented and voting at the Annual Meeting is required to approve the 2017 NOL Rights Agreement.

OUR BOARD UNANIMOUSLY RECOMMENDS A VOTE “FOR” THE APPROVAL OF THE 2017 NOL RIGHTS AGREEMENT TO HELP PRESERVE THE VALUE OF THE OUR OPERATING LOSS CARRYFORWARDS AND CERTAIN OTHER DEFERRED TAX ASSETS

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Our Audit Committee has appointed the firm of PricewaterhouseCoopers LLP, an independent registered public accounting firm, as our independent registered public accounting firm for the year ending December 31, 2017, and the Board has ratified such appointment. The Board has directed that management submit the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for ratification by our stockholders at the Annual Meeting.

PricewaterhouseCoopers LLP or its predecessor has served as our independent registered public accounting firm since our inception in 1981. Representatives of PricewaterhouseCoopers LLP are expected to be at the Annual Meeting, will have an opportunity to make a statement if they so desire, and will be available to respond to appropriate questions. Stockholder ratification of the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm is not required by our by-laws or otherwise. However, the Board is submitting this appointment to the stockholders for ratification as a matter of good corporate practice. In the event our stockholders fail to ratify the appointment of PricewaterhouseCoopers LLP, the Audit Committee will not be required to replace PricewaterhouseCoopers LLP as our independent registered public accounting firm. In the event of such a failure to ratify, the Audit Committee and the Board will reconsider whether or not to retain that firm for future service. Even if the appointment is ratified, the Audit Committee in its discretion may direct the appointment of a different independent registered public accounting firm at any time if the Audit Committee determines that such a change would be in our and our stockholders' best interests.

PRINCIPAL ACCOUNTANT FEES AND SERVICES

The following table summarizes the fees billed for professional services by PricewaterhouseCoopers LLP for the years ended December 31, 2016 and 2015:

Fee Category	Year Ended December 31, 2016	Year Ended December 31, 2015
Audit Fees(1)	\$ 1,641,584	\$ 2,898,153
Audit-Related Fees(2)	17,500	854,930
All Other Fees(3)	1,800	1,800
Total	\$ 1,660,884	\$ 3,754,883

(1) Audit fees consisted of fees for the audit of our financial statements, the review of our interim financial statements included in our quarterly reports on Form 10-Q, review of and consents for our registration statements and filings, comfort letters and related services that are normally provided in connection with regulatory filings or engagements.

(2) Audit-related fees consisted of fees for advice for business development-related services. In addition, audit-related fees for 2015 services related to accounting consultations, including \$832,930 in services performed by PricewaterhouseCoopers LLP in connection with audits and quarterly reviews of CBR for periods prior to the closing of our August 2015 acquisition of CBR, as required to comply with SEC regulations. All audit-related fees were approved by the Audit Committee.

(3) All other fees represents payment for access to the PricewaterhouseCoopers LLP on-line accounting research database and training. These fees were approved by the Audit Committee.

In connection with the audit of our 2016 financial statements, we entered into an engagement agreement with PricewaterhouseCoopers LLP which sets forth the terms by which PricewaterhouseCoopers LLP would perform our audit services.

All services expected to be rendered by PricewaterhouseCoopers LLP in 2017 are permissible under applicable laws and regulations, and are expected to be pre-approved by the Audit Committee. The Audit Committee also expects to approve certain non-audit services to be performed by PricewaterhouseCoopers LLP in 2017.

PRE-APPROVAL POLICIES AND PROCEDURES

Consistent with policies of the SEC regarding auditor independence, the Audit Committee has responsibility for appointing, setting compensation and overseeing the work of our independent registered public accounting firm.

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The Audit Committee has approved the engagement of PricewaterhouseCoopers LLP as our independent registered public accounting firm and has approved the provision of certain specific non-audit services expected to be performed by PricewaterhouseCoopers LLP in 2017. In addition, circumstances may arise during the year necessitating the engagement of PricewaterhouseCoopers LLP for additional audit or permissible non-audit services. In those instances, under our current pre-approval policy, each member of the Audit Committee has the authority to approve any additional audit services and permissible non-audit services provided that such member promptly informs the Audit Committee of such approval.

Required Vote

The affirmative vote of the holders of a majority of the shares of our common stock present or represented and voting at the Annual Meeting is required to ratify the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the year ending December 31, 2017.

OUR BOARD UNANIMOUSLY RECOMMENDS A VOTE "FOR" THE APPROVAL OF THE RATIFICATION OF THE APPOINTMENT OF PRICEWATERHOUSECOOPERS LLP AS OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

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OTHER MATTERS

The Board knows of no other matters to be brought before the Annual Meeting. If any other matters are properly brought before the Annual Meeting, the persons appointed in the accompanying proxy intend to vote the shares represented thereby in accordance with their best judgment on such matters, under applicable laws.

STOCKHOLDER PROPOSALS

Stockholder proposals may be included in our proxy statement for an annual meeting of stockholders so long as they are provided to us on a timely basis and are otherwise submitted in accordance with SEC regulations under Rule 14a-8 under the Exchange Act regarding the inclusion of stockholder proposals in company-sponsored proxy materials. To be considered for inclusion in next year's proxy materials, your proposal must be submitted in writing to our principal executive offices at AMAG Pharmaceuticals, Inc., 1100 Winter Street, Waltham, Massachusetts 02451, attention: Secretary and must be received by us no later than December 21, 2017. Proposals must comply with the procedures and satisfy the conditions set forth in Rule 14a-8 under the Exchange Act.

If you wish to nominate a candidate for director or submit a proposal that is not intended to be included in our proxy materials for next year's annual meeting of stockholders, you must submit such proposal or nomination in writing to our principal executive offices at AMAG Pharmaceuticals, Inc., 1100 Winter Street, Waltham, Massachusetts 02451, attention: Secretary. Such proposal or nomination must be received by us no earlier than January 18, 2018 and no later than February 17, 2018 and must satisfy the requirements set forth in our by-laws. If the date of our 2018 annual meeting of stockholders is advanced by more than 30 days or delayed by more than 30 days from the anniversary of our 2017 Annual Meeting, any stockholder nomination or other proposal must be received by us no earlier than the close of business on the 120th day prior to such advanced or delayed annual meeting date and no later than the close of business on the later of (1) the 90th day prior to such advanced or delayed annual meeting date and (2) the 10th day following the first public announcement of the meeting date.

In order to curtail controversy as to the date on which a proposal was received by us, we suggest that you submit your proposals by registered mail, return receipt requested.

We have not received any stockholder nominations or any other proposals from our stockholders with respect to our 2017 Annual Meeting.

EXPENSES AND SOLICITATION

We will bear all costs of solicitation of proxies. In addition to these proxy materials, our directors, officers and employees, without additional remuneration, may also solicit proxies through telephone, e-mail and in-person conversations. We will also reimburse brokerage firms, banks and other agents for the cost of forwarding proxy materials to beneficial owners.

DELIVERY OF DOCUMENTS TO STOCKHOLDERS SHARING AN ADDRESS

In order to reduce printing and postage costs, Broadridge, which handles the mailing of our Annual Report and proxy materials to all of our stockholders, participates in the practice of "householding" proxy statements and annual reports, which is the delivery of a single set of such annual meeting materials to two or more stockholders sharing the same address. This means that unless contrary instructions are received from one or more of such stockholders, only one copy of our Notice and Proxy Statement and our Annual Report is sent to multiple beneficial stockholders who share the same address. Each stockholder will continue to receive a separate proxy card.

Once you have received notice from your Nominee that it will be householding communications to your address, householding will continue until you are notified otherwise or until you revoke your consent.

If, at any time, you no longer wish to participate in householding and would prefer to receive a separate set of annual meeting materials, you should contact our Investor Relations Department at (617) 498-3300 or AMAG Pharmaceuticals, Inc., 1100 Winter Street, Waltham, Massachusetts 02451. We will undertake to deliver promptly upon written or oral request a separate copy of the Notice and Proxy Statement and Annual Report, as applicable, to a security holder at a shared address to which a single copy of the documents was delivered. You may also contact Broadridge or your bank, broker or other custodian to request individual copies of any of these materials for each stockholder at such shared address. Stockholders who currently receive multiple copies of our Notice and Proxy

Statement and Annual Report at their address and would like to request householding of their communications should contact their broker.

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We do not provide for householding for stockholders of record.

The Board welcomes stockholders who wish to attend the Annual Meeting. Whether or not you plan to attend, you are urged to complete and deliver a proxy by one of the methods provided in the enclosed proxy card. A prompt response will greatly facilitate arrangements for the Annual Meeting, and your cooperation will be appreciated. Stockholders who attend the Annual Meeting may vote their stock personally even though they have sent in their proxies.

Copies of the Proxy Statement, AMAG's Annual Report on Form 10-K for the fiscal year ended December 31, 2016 and any other proxy materials are available without charge on our website at www.amagpharma.com under "Investors" or upon written request to our principal executive offices at AMAG Pharmaceuticals, Inc., 1100 Winter Street, Waltham, Massachusetts 02451, attention: Investor Relations.

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Appendix A

AMAG PHARMACEUTICALS, INC.
FOURTH AMENDED AND RESTATED
2007 EQUITY INCENTIVE PLAN

SECTION 1. GENERAL PURPOSE OF THE PLAN; DEFINITIONS

The name of the plan is the AMAG Pharmaceuticals, Inc. Fourth Amended and Restated 2007 Equity Incentive Plan (the “Plan”). The purpose of the Plan is to encourage and enable the officers, employees, Non-Employee Directors and other key persons (including Consultants) of AMAG Pharmaceuticals, Inc., a Delaware corporation (the “Company”) and its Subsidiaries upon whose judgment, initiative and efforts the Company largely depends for the successful conduct of its business to acquire a proprietary interest in the Company. It is anticipated that providing such persons with a direct stake in the Company’s welfare will assure a closer identification of their interests with those of the Company and its stockholders, thereby stimulating their efforts on the Company’s behalf and strengthening their desire to remain with the Company.

The following terms shall be defined as set forth below:

”Act” means the Securities Act of 1933, as amended, and the rules and regulations thereunder.

”Administrator” means either the Board or the Compensation Committee of the Board or a similar committee performing the functions of the compensation committee and which is comprised of not less than two Non-Employee Directors who are independent.

”Award” or ”Awards,” except where referring to a particular category of grant under the Plan, shall include Incentive Stock Options, Non-Qualified Stock Options, Stock Appreciation Rights, Restricted Stock Units, Restricted Stock Awards, Unrestricted Stock Awards, Cash-Based Awards, Performance Share Awards and Dividend Equivalent Rights.

”Award Certificate” means a written or electronic document setting forth the terms and provisions applicable to an Award granted under the Plan. Each Award Certificate is subject to the terms and conditions of the Plan.

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

”Cash-Based Award” means an Award entitling the recipient to receive a cash-denominated payment.

”Code” means the Internal Revenue Code of 1986, as amended, and any successor Code, and related rules, regulations and interpretations.

”Consultant” means any natural person that provides bona fide services to the Company, and such services are not in connection with the offer or sale of securities in a capital-raising transaction and do not directly or indirectly promote or maintain a market for the Company’s securities.

”Covered Employee” means an employee who is a “Covered Employee” within the meaning of Section 162(m) of the Code.

”Dividend Equivalent Right” means an Award entitling the grantee to receive credits based on cash dividends that would have been paid on the shares of Stock specified in the Dividend Equivalent Right (or other award to which it relates) if such shares had been issued to and held by the grantee.

”Effective Date” means the date on which the Plan is approved by stockholders as set forth in Section 21.

”Exchange Act” means the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder.

”Fair Market Value” of the Stock on any given date means the fair market value of the Stock determined in good faith by the Administrator; provided, however, that if the Stock is admitted to quotation on the National Association of Securities Dealers Automated Quotation System (“NASDAQ”), NASDAQ Global Market or another national securities exchange, the determination shall be made by reference to market quotations. If there are no market quotations for such date, the determination shall be made by reference to the last date preceding such date for which there are market quotations.

”Incentive Stock Option” means any Stock Option designated and qualified as an “incentive stock option” as defined in Section 422 of the Code.

“Non-Employee Director” means a member of the Board who is not also an employee of the Company or any Subsidiary.

“Non-Qualified Stock Option” means any Stock Option that is not an Incentive Stock Option.

“Option” or “Stock Option” means any option to purchase shares of Stock granted pursuant to Section 5.

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“Performance-Based Award” means any Restricted Stock Award, Restricted Stock Units, Performance Share Award or Cash-Based Award granted to a Covered Employee that is intended to qualify as “performance-based compensation” under Section 162(m) of the Code and the regulations promulgated thereunder.

“Performance Criteria” means the criteria that the Administrator selects for purposes of establishing the Performance Goal or Performance Goals for an individual for a Performance Cycle. The Performance Criteria (which shall be applicable to the organizational level specified by the Administrator, including, but not limited to, the Company or a unit, division, group, or Subsidiary of the Company) that will be used to establish Performance Goals are limited to the following: total shareholder return, earnings before interest, taxes, depreciation and amortization, net income (loss) (either before or after interest, taxes, depreciation and/or amortization), changes in the market price of the Stock, economic value-added, funds from operations or similar measure, sales or revenue, acquisitions or strategic transactions, operating income (loss), cash flow (including, but not limited to, operating cash flow and free cash flow), return on capital, assets, equity, or investment, return on sales, gross or net profit levels, productivity, expense, margins, operating efficiency, customer satisfaction, working capital, earnings (loss) per share of Stock, sales or market shares and number of customers, any of which may be measured either in absolute terms or as compared to any incremental increase or as compared to results of a peer group.

“Performance Cycle” means one or more periods of time, which may be of varying and overlapping durations, as the Administrator may select, over which the attainment of one or more Performance Criteria will be measured for the purpose of determining a grantee’s right to and the payment of a Restricted Stock Award, Restricted Stock Units, Performance Share Award or Cash-Based Award, the vesting and/or payment of which is subject to the attainment of one or more Performance Goals. Each such period shall not be less than 12 months.

“Performance Goals” means, for a Performance Cycle, the specific goals established in writing by the Administrator for a Performance Cycle based upon the Performance Criteria.

“Performance Share Award” means an Award entitling the recipient to acquire shares of Stock upon the attainment of specified Performance Goals.

“Restricted Stock Award” means an Award of shares of Stock subject to such restrictions and conditions as the Administrator may determine at the time of grant.

“Restricted Stock Units” means an Award of phantom stock units to a grantee.

“Sale Event” shall mean (i) the sale of all or substantially all of the assets of the Company on a consolidated basis to an unrelated person or entity, (ii) a merger, reorganization or consolidation pursuant to which the holders of the Company’s outstanding voting power and outstanding stock immediately prior to such transaction do not own a majority of the outstanding voting power and outstanding stock or other equity interests of the resulting or successor entity (or its ultimate parent, if applicable) immediately upon completion of such transaction, (iii) the sale of all of the Stock of the Company to an unrelated person, entity or group thereof acting in concert, or (iv) any other transaction in which the owners of the Company’s outstanding voting power immediately prior to such transaction do not own at least a majority of the outstanding voting power of the Company or any successor entity immediately upon completion of the transaction other than as a result of the acquisition of securities directly from the Company.

“Sale Price” means the value as determined by the Administrator of the consideration payable, or otherwise to be received by stockholders, per share of Stock pursuant to a Sale Event.

“Section 409A” means Section 409A of the Code and the regulations and other guidance promulgated thereunder.

“Stock” means the common stock of the Company, subject to adjustments pursuant to Section 3.

“Stock Appreciation Right” means an Award entitling the recipient to receive shares of Stock having a value equal to the excess of the Fair Market Value of the Stock on the date of exercise over the exercise price of the Stock Appreciation Right multiplied by the number of shares of Stock with respect to which the Stock Appreciation Right shall have been exercised.

“Subsidiary” means any corporation or other entity (other than the Company) in which the Company has at least a 50 percent interest, either directly or indirectly.

“Ten Percent Owner” means an employee who owns or is deemed to own (by reason of the attribution rules of Section 424(d) of the Code) more than 10 percent of the combined voting power of all classes of stock of the

Company or any parent or subsidiary corporation.

“Unrestricted Stock Award” means an Award of shares of Stock free of any restrictions.

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SECTION 2. ADMINISTRATION OF PLAN; ADMINISTRATOR AUTHORITY TO SELECT GRANTEES AND DETERMINE AWARDS

(a)Administration of Plan. The Plan shall be administered by the Administrator, provided that the amount, timing and terms of the grants of Awards to Non-Employee Directors shall be determined by the compensation committee or similar committee comprised solely of Non-Employee Directors.

(b)Powers of Administrator. The Administrator shall have the power and authority to grant Awards consistent with the terms of the Plan, including the power and authority:

(i)to select the individuals to whom Awards may from time to time be granted;

(ii)to determine the time or times of grant, and the extent, if any, of Incentive Stock Options, Non-Qualified Stock Options, Stock Appreciation Rights, Restricted Stock Awards, Restricted Stock Units, Unrestricted Stock Awards, Cash-Based Awards, Performance Share Awards and Dividend Equivalent Rights, or any combination of the foregoing, granted to any one or more grantees;

(iii)to determine the number of shares of Stock to be covered by any Award;

(iv)to determine and modify from time to time the terms and conditions, including restrictions, not inconsistent with the terms of the Plan, of any Award, which terms and conditions may differ among individual Awards and grantees, and to approve the forms of Award Certificates;

(v)to accelerate at any time the exercisability or vesting of all or any portion of any Award, provided that the Administrator generally shall not exercise such discretion to accelerate Awards subject to Sections 7 and 8 except in the event of the grantee's death, disability or retirement, or a change in control (including a Sale Event) (the "Vesting Acceleration Requirements");

(vi)subject to the provisions of Section 5(b), to extend at any time the period in which Stock Options may be exercised; and

(vii)at any time to adopt, alter and repeal such rules, guidelines and practices for administration of the Plan and for its own acts and proceedings as it shall deem advisable; to interpret the terms and provisions of the Plan and any Award (including related written instruments); to make all determinations it deems advisable for the administration of the Plan; to decide all disputes arising in connection with the Plan; and to otherwise supervise the administration of the Plan.

All decisions and interpretations of the Administrator shall be binding on all persons, including the Company and Plan grantees.

(c)Delegation of Authority to Grant Options. Subject to applicable law, the Administrator, in its discretion, may delegate to the Chief Executive Officer of the Company all or part of the Administrator's authority and duties with respect to the granting of Options and/or Restricted Stock Units to individuals who are (i) not subject to the reporting and other provisions of Section 16 of the Exchange Act and (ii) not Covered Employees. Any such delegation by the Administrator shall include a limitation as to the amount of Options and/or Restricted Stock Units that may be granted during the period of the delegation and shall contain guidelines as to the determination of the exercise price and the vesting criteria. The Administrator may revoke or amend the terms of a delegation at any time but such action shall not invalidate any prior actions of the Administrator's delegate or delegates that were consistent with the terms of the Plan.

(d) Award Certificate. Awards under the Plan shall be evidenced by Award Certificates that set forth the terms, conditions and limitations for each Award which may include, without limitation, the term of an Award and the provisions applicable in the event employment or service terminates.

(e) Indemnification. Neither the Board nor the Administrator, nor any member of either or any delegate thereof, shall be liable for any act, omission, interpretation, construction or determination made in good faith in connection with the Plan, and the members of the Board and the Administrator (and any delegate thereof) shall be entitled in all cases to indemnification and reimbursement by the Company in respect of any claim, loss, damage or expense (including, without limitation, reasonable attorneys' fees) arising or resulting therefrom to the fullest extent permitted by law and/or under the Company's articles or by-laws or any directors' and officers' liability insurance coverage which may be in effect from time to time and/or any indemnification agreement between such individual and the Company.

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(f)Foreign Award Recipients. Notwithstanding any provision of the Plan to the contrary, in order to comply with the laws in other countries in which the Company and its Subsidiaries operate or have employees or other individuals eligible for Awards, the Administrator, in its sole discretion, shall have the power and authority to: (i) determine which Subsidiaries shall be covered by the Plan; (ii) determine which individuals outside the United States are eligible to participate in the Plan; (iii) modify the terms and conditions of any Award granted to individuals outside the United States to comply with applicable foreign laws; (iv) establish subplans and modify exercise procedures and other terms and procedures, to the extent the Administrator determines such actions to be necessary or advisable (and such subplans and/or modifications shall be attached to this Plan as appendices); provided, however, that no such subplans and/or modifications shall increase the share limitations contained in Section 3(a) hereof; and (v) take any action, before or after an Award is made, that the Administrator determines to be necessary or advisable to obtain approval or comply with any local governmental regulatory exemptions or approvals. Notwithstanding the foregoing, the Administrator may not take any actions hereunder, and no Awards shall be granted, that would violate the Exchange Act or any other applicable United States securities law, the Code, or any other applicable United States governing statute or law.

(g)Full Value Award Minimum Vesting Requirements. Notwithstanding any other provision in the Plan to the contrary, the minimum restriction or vesting period with respect to any full value Award (i.e., an Award other than an Option or a Stock Appreciation Right) granted on or after the Effective Date to any participant under the Plan shall be no less than one year and no lapse of restriction nor vesting event shall occur prior to the first anniversary of the grant date of any such Award (the "Minimum Vesting Requirements"); provided that, (i) the vesting of any such Award may accelerate in accordance with an Award Certificate or employment agreement or may be accelerated by the Administrator if one or more of the Vesting Acceleration Requirements is met and (ii) notwithstanding the foregoing, such full value Awards that result in the issuance of up to 5% of the shares of Stock reserved for issuance under the Plan pursuant to Section 3(a) may be granted in the aggregate to any one or more eligible participants in the Plan or may be accelerated (other than Awards for which the vesting is accelerated in accordance with an Award Certificate or employment agreement) without respect to such Minimum Vesting Requirements or Vesting Acceleration Requirements.

SECTION 3. STOCK ISSUABLE UNDER THE PLAN; MERGERS; SUBSTITUTION

(a)Stock Issuable. The maximum number of shares of Stock reserved and available for issuance under the Plan shall be 9,480,325 shares, subject to adjustment as provided in this Section 3. For purposes of this limitation, the shares of Stock underlying any Awards under the Plan as well as shares of Stock underlying any awards under the Company's Amended and Restated 2000 Stock Plan that are forfeited, canceled or otherwise terminated (other than by exercise) on or after November 27, 2007 shall be added back to the shares of Stock available for issuance under the Plan. Notwithstanding the foregoing, the following shares shall not be added to the shares authorized for grant under the Plan: (i) shares tendered or held back upon exercise of an Option or settlement of an Award to cover the exercise price or tax withholding, and (ii) shares subject to a Stock Appreciation Right that are not issued in connection with the stock settlement of the Stock Appreciation Right upon exercise thereof. In the event the Company repurchases shares of Stock on the open market, such shares shall not be added to the shares of Stock available for issuance under the Plan. Subject to such overall limitations, shares of Stock may be issued up to such maximum number pursuant to any type or types of Award; provided, however, that Stock Options or Stock Appreciation Rights with respect to no more than 500,000 shares of Stock may be granted to any one individual grantee during any one calendar year period, no more than 10 percent of the total number of shares of Stock authorized for issuance under the Plan may be granted in the form of Unrestricted Stock Awards and no more than 9,480,325 shares of the Stock may be issued in the form of Incentive Stock Options. The shares available for issuance under the Plan may be authorized but unissued shares of Stock or shares of Stock reacquired by the Company.

(b)Effect of Awards. The grant of any full value Award (i.e., an Award other than an Option or a Stock Appreciation Right) shall be deemed, for purposes of determining the number of shares of Stock available for issuance under Section 3(a), as an Award of 1.7 shares of Stock for each such share of Stock actually subject to the Award. The grant of an Option or a Stock Appreciation Right shall be deemed, for purposes of determining the number of shares of Stock available for issuance under Section 3(a), as an Award for one share of Stock for each such share of Stock actually subject to the Award. Any forfeitures, cancellations or other terminations (other than by exercise) of such Awards shall be returned to the reserved pool of shares of Stock under the Plan in the same manner.

(c)Changes in Stock. Subject to Section 3(d) hereof, if, as a result of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar change in the Company's capital stock, the outstanding shares of Stock are increased or decreased or are exchanged for a different number or kind of shares or other securities of the Company, or additional shares or new or different shares or other securities of the Company or other non-cash assets are distributed with respect to such shares of Stock or other securities, or, if, as a result of any merger or consolidation, sale of all or substantially all of the assets of the Company, the outstanding shares of Stock are converted into or exchanged for

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securities of the Company or any successor entity (or a parent or subsidiary thereof), the Administrator shall make an appropriate or proportionate adjustment in (i) the maximum number of shares reserved for issuance under the Plan, including the maximum number of shares that may be issued in the form of Incentive Stock Options, (ii) the number of Stock Options or Stock Appreciation Rights that can be granted to any one individual grantee and the maximum number of shares that may be granted under a Performance-Based Award, (iii) the number and kind of shares or other securities subject to any then outstanding Awards under the Plan, (iv) the repurchase price, if any, per share subject to each outstanding Restricted Stock Award, and (v) the exercise price for each share subject to any then outstanding Stock Options and Stock Appreciation Rights under the Plan, without changing the aggregate exercise price (i.e., the exercise price multiplied by the number of Stock Options and Stock Appreciation Rights) as to which such Stock Options and Stock Appreciation Rights remain exercisable. The Administrator shall also make equitable or proportionate adjustments in the number of shares subject to outstanding Awards and the exercise price and the terms of outstanding Awards to take into consideration cash dividends paid other than in the ordinary course or any other extraordinary corporate event. The adjustment by the Administrator shall be final, binding and conclusive. No fractional shares of Stock shall be issued under the Plan resulting from any such adjustment, but the Administrator in its discretion may make a cash payment in lieu of fractional shares.

(d)Mergers and Other Transactions. Except as the Administrator may otherwise specify with respect to particular Awards in the relevant Award Certificate, in the case of and subject to the consummation of a Sale Event, the parties thereto may cause the assumption or continuation of Awards theretofore granted by the successor entity, or the substitution of such Awards with new Awards of the successor entity or parent thereof, with appropriate adjustment as to the number and kind of shares and, if appropriate, the per share exercise prices, as such parties shall agree. To the extent the parties to such Sale Event do not provide for the assumption, continuation or substitution of Awards, upon the effective time of the Sale Event, the Plan and all outstanding Awards granted hereunder shall terminate. In such case, except as may be otherwise provided in the relevant Award Certificate, all Options and Stock Appreciation Rights with time-based vesting that are not exercisable immediately prior to the effective time of the Sale Event shall become fully exercisable as of the effective time of the Sale Event, all other Awards with time-based vesting, conditions or restrictions shall become fully vested and nonforfeitable as of the effective time of the Sale Event, and all Awards with conditions and restrictions relating to the attainment of performance goals shall be deemed to vest and become nonforfeitable as of the Sale Event assuming the higher of (i) achievement of all relevant performance goals at the "target" level (prorated based upon the length of time within the performance period that has elapsed prior the Sale Event) or (ii) actual achievement as of the date of such Sale Event. In the event of such termination, (i) the Company shall have the option (in its sole discretion) to make or provide for a payment, in cash or in kind, to the grantees holding Options and Stock Appreciation Rights, in exchange for the cancellation thereof, in an amount equal to the difference between (A) the Sale Price multiplied by the number of shares of Stock subject to outstanding Options and Stock Appreciation Rights (to the extent then exercisable at prices not in excess of the Sale Price) and (B) the aggregate exercise price of all such outstanding Options and Stock Appreciation Rights; or (ii) each grantee shall be permitted, within a specified period of time prior to the consummation of the Sale Event as determined by the Administrator, to exercise all outstanding Options and Stock Appreciation Rights (to the extent then exercisable) held by such grantee. The Company shall also have the option (in its sole discretion) to make or provide for a payment, in cash or in kind, to the grantees holding other Awards in an amount equal to the Sale Price multiplied by the number of vested shares of Stock under such Awards.

(e)Substitute Awards. The Administrator may grant Awards under the Plan in substitution for stock and stock based awards held by employees, directors or other key persons of another corporation in connection with the merger or consolidation of the employing corporation with the Company or a Subsidiary or the acquisition by the Company or a Subsidiary of property or stock of the employing corporation. The Administrator may direct that the substitute awards be granted on such terms and conditions as the Administrator considers appropriate in the circumstances. Any substitute Awards granted under the Plan shall not count against the share limitation set forth in Section 3(a).

SECTION 4. ELIGIBILITY

Grantees under the Plan will be such full or part-time officers and other employees, Non-Employee Directors and key persons (including Consultants) of the Company and its Subsidiaries as are selected from time to time by the Administrator in its sole discretion.

SECTION 5. STOCK OPTIONS

Any Stock Option granted under the Plan shall be in such form as the Administrator may from time to time approve.

Stock Options granted under the Plan may be either Incentive Stock Options or Non-Qualified Stock Options. Incentive Stock Options may be granted only to employees of the Company or any Subsidiary that is a “subsidiary corporation” within

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the meaning of Section 424(f) of the Code. To the extent that any Option does not qualify as an Incentive Stock Option, it shall be deemed a Non-Qualified Stock Option.

Stock Options granted pursuant to this Section 5 shall be subject to the following terms and conditions and shall contain such additional terms and conditions, not inconsistent with the terms of the Plan, as the Administrator shall deem desirable. If the Administrator so determines, Stock Options may be granted in lieu of cash compensation at the optionee's election, subject to such terms and conditions as the Administrator may establish.

(a)Exercise Price. The exercise price per share for the Stock covered by a Stock Option granted pursuant to this Section 5 shall be determined by the Administrator at the time of grant but shall not be less than 100 percent of the Fair Market Value on the date of grant. In the case of an Incentive Stock Option that is granted to a Ten Percent Owner, the option price of such Incentive Stock Option shall be not less than 110 percent of the Fair Market Value on the grant date.

(b)Option Term. The term of each Stock Option shall be fixed by the Administrator, but no Stock Option shall be exercisable more than ten years after the date the Stock Option is granted. In the case of an Incentive Stock Option that is granted to a Ten Percent Owner, the term of such Stock Option shall be no more than five years from the date of grant.

(c)Exercisability; Rights of a Stockholder. Stock Options shall become exercisable at such time or times, whether or not in installments, as shall be determined by the Administrator at or after the grant date. The Administrator may at any time accelerate the exercisability of all or any portion of any Stock Option. An optionee shall have the rights of a stockholder only as to shares acquired upon the exercise of a Stock Option and not as to unexercised Stock Options.

(d)Method of Exercise. Stock Options may be exercised in whole or in part, by giving written or electronic notice of exercise to the Company, specifying the number of shares to be purchased. Payment of the purchase price may be made by one or more of the following methods to the extent provided in the Option Award Certificate:

(i)In cash, by certified or bank check or other instrument acceptable to the Administrator;

(ii)Through the delivery (or attestation to the ownership) of shares of Stock that are not then subject to restrictions under any Company plan. Such surrendered shares shall be valued at Fair Market Value on the exercise date;

(iii)By the optionee delivering to the Company a properly executed exercise notice together with irrevocable instructions to a broker to promptly deliver to the Company cash or a check payable and acceptable to the Company for the purchase price; provided that in the event the optionee chooses to pay the purchase price as so provided, the optionee and the broker shall comply with such procedures and enter into such agreements of indemnity and other agreements as the Administrator shall prescribe as a condition of such payment procedure; or

(iv)With respect to Stock Options that are not Incentive Stock Options, by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Stock issuable upon exercise by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price.

Payment instruments will be received subject to collection. The transfer to the optionee on the records of the Company or of the transfer agent of the shares of Stock to be purchased pursuant to the exercise of a Stock Option will be contingent upon receipt from the optionee (or a purchaser acting in his stead in accordance with the provisions of the Stock Option) by the Company of the full purchase price for such shares and the fulfillment of any other requirements contained in the Option Award Certificate or applicable provisions of laws (including the satisfaction of any withholding taxes that the Company is obligated to withhold with respect to the optionee). In the event an optionee chooses to pay the purchase price by previously-owned shares of Stock through the attestation method, the number of shares of Stock transferred to the optionee upon the exercise of the Stock Option shall be net of the number of attested

shares. In the event that the Company establishes, for itself or using the services of a third party, an automated system for the exercise of Stock Options, such as a system using an internet website or interactive voice response, then the paperless exercise of Stock Options may be permitted through the use of such an automated system.

(e) Annual Limit on Incentive Stock Options. To the extent required for “incentive stock option” treatment under Section 422 of the Code, the aggregate Fair Market Value (determined as of the time of grant) of the shares of Stock with respect to which Incentive Stock Options granted under this Plan and any other plan of the Company or its parent and subsidiary corporations become exercisable for the first time by an optionee during any calendar year shall not exceed \$100,000. To the extent that any Stock Option exceeds this limit, it shall constitute a Non-Qualified Stock Option.

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SECTION 6. STOCK APPRECIATION RIGHTS

(a) Exercise Price of Stock Appreciation Rights. The exercise price of a Stock Appreciation Right shall not be less than 100 percent of the Fair Market Value of the Stock on the date of grant.

(b) Grant and Exercise of Stock Appreciation Rights. Stock Appreciation Rights may be granted by the Administrator independently of any Stock Option granted pursuant to Section 5 of the Plan.

(c) Terms and Conditions of Stock Appreciation Rights. Stock Appreciation Rights shall be subject to such terms and conditions as shall be determined from time to time by the Administrator. The term of a Stock Appreciation Right may not exceed ten years.

SECTION 7. RESTRICTED STOCK AWARDS

(a) Nature of Restricted Stock Awards. The Administrator shall determine the restrictions and conditions applicable to each Restricted Stock Award at the time of grant. Conditions may be based on continuing employment (or other service relationship) and/or achievement of pre-established performance goals and objectives. The terms and conditions of each such Award Certificate shall be determined by the Administrator, and such terms and conditions may differ among individual Awards and grantees.

(b) Rights as a Stockholder. Upon the grant of the Restricted Stock Award and payment of any applicable purchase price, a grantee shall have the rights of a stockholder with respect to the voting of the Restricted Stock and receipt of dividends; provided that any dividends paid by the Company during the vesting period shall accrue and shall not be paid until the shares of Restricted Stock have vested. Unless the Administrator shall otherwise determine,

(i) uncertificated Restricted Stock shall be accompanied by a notation on the records of the Company or the transfer agent to the effect that they are subject to forfeiture until such Restricted Stock are vested as provided in Section 7(d) below, and (ii) certificated Restricted Stock shall remain in the possession of the Company until such Restricted Stock is vested as provided in Section 7(d) below, and the grantee shall be required, as a condition of the grant, to deliver to the Company such instruments of transfer as the Administrator may prescribe.

(c) Restrictions. Restricted Stock may not be sold, assigned, transferred, pledged or otherwise encumbered or disposed of except as specifically provided herein or in the Restricted Stock Award Certificate. Except as may otherwise be provided by the Administrator either in the Award Certificate or, subject to Section 18 below, in writing after the Award is issued, if a grantee's employment (or other service relationship) with the Company and its Subsidiaries terminates for any reason, any Restricted Stock that has not vested at the time of termination shall automatically and without any requirement of notice to such grantee from or other action by or on behalf of, the Company be deemed to have been reacquired by the Company at its original purchase price (if any) from such grantee or such grantee's legal representative simultaneously with such termination of employment (or other service relationship), and thereafter shall cease to represent any ownership of the Company by the grantee or rights of the grantee as a stockholder. Following such deemed reacquisition of unvested Restricted Stock that are represented by physical certificates, a grantee shall surrender such certificates to the Company upon request without consideration.

(d) Vesting of Restricted Stock. The Administrator at the time of grant shall specify the date or dates and/or the attainment of pre-established performance goals, objectives and other conditions on which the non-transferability of the Restricted Stock and the Company's right of repurchase or forfeiture shall lapse. Subsequent to such date or dates and/or the attainment of such pre-established performance goals, objectives and other conditions, the shares on which all restrictions have lapsed shall no longer be Restricted Stock and shall be deemed "vested." Except as may otherwise be provided by the Administrator either in the Award Certificate or, subject to Section 18 below, in writing after the Award is issued, a grantee's rights in any shares of Restricted Stock that have not vested shall automatically terminate upon the grantee's termination of employment (or other service relationship) with the Company and its Subsidiaries

and such shares shall be subject to the provisions of Section 7(c) above.

SECTION 8. RESTRICTED STOCK UNITS

(a) Nature of Restricted Stock Units. The Administrator shall determine the restrictions and conditions applicable to each Restricted Stock Unit at the time of grant. Conditions may be based on continuing employment (or other service relationship) and/or achievement of pre-established performance goals and objectives. The terms and conditions of each such Award Certificate shall be determined by the Administrator, and such terms and conditions may differ among individual Awards and grantees. At the end of the deferral period, the Restricted Stock Units, to the extent vested, shall be settled in the

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form of shares of Stock. To the extent that an award of Restricted Stock Units is subject to Section 409A, it may contain such additional terms and conditions as the Administrator shall determine in its sole discretion in order for such Award to comply with the requirements of Section 409A.

(b)Election to Receive Restricted Stock Units in Lieu of Compensation. The Administrator may, in its sole discretion, permit a grantee to elect to receive a portion of future cash compensation otherwise due to such grantee in the form of an award of Restricted Stock Units. Any such election shall be made in writing and shall be delivered to the Company no later than the date specified by the Administrator and in accordance with Section 409A and such other rules and procedures established by the Administrator. Any such future cash compensation that the grantee elects to defer shall be converted to a fixed number of Restricted Stock Units based on the Fair Market Value of Stock on the date the compensation would otherwise have been paid to the grantee if such payment had not been deferred as provided herein. The Administrator shall have the sole right to determine whether and under what circumstances to permit such elections and to impose such limitations and other terms and conditions thereon as the Administrator deems appropriate. Any Restricted Stock Units that are elected to be received in lieu of cash compensation shall be fully vested, unless otherwise provided in the Award Certificate.

(c)Rights as a Stockholder. A grantee shall have the rights as a stockholder only as to shares of Stock acquired by the grantee upon settlement of Restricted Stock Units; provided, however, that the grantee may be credited with Dividend Equivalent Rights with respect to the phantom stock units underlying his Restricted Stock Units, subject to the provisions of Section 13 and such terms and conditions as the Administrator may determine.

(d)Termination. Except as may otherwise be provided by the Administrator either in the Award Certificate or, subject to Section 18 below, in writing after the Award is issued, a grantee's right in all Restricted Stock Units that have not vested shall automatically terminate upon the grantee's termination of employment (or cessation of service relationship) with the Company and its Subsidiaries for any reason.

SECTION 9. UNRESTRICTED STOCK AWARDS

Grant or Sale of Unrestricted Stock. The Administrator may, in its sole discretion, grant (or sell at par value or such higher purchase price determined by the Administrator) an Unrestricted Stock Award under the Plan. Unrestricted Stock Awards may be granted in respect of past services or other valid consideration, or in lieu of cash compensation due to such grantee.

SECTION 10. CASH-BASED AWARDS

Grant of Cash-Based Awards. The Administrator may, in its sole discretion, grant Cash-Based Awards to any grantee in such number or amount and upon such terms, and subject to such conditions, as the Administrator shall determine at the time of grant. The Administrator shall determine the maximum duration of the Cash-Based Award, the amount of cash to which the Cash-Based Award pertains, the conditions upon which the Cash-Based Award shall become vested or payable, and such other provisions as the Administrator shall determine. Each Cash-Based Award shall specify a cash-denominated payment amount, formula or payment ranges as determined by the Administrator. Payment, if any, with respect to a Cash-Based Award shall be made in accordance with the terms of the Award and may be made in cash or in shares of Stock, as the Administrator determines.

SECTION 11. PERFORMANCE SHARE AWARDS

(a)Nature of Performance Share Awards. The Administrator may, in its sole discretion, grant Performance Share Awards independent of, or in connection with, the granting of any other Award under the Plan. The Administrator shall determine whether and to whom Performance Share Awards shall be granted, the Performance Goals, the periods

during which performance is to be measured, and such other limitations and conditions as the Administrator shall determine.

(b)Rights as a Stockholder. A grantee receiving a Performance Share Award shall have the rights of a stockholder only as to shares actually received by the grantee under the Plan and not with respect to shares subject to the Award but not actually received by the grantee. A grantee shall be entitled to receive shares of Stock under a Performance Share Award only upon satisfaction of all conditions specified in the Performance Share Award Certificate (or in a performance plan adopted by the Administrator).

(c)Termination. Except as may otherwise be provided by the Administrator either in the Award agreement or, subject to Section 18 below, in writing after the Award is issued, a grantee's rights in all Performance Share Awards shall automatically terminate upon the grantee's termination of employment (or cessation of service relationship) with the Company and its Subsidiaries for any reason.

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SECTION 12. PERFORMANCE-BASED AWARDS TO COVERED EMPLOYEES

(a)Performance-Based Awards. Any employee or other key person providing services to the Company and who is selected by the Administrator may be granted one or more Performance-Based Awards in the form of a Restricted Stock Award, Restricted Stock Units, Performance Share Awards or Cash-Based Award payable upon the attainment of Performance Goals that are established by the Administrator and relate to one or more of the Performance Criteria, in each case on a specified date or dates or over any period or periods determined by the Administrator. The Administrator shall define in an objective fashion the manner of calculating the Performance Criteria it selects to use for any Performance Cycle. Depending on the Performance Criteria used to establish such Performance Goals, the Performance Goals may be expressed in terms of overall Company performance or the performance of a division, business unit, or an individual. The Administrator, in its discretion, may adjust or modify the calculation of Performance Goals for such Performance Cycle in order to prevent the dilution or enlargement of the rights of an individual (i) in the event of, or in anticipation of, any unusual or extraordinary corporate item, transaction, event or development, (ii) in recognition of, or in anticipation of, any other unusual or nonrecurring events affecting the Company, or the financial statements of the Company, or (iii) in response to, or in anticipation of, changes in applicable laws, regulations, accounting principles, or business conditions provided however, that the Administrator may not exercise such discretion in a manner that would increase the Performance-Based Award granted to a Covered Employee. Any adjustment would be "in good faith" by the Administrator to prevent inappropriate harm as a result of one of the listed events. Each Performance-Based Award shall comply with the provisions set forth below.

(b)Grant of Performance-Based Awards. With respect to each Performance-Based Award granted to a Covered Employee, the Administrator shall select, within the first 90 days of a Performance Cycle (or, if shorter, within the maximum period allowed under Section 162(m) of the Code) the Performance Criteria for such grant, and the Performance Goals with respect to each Performance Criterion (including a threshold level of performance below which no amount will become payable with respect to such Award). Each Performance-Based Award will specify the amount payable, or the formula for determining the amount payable, upon achievement of the various applicable performance targets. The Performance Criteria established by the Administrator may be (but need not be) different for each Performance Cycle and different Performance Goals may be applicable to Performance-Based Awards to different Covered Employees.

(c)Payment of Performance-Based Awards. Following the completion of a Performance Cycle, the Administrator shall meet to review and certify in writing whether, and to what extent, the Performance Goals for the Performance Cycle have been achieved and, if so, to also calculate and certify in writing the amount of the Performance-Based Awards earned for the Performance Cycle. The Administrator shall then determine the actual size of each Covered Employee's Performance-Based Award, and, in doing so, may reduce or eliminate the amount of the Performance-Based Award for a Covered Employee if, in its sole judgment, such reduction or elimination is appropriate.

(d)Maximum Award Payable. The maximum Performance-Based Award payable to any one Covered Employee under the Plan for a Performance Cycle is 500,000 shares of Stock (subject to adjustment as provided in Section 3(c) hereof) or \$5 million in the case of a Performance-Based Award that is a Cash-Based Award.

SECTION 13. DIVIDEND EQUIVALENT RIGHTS

(a)Dividend Equivalent Rights. A Dividend Equivalent Right may be granted hereunder to any grantee as a component of an award of Restricted Stock Units, Restricted Stock Award or Performance Share Award or as a freestanding award. The terms and conditions of Dividend Equivalent Rights shall be specified in the Award Certificate. Dividend equivalents credited to the holder of a Dividend Equivalent Right may be paid concurrently with vesting of the underlying Award or may be deemed to be reinvested in additional shares of Stock, which may

thereafter accrue additional equivalents. Any such reinvestment shall be at Fair Market Value on the date of reinvestment or such other price as may then apply under a dividend reinvestment plan sponsored by the Company, if any. Dividend Equivalent Rights may be settled in cash or shares of Stock or a combination thereof, in a single installment or installments. A Dividend Equivalent Right granted as a component of an Award with vesting shall provide that such Dividend Equivalent Right shall be settled only upon settlement or payment of, or lapse of restrictions on, such other Award, and that such Dividend Equivalent Right shall expire or be forfeited or annulled under the same conditions as such other Award.

(b)Interest Equivalents. Any Award under this Plan that is settled in whole or in part in cash on a deferred basis may provide in the grant for interest equivalents to be credited with respect to such cash payment. Interest equivalents may be compounded and shall be paid upon such terms and conditions as may be specified by the grant.

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(c)Termination. Except as may otherwise be provided by the Administrator either in the Award Certificate or, subject to Section 18 below, in writing after the Award is issued, a grantee's rights in all Dividend Equivalent Rights or interest equivalents granted as a component of an award of Restricted Stock Units, Restricted Stock Award or Performance Share Award that has not vested shall automatically terminate upon the grantee's termination of employment (or cessation of service relationship) with the Company and its Subsidiaries for any reason.

SECTION 14. TRANSFERABILITY OF AWARDS

(a)Transferability. Except as provided in Section 14(b) below, during a grantee's lifetime, his or her Awards shall be exercisable only by the grantee, or by the grantee's legal representative or guardian in the event of the grantee's incapacity. No Awards shall be sold, assigned, transferred or otherwise encumbered or disposed of by a grantee other than by will or by the laws of descent and distribution or pursuant to a domestic relations order. No Awards shall be subject, in whole or in part, to attachment, execution, or levy of any kind, and any purported transfer in violation hereof shall be null and void.

(b) Administrator Action. Notwithstanding Section 14(a), the Administrator, in its discretion, may provide either in the Award Certificate regarding a given Award or by subsequent written approval that the grantee (who is an employee or director) may transfer his or her Non-Qualified Options to his or her immediate family members, to trusts for the benefit of such family members, or to partnerships in which such family members are the only partners, provided that the transferee agrees in writing with the Company to be bound by all of the terms and conditions of this Plan and the applicable Award. In no event may an Award be transferred by a grantee for value.

(c)Family Member. For purposes of Section 14(b), "family member" shall mean a grantee's child, stepchild, grandchild, parent, stepparent, grandparent, spouse, former spouse, sibling, niece, nephew, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including adoptive relationships, any person sharing the grantee's household (other than a tenant of the grantee), a trust in which these persons (or the grantee) have more than 50 percent of the beneficial interest, a foundation in which these persons (or the grantee) control the management of assets, and any other entity in which these persons (or the grantee) own more than 50 percent of the voting interests.

(d)Designation of Beneficiary. Each grantee to whom an Award has been made under the Plan may designate a beneficiary or beneficiaries to exercise any Award or receive any payment under any Award payable on or after the grantee's death. Any such designation shall be on a form provided for that purpose by the Administrator and shall not be effective until received by the Administrator. If no beneficiary has been designated by a deceased grantee, or if the designated beneficiaries have predeceased the grantee, the beneficiary shall be the grantee's estate.

SECTION 15. TAX WITHHOLDING

(a)Payment by Grantee. Each grantee shall, no later than the date as of which the value of an Award or of any Stock or other amounts received thereunder first becomes includable in the gross income of the grantee for Federal income tax purposes, pay to the Company, or make arrangements satisfactory to the Administrator regarding payment of, any Federal, state, or local taxes of any kind required by law to be withheld by the Company with respect to such income. The Company and its Subsidiaries shall, to the extent permitted by law, have the right to deduct any such taxes from any payment of any kind otherwise due to the grantee. The Company's obligation to deliver evidence of book entry (or stock certificates) to any grantee is subject to and conditioned on tax withholding obligations being satisfied by the grantee.

(b)Payment in Stock. Subject to approval by the Administrator, a grantee may elect to have the Company's tax withholding obligation satisfied, in whole or in part, by authorizing the Company to withhold from shares of Stock to be issued pursuant to any Award a number of shares with an aggregate Fair Market Value (as of the date the

withholding is effected) that would satisfy the withholding amount due; provided, however, that to the extent necessary to avoid adverse accounting treatment such share withholding may be limited to the minimum required tax withholding obligation. The Administrator may also require Awards to be subject to mandatory share withholding up to the required withholding amount. For purposes of share withholding, the Fair Market Value of withheld shares shall be determined in the same manner as the value of Stock includible in income of the Participants.

SECTION 16. SECTION 409A AWARDS

To the extent that any Award is determined to constitute “nonqualified deferred compensation” within the meaning of Section 409A (a “409A Award”), the Award shall be subject to such additional rules and requirements as specified by the Administrator from time to time in order to comply with Section 409A. In this regard, if any amount under a 409A Award is payable upon a “separation from service” (within the meaning of Section 409A) to a grantee who is then considered a

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“specified employee” (within the meaning of Section 409A), then no such payment shall be made prior to the date that is the earlier of (i) six months and one day after the grantee’s separation from service, or (ii) the grantee’s death, but only to the extent such delay is necessary to prevent such payment from being subject to interest, penalties and/or additional tax imposed pursuant to Section 409A. Further, the settlement of any such Award may not be accelerated except to the extent permitted by Section 409A.

SECTION 17. TRANSFER, LEAVE OF ABSENCE, ETC.

For purposes of the Plan, the following events shall not be deemed a termination of employment:

(a) a transfer to the employment of the Company from a Subsidiary or from the Company to a Subsidiary, or from one Subsidiary to another; or

(b) an approved leave of absence for military service or sickness, or for any other purpose approved by the Company, if the employee’s right to re-employment is guaranteed either by a statute or by contract or under the policy pursuant to which the leave of absence was granted or if the Administrator otherwise so provides in writing.

SECTION 18. AMENDMENTS AND TERMINATION

The Board may, at any time, amend or discontinue the Plan and the Administrator may, at any time, amend or cancel any outstanding Award for the purpose of satisfying changes in law or for any other lawful purpose, but no such action shall adversely affect rights under any outstanding Award without the holder’s consent. Except as provided in Section 3(c) or 3(d), without prior stockholder approval, in no event may the Administrator exercise its discretion to reduce the exercise price of outstanding Stock Options or Stock Appreciation Rights or effect repricing through cancellation and re-grants or cancellation of Stock Options or Stock Appreciation Rights in exchange for cash. To the extent required under the rules of any securities exchange or market system on which the Stock is listed, to the extent determined by the Administrator to be required by the Code to ensure that Incentive Stock Options granted under the Plan are qualified under Section 422 of the Code, or to ensure that compensation earned under Awards qualifies as performance-based compensation under Section 162(m) of the Code, Plan amendments shall be subject to approval by the Company stockholders entitled to vote at a meeting of stockholders. Nothing in this Section 18 shall limit the Administrator’s authority to take any action permitted pursuant to Section 3(c) or 3(d).

SECTION 19. STATUS OF PLAN

With respect to the portion of any Award that has not been exercised and any payments in cash, Stock or other consideration not received by a grantee, a grantee shall have no rights greater than those of a general creditor of the Company unless the Administrator shall otherwise expressly determine in connection with any Award or Awards. In its sole discretion, the Administrator may authorize the creation of trusts or other arrangements to meet the Company’s obligations to deliver Stock or make payments with respect to Awards hereunder, provided that the existence of such trusts or other arrangements is consistent with the foregoing sentence.

SECTION 20. GENERAL PROVISIONS

(a) No Distribution. The Administrator may require each person acquiring Stock pursuant to an Award to represent to and agree with the Company in writing that such person is acquiring the shares without a view to distribution thereof.

(b) Delivery of Stock Certificates. Stock certificates to grantees under this Plan shall be deemed delivered for all purposes when the Company or a stock transfer agent of the Company shall have mailed such certificates in the United States mail, addressed to the grantee, at the grantee’s last known address on file with the Company. Uncertificated Stock shall be deemed delivered for all purposes when the Company or a Stock transfer agent of the Company shall have given to the grantee by electronic mail (with proof of receipt) or by United States mail, addressed to the grantee, at the grantee’s last known address on file with the Company, notice of issuance and recorded the issuance in its records (which may include electronic “book entry” records). Notwithstanding anything herein to the contrary, the Company shall not be required to issue or deliver any certificates evidencing shares of Stock pursuant to the exercise of any Award, unless and until the Administrator has determined, with advice of counsel (to the extent the

Administrator deems such advice necessary or advisable), that the issuance and delivery of such certificates is in compliance with all applicable laws, regulations of governmental authorities and, if applicable, the requirements of any exchange on which the shares of Stock are listed, quoted or traded. All Stock certificates delivered pursuant to the Plan shall be subject to any stop-transfer orders and other restrictions as the Administrator deems necessary or advisable to comply with federal, state or foreign jurisdiction, securities or other laws, rules and quotation system on which the Stock is listed, quoted or traded. The Administrator may place legends on any Stock certificate to reference restrictions applicable to the Stock. In addition to the terms and conditions provided herein, the Administrator may require that

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an individual make such reasonable covenants, agreements, and representations as the Administrator, in its discretion, deems necessary or advisable in order to comply with any such laws, regulations, or requirements. The Administrator shall have the right to require any individual 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 Administrator.

(c) Stockholder Rights. Until Stock is deemed delivered in accordance with Section 20(b), no right to vote or receive dividends or any other rights of a stockholder will exist with respect to shares of Stock to be issued in connection with an Award, notwithstanding the exercise of a Stock Option or any other action by the grantee with respect to an Award.

(d) Other Compensation Arrangements; No Employment Rights. Nothing contained in this Plan shall prevent the Board from adopting other or additional compensation arrangements, including trusts, and such arrangements may be either generally applicable or applicable only in specific cases. The adoption of this Plan and the grant of Awards do not confer upon any employee any right to continued employment with the Company or any Subsidiary.

(e) Trading Policy Restrictions. Option exercises and other Awards under the Plan shall be subject to the Company's insider trading policies and procedures, as in effect from time to time.

(f) Forfeiture of Awards under Sarbanes-Oxley Act. If the Company is required to prepare an accounting restatement due to the material noncompliance of the Company, as a result of misconduct, with any financial reporting requirement under the securities laws, then any grantee who is one of the individuals subject to automatic forfeiture under Section 304 of the Sarbanes-Oxley Act of 2002 shall reimburse the Company for the amount of any Award received by such individual under the Plan during the 12-month period following the first public issuance or filing with the United States Securities and Exchange Commission, as the case may be, of the financial document embodying such financial reporting requirement.

(g) Clawback Policy. Awards under the Plan shall be subject to the Company's clawback policy, as in effect from time to time.

SECTION 21. EFFECTIVE DATE OF PLAN

This Plan shall become effective upon stockholder approval in accordance with applicable state law, the Company's by-laws and articles of incorporation, and applicable stock exchange rules. No grants of Stock Options and other Awards may be made hereunder after the tenth anniversary of May 18, 2027 and no grants of Incentive Stock Options may be made hereunder after the tenth anniversary of April 6, 2027.

SECTION 22. GOVERNING LAW

This Plan and all Awards and actions taken thereunder shall be governed by, and construed in accordance with, the laws of the State of Delaware, applied without regard to conflict of law principles.

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Appendix B
AMAG PHARMACEUTICALS, INC.

and

AMERICAN STOCK TRANSFER & TRUST COMPANY, LLC
as Rights Agent

RIGHTS AGREEMENT

Dated as of April 7, 2017

RIGHTS AGREEMENT

THIS RIGHTS AGREEMENT (“Agreement”), is dated as of April 7, 2017, between AMAG PHARMACEUTICALS, INC., a Delaware corporation (the “Company”), and AMERICAN STOCK TRANSFER & TRUST COMPANY, LLC (“Rights Agent”).

RECITALS

The Board of Directors of the Company has authorized and declared a dividend of one preferred share purchase right (a “Right”) for each Common Share (as such term is hereinafter defined) outstanding at the Close of Business on April 17, 2017 (the “Record Date”), each Right representing the right to purchase one one-thousandth of a Preferred Share (as such term is hereinafter defined), upon the terms and subject to the conditions herein set forth, and has further authorized and directed the issuance of one Right with respect to each Common Share that shall become outstanding between the Record Date and the earliest to occur of the Distribution Date, the Redemption Date and the Final Expiration Date (as such terms are hereinafter defined); provided, however, that Rights may be issued with respect to Common Shares that shall become outstanding after the Distribution Date and prior to the earlier of the Redemption Date and the Final Expiration Date in accordance with the provisions of Section 22 hereof.

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AGREEMENT

Accordingly, in consideration of the premises and the mutual agreements herein set forth, the parties hereby agree as follows:

SECTION 1. CERTAIN DEFINITIONS. For purposes of this Agreement, the following terms have the meanings indicated:

(a)“Acquiring Person” shall mean any Person (as such term is hereinafter defined) who or that, together with all Affiliates and Associates (as such terms are hereinafter defined) of such Person, shall be the Beneficial Owner (as such term is hereinafter defined) of 4.99% or more of the Common Shares then outstanding. Notwithstanding the foregoing, (A) the term Acquiring Person shall not include (i) the Company, (ii) any Subsidiary (as such term is hereinafter defined) of the Company, (iii) any employee benefit or compensation plan of the Company or any Subsidiary of the Company, and (iv) any entity holding Common Shares for or pursuant to the terms of any such employee benefit or compensation plan of the Company or any Subsidiary of the Company, (B) no Person shall become an “Acquiring Person” either (x) as the result of an acquisition of Common Shares by the Company that, by reducing the number of shares outstanding, increases the proportionate number of shares beneficially owned by such Person to 4.99% (or, in the case of a Grandfathered Person, the Grandfathered Percentage applicable to such Grandfathered Person) or more of the Common Shares then outstanding; provided, however, that if a Person shall become the Beneficial Owner of 4.99% (or, in the case of a Grandfathered Person, the Grandfathered Percentage applicable to such Grandfathered Person) or more of the Common Shares then outstanding by reason of share purchases by the Company and shall, following written notice from, or public disclosure by the Company of such share purchases by the Company, become the Beneficial Owner of any additional Common Shares without the prior consent of the Company and shall then beneficially own more than 4.99% (or, in the case of a Grandfathered Person, the Grandfathered Percentage applicable to such Grandfathered Person) of the Common Shares then outstanding, then such Person shall be deemed to be an “Acquiring Person,” or (y) if the Board of Directors determines in good faith that a Person who would otherwise be an “Acquiring Person,” as defined pursuant to the foregoing provisions of this paragraph (a), has become such inadvertently, and such Person divests, as promptly as practicable (as determined in good faith by the Board of Directors), following receipt of written notice from the Company of such event, of Beneficial Ownership of a sufficient number of Common Shares so that such Person would no longer be an Acquiring Person, as defined pursuant to the foregoing provisions of this paragraph (a), or, in the case of any Derivative Securities underlying a transaction entered into by such Person or otherwise acquired by such Person, such Person terminates such transaction or otherwise disposes of such Derivative Securities so that such Person would no longer be an Acquiring Person, then such Person shall not be deemed to be an “Acquiring Person” for any purposes of this Agreement; provided, however, that if such Person shall again become the Beneficial Owner of 4.99% (or, in the case of a Grandfathered Person, the Grandfathered Percentage applicable to such Grandfathered Person) or more of the Common Shares then outstanding, such Person shall be deemed an “Acquiring Person,” subject to the exceptions set forth in this Section 1(a) and (C) the term “Acquiring Person” shall not include any Person who acquires Common Shares in an Exempt Transaction or any Grandfathered Person, unless such Grandfathered Person becomes the Beneficial Owner of a percentage of the Common Shares of the Company then outstanding equal to or exceeding such Grandfathered Person’s Grandfathered Percentage.

(b)“Affiliate” and “Associate” shall have the respective meanings ascribed to such terms in Rule 12b-2 of the General Rules and Regulations under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), as in effect on the date of this Agreement and, to the extent not included within the foregoing, shall also include, with respect to any Person, any other Person whose Common Shares would be deemed constructively owned or owned through attribution by such first Person pursuant to the provisions of Section 382; provided, however, that the limited partners

of a limited partnership shall not be deemed to be Associates of such limited partnership solely by virtue of their limited partnership interests.

(c)A Person shall be deemed the “Beneficial Owner” of and shall be deemed to “beneficially own” any securities:

(i)that such Person or any of such Person’s Affiliates or Associates is deemed to beneficially own, within the meaning of Rule 13d-3 of the General Rules and Regulations under the Exchange Act as in effect on the date of this Agreement; provided, however, that a Person shall not be deemed the Beneficial Owner of, or to Beneficially Own, securities (including rights, options or warrants) that are convertible or exchangeable into or exercisable for Common Shares except to the extent the acquisition or transfer of such rights, options or warrants would be treated as exercised on the date of its acquisition or transfer under Section 1.382-4(d) or other applicable sections of the Treasury Regulations;

(ii)that such Person or any of such Person’s Affiliates or Associates has (A) the right to acquire (whether such right is exercisable immediately or only after the passage of time) pursuant to any agreement, arrangement or

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understanding (other than customary agreements with and between underwriters and selling group members with respect to a bona fide public offering of securities), or upon the exercise of conversion rights, exchange rights, rights (other than these Rights), warrants or options, or otherwise; provided, however, that a Person shall not be deemed the Beneficial Owner of, or to Beneficially Own securities (including rights, options or warrants) that are convertible or exchangeable into or exercisable for Common Shares except to the extent the acquisition or transfer of such rights, options or warrants would be treated as exercised on the date of its acquisition or transfer under Section 1.382-4(d) or other applicable sections of the Treasury Regulations; and provided further, however, that a Person shall not be deemed the Beneficial Owner of, or to beneficially own, securities tendered pursuant to a tender or exchange offer made by or on behalf of such Person or any of such Person's Affiliates or Associates until such tendered securities are accepted for purchase or exchange; (B) the right to vote pursuant to any agreement, arrangement or understanding, but only if the effect of such agreement, arrangement or understanding is to treat such Person as an "entity" under Section 1.382-3(a)(1) or other applicable sections of the Treasury Regulations; provided, however, that a Person shall not be deemed the Beneficial Owner of, or to beneficially own, any security under this clause (B) if (1) the agreement, arrangement or understanding to vote such security (i) arises solely from a revocable proxy or consent given to such Person in response to a public proxy or consent solicitation made pursuant to, and in accordance with, the applicable rules and regulations promulgated under the Exchange Act and (ii) is not also then reportable on Schedule 13D under the Exchange Act (or any comparable or successor report) or (2) such Beneficial Ownership arises solely as a result of such Person's status as a "clearing agency" as defined in the Exchange Act; or (C) the right to dispose of pursuant to any agreement, arrangement or understanding (whether or not in writing) (other than customary arrangements with and between underwriters and selling group members with respect to a bona fide public offering of securities), but only if the effect of such agreement, arrangement or understanding is to treat such Person as an "entity" under Section 1.382-39(a)(1) or other applicable sections of the Treasury Regulations; or

(iii) that are beneficially owned, directly or indirectly, by any other Person with which such Person or any of such Person's Affiliates or Associates has any agreement, arrangement or understanding (other than customary agreements with and between underwriters and selling group members with respect to a bona fide public offering of securities) for the purpose of acquiring, holding, voting (except to the extent contemplated by the proviso to Section 1(c)(ii)(B) hereof) or disposing of any securities of the Company, provided, however, that the effect of such agreement, arrangement or understanding is to treat such Person as an "entity" under Section 1.382-3(a)(1) or other applicable sections of the Treasury Regulations; provided further, however, an agreement, arrangement or understanding for purposes of this Section 1(c)(iii) shall not be deemed to include actions, including any agreement, arrangement or understanding, or statements by any member of the Company's Board of Directors as of the date of this Agreement, any subsequent directors of the Company (the "Successor Directors") who have been nominated by a majority of directors who are directors as of the date of this Agreement or who are Successor Directors, or by any Person of whom such a director is an Affiliate or Associate, provided, however that this exception shall not apply to a particular Person or Persons if and to the extent that such Person or Persons, after the date of this Agreement, acquires Beneficial Ownership of more than an additional 1% of the then outstanding Common Shares of the Company unless (A) the shares are acquired directly from the Company or as part of an employee benefit or compensation plan of the Company or a subsidiary of the Company or (B) the Person establishes to the satisfaction of the Board of Directors of the Company that it is acting on its own behalf and not in concert with any other Person and will not, upon completion of any purchases, be the Beneficial Owner of 4.99% (or, in the case of a Grandfathered Person, the Grandfathered Percentage applicable to such Grandfathered Person) or more of the outstanding Common Shares;

(iv) that are Derivative Securities provided that the number of Common Shares deemed beneficially owned as a result of such Derivative Securities shall equal the number of Common Shares that are synthetically owned pursuant to the derivative transactions underlying such Derivative Securities; or

(v)that such Person would be deemed to constructively own or own through attribution or which otherwise would be aggregated with shares owned by such Person pursuant to Section 382.

Notwithstanding anything in this definition of Beneficial Ownership to the contrary, the phrase, “then outstanding,” when used with reference to a Person’s Beneficial Ownership of securities of the Company, shall mean the number of such securities then issued and outstanding together with the number of such securities not then actually issued and outstanding that such Person would be deemed to own beneficially hereunder.

Notwithstanding the foregoing or anything in this Agreement to the contrary, for purposes of this Agreement, each Call Spread Counterparty shall be deemed not to Beneficially Own (w) any Common Shares underlying, or synthetically owned pursuant to, any Warrant held by such Call Spread Counterparty, (x) any Common Shares held by such Call Spread Counterparty (or any affiliate thereof) to hedge its exposure with respect to the Call Spread Transactions, (y) any Common Shares underlying, or synthetically owned pursuant to, any Derivative Securities (including the Notes) held, or entered into, by such Call Spread Counterparty (or any affiliate thereof) to hedge its exposure with respect to the Call Spread Transactions or

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(z) any Notes held by such Call Spread Counterparty (or any affiliate thereof) in its capacity as underwriter of the Notes offering.

(d)“Bond Hedges” means each of the bond hedge transactions relating to the Notes entered into from time to time between the Company and a Call Spread Counterparty

(e)“Business Day” shall mean any day other than a Saturday, a Sunday, or a day on which banking institutions in the State of New York are authorized or obligated by law or executive order to close.

(f)“Call Spread Counterparty” means each of JPMorgan Chase Bank, National Association, London Branch, Morgan Stanley & Co., International plc and Royal Bank of Canada, or their respective successors and assigns.

(g)“Call Spread Transactions” means the Bond Hedges and the Warrants.

(h)“Close of Business” on any given date shall mean 5:00 p.m., New York time, on such date; provided, however, that if such date is not a Business Day it shall mean 5:00 p.m., New York time, on the next succeeding Business Day.

(i) “Code” shall mean the Internal Revenue Code of 1986, as amended.

(j) “Common Shares” shall mean the shares of common stock, par value \$.01 per share, of the Company; provided, however, that, “Common Shares,” when used in this Agreement in connection with a specific reference to any Person other than the Company, shall mean the capital stock (or equity interest) with the greatest voting power of such other Person or, if such other Person is a Subsidiary of another Person, the Person or Persons that ultimately control such first-mentioned Person.

(k)“Derivative Securities” shall mean securities underlying a derivative transaction entered into by a Person, or derivative securities acquired by a Person, which give such Person the economic equivalent of ownership of an amount of securities in the Company due to the fact that the value of the derivative transaction is explicitly determined by reference to the price or value of securities in the Company, without regard to whether (i) such derivative securities convey any voting rights in securities in the Company to such Person, (ii) such derivative securities are required to be, or capable of being, settled through delivery of securities in the Company, or (iii) such Person may have entered into other transactions that hedge the economic effect of such derivative securities.

(l)“Distribution Date” shall have the meaning set forth in Section 3 hereof.

(m)“Exempt Transaction” shall mean any transaction that the Board of Directors, in its sole discretion, have declared exempt pursuant to Section 35, which determination shall be irrevocable with respect to such transaction.

(n)“Exemption Request” shall have the meaning set forth in Section 35 hereof.

(o)“Final Expiration Date” shall have the meaning set forth in Section 7 hereof.

(p)“Grandfathered Percentage” shall mean, with respect to any Grandfathered Person, the percentage of the outstanding Common Shares of the Company that such Grandfathered Person, together with all Affiliates and Associates of such Grandfathered Person, Beneficially Owns as of the Grandfathered Time, plus an additional 1/4%; provided, however, that, in the event any Grandfathered Person shall sell, transfer, or otherwise dispose of any outstanding Common Shares of the Company after the Grandfathered Time or if the percentage of outstanding Common Shares of the Company that such Grandfathered Person Beneficially Owns is reduced as a result of the issuance of additional

securities of the Company, the Grandfathered Percentage shall, subsequent to such sale, transfer, disposition or dilutive event, mean, with respect to such Grandfathered Person, the lesser of (i) the Grandfathered Percentage as in effect immediately prior to such sale, transfer, disposition or dilutive event or (ii) the percentage of outstanding Common Shares of the Company that such Grandfathered Person Beneficially Owns immediately following such sale, transfer, disposition or dilutive event, plus an additional 1/4%.

(q)“Grandfathered Person” shall mean any Person who or which, together with all Affiliates and Associates of such Person, is, as of the Grandfathered Time, the Beneficial Owner of 4.99% or more of the Common Shares of the Company then outstanding. Notwithstanding anything to the contrary provided in this Agreement, any Grandfathered Person who after the Grandfathered Time becomes the Beneficial Owner of less than 4.99% of the Common Shares of the Company then outstanding shall cease to be a Grandfathered Person and shall be subject to all of the provisions of this Agreement in the same manner as any Person who is not and was not a Grandfathered Person.

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(r)“Grandfathered Time” shall mean 6:30 a.m., New York city time, on April 10, 2017.

(s)“Interested Stockholder” shall mean any Acquiring Person or any Affiliate or Associate of an Acquiring Person or any other Person in which any such Acquiring Person, Affiliate or Associate has an interest, or any other Person acting directly or indirectly on behalf of or in concert with any such Acquiring Person, Affiliate or Associate.

(t)“Notes” means the 2.50% Convertible Senior Notes due 2019 issued by the Company.

(u)“Person” shall mean any individual, firm, corporation, limited liability company, partnership, joint venture, association, trust, unincorporated organization or other entity, and shall include any successor (by merger or otherwise) of such entity.

(v)“Preferred Shares” shall mean shares of Series A Junior Participating Preferred Stock, par value \$.01 per share, of the Company having the designations and the powers, preferences and rights, and the qualifications, limitations and restrictions set forth in the Form of Certificate of Designation attached to this Agreement as EXHIBIT A.

(w)“Purchase Price” shall have the meaning set forth in Section 7(b) hereof.

(x)“Redemption Date” shall have the meaning set forth in Section 7(a) hereof.

(y)“Requesting Person” shall have the meaning set forth in Section 35 hereof.

(z)“Section 382” shall mean Section 382 of the Code and any successor provision or replacement provision and the Treasury Regulations promulgated thereunder.

(aa)“Shares Acquisition Date” shall mean the date 10 days following the first date of public announcement by the Company or an Acquiring Person that an Acquiring Person has become such; provided, however that, if such Person is determined not to have become an Acquiring Person pursuant to clause (y) of Subsection 1(a)(B) hereof, then no Shares Acquisition Date shall be deemed to have occurred.

(bb)“Subsidiary” of any Person shall mean any corporation or other entity of which a majority of the voting power of the voting equity securities or equity interest is owned, directly or indirectly, by such Person.

(cc)“Tax Benefits” shall mean the net operating loss carryovers, capital loss carryovers, general business carryovers, alternative minimum tax credit carryovers and foreign tax credit carryovers, as well as any loss or deduction attributable to a “net unrealized built-in loss” within the meaning of Section 382, of the Company and its Subsidiaries.

(dd)“Transaction” shall mean any merger, consolidation or sale of assets described in Section 13(a) hereof or any acquisition of Common Shares that would result in a Person becoming an Acquiring Person or a Principal Party (as such term is hereinafter defined).

(ee)“Transaction Person” with respect to a Transaction shall mean (i) any Person who (x) is or will become an Acquiring Person or a Principal Party (as such term is hereinafter defined) if the Transaction were to be consummated and (y) directly or indirectly proposed or nominated a director of the Company which director is in office at the time of consideration of the Transaction, or (ii) an Affiliate or Associate of such a Person.

(ff) "Treasury Regulations" shall mean U.S. Treasury regulations promulgated under the Code.

(gg) "Warrants" means each of the warrant transactions entered into between the Company and a Call Spread Counterparty substantially concurrently with the Bond Hedges.

SECTION 2. APPOINTMENT OF RIGHTS AGENT. The Company hereby appoints the Rights Agent to act as agent for the Company in accordance with the terms and conditions hereof, and the Rights Agent hereby accepts such appointment. The Company may from time to time appoint such co-rights agents as it may deem necessary or desirable. The Rights Agent shall have no duty to supervise, and shall in no event be liable for, the acts or omissions of any such co-rights agent.

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SECTION 3. ISSUE OF RIGHT CERTIFICATES.

(a) Until the earlier of the Close of Business on (i) the Shares Acquisition Date or (ii) the tenth Business Day (or such later date as may be determined by action of the Board of Directors prior to such time as any Person becomes an Acquiring Person) after the date of the commencement (determined in accordance with Rule 14d-2 under the Exchange Act) by any Person (other than the Company, any Subsidiary of the Company, any employee benefit plan of the Company or of any Subsidiary of the Company or any entity holding Common Shares for or pursuant to the terms of any such plan) of, or of the first public announcement of the intention of any Person (other than the Company, any Subsidiary of the Company, any employee benefit plan of the Company or of any Subsidiary of the Company or any entity holding Common Shares for or pursuant to the terms of any such plan) to commence, a tender or exchange offer (for which intention to commence has not been abandoned pursuant to a public announcement by the fifth Business Day after such initial announcement), the consummation of which would result in any Person becoming an Acquiring Person (including any such date that is after the date of this Agreement and prior to the issuance of the Rights, the earlier of such dates being herein referred to as the “Distribution Date”), (x) the Rights will be evidenced by the certificates for Common Shares registered in the names of the holders thereof (which certificates shall also be deemed to be Right Certificates) and not by separate Right Certificates, and (y) the Rights (and the right to receive Right Certificates therefor) will be transferable only in connection with the transfer of Common Shares. As soon as practicable after the Distribution Date, the Company will prepare and execute, the Rights Agent will countersign, and the Company will send or cause to be sent (and the Rights Agent will, if requested, send) by first-class, insured, postage-prepaid mail, to each record holder of Common Shares as of the Close of Business on the Distribution Date, at the address of such holder shown on the records of the Company, a Right Certificate, in substantially the form of EXHIBIT B hereto (a “Right Certificate”), evidencing one Right for each Common Share so held, subject to the adjustment provisions of Section 11 of this Agreement. As of the Distribution Date, the Rights will be evidenced solely by such Right Certificates.

(b) Upon request following the Record Date, the Company will promptly make available (directly or through the Rights Agent or its transfer agent) a copy of a Summary of Rights to Purchase Preferred Shares, in substantially the form of EXHIBIT C hereto (the “Summary of Rights”) to any holder of Rights who so requests from time to time prior to the Expiration Date. With respect to certificates for Common Shares outstanding as of the Record Date, until the Distribution Date, the Rights will be evidenced by such certificates registered in the names of the holders thereof. Until the Distribution Date (or the earlier of the Redemption Date and the Final Expiration Date), the surrender for transfer of any certificate for Common Shares outstanding on the Record Date shall also constitute the transfer of the Rights associated with the Common Shares represented thereby.

(c) Certificates for Common Shares that become outstanding (including, without limitation, reacquired Common Shares referred to in the penultimate sentence of this paragraph (c)) after the Record Date but prior to the earliest of the Distribution Date, the Redemption Date or the Final Expiration Date shall have impressed on, printed on, written on or otherwise affixed to them substantially the following legend:

THIS CERTIFICATE ALSO EVIDENCES AND ENTITLES THE HOLDER HEREOF TO CERTAIN RIGHTS AS SET FORTH IN A RIGHTS AGREEMENT BETWEEN AMAG PHARMACEUTICALS, INC. (THE “COMPANY”) AND AMERICAN STOCK TRANSFER & TRUST COMPANY, LLC AS RIGHTS AGENT (THE “RIGHTS AGENT”), DATED AS OF APRIL 7, 2017, AS AMENDED FROM TIME TO TIME (THE “RIGHTS AGREEMENT”), THE TERMS OF WHICH ARE HEREBY INCORPORATED HEREIN BY REFERENCE AND A COPY OF WHICH IS ON FILE AT THE PRINCIPAL EXECUTIVE OFFICES OF THE COMPANY. UNDER CERTAIN CIRCUMSTANCES, AS SET FORTH IN THE RIGHTS AGREEMENT, SUCH RIGHTS WILL BE EVIDENCED BY SEPARATE CERTIFICATES AND WILL NO LONGER BE EVIDENCED BY THIS CERTIFICATE. THE COMPANY WILL MAIL TO THE HOLDER OF THIS CERTIFICATE A COPY OF THE RIGHTS AGREEMENT

WITHOUT CHARGE AFTER RECEIPT OF A WRITTEN REQUEST THEREFOR. AS DESCRIBED IN THE RIGHTS AGREEMENT, RIGHTS ISSUED TO ANY PERSON WHO BECOMES AN ACQUIRING PERSON OR AN AFFILIATE OR ASSOCIATE THEREOF (AS DEFINED IN THE RIGHTS AGREEMENT) AND CERTAIN RELATED PERSONS, WHETHER CURRENTLY HELD BY OR ON BEHALF OF SUCH PERSON OR BY ANY SUBSEQUENT HOLDER, SHALL BECOME NULL AND VOID.

With respect to such certificates containing the foregoing legend, until the Distribution Date (or, if earlier, the earlier of the Redemption Date or the Final Expiration Date), the Rights associated with the Common Shares represented by such certificates shall be evidenced by such certificates alone, and the surrender for transfer of any such certificate shall also constitute the transfer of the Rights associated with the Common Shares represented thereby. In the event that the Company purchases or acquires any Common Shares after the Record Date but prior to the Distribution Date, any Rights associated with such Common Shares shall be deemed canceled and retired so that the Company shall not be entitled to exercise any Rights

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associated with the Common Shares that are no longer outstanding. Notwithstanding this Section 3(c), the omission of a legend shall not affect the enforceability of any part of this Agreement or the rights of any holder of the Rights.

SECTION 4. FORM OF RIGHT CERTIFICATES.

(a)The Right Certificates (and the form of election to purchase Preferred Shares, the form of assignment and the form of certification to be printed on the reverse thereof) shall be substantially the same as EXHIBIT B hereto and may have such marks of identification or designation and such legends, summaries or endorsements printed thereon as the Company may deem appropriate and as are not inconsistent with the provisions of this Agreement, or as may be required to comply with any applicable law or with any rule or regulation made pursuant thereto or with any rule or regulation of any stock exchange or quotation system on which the Rights may from time to time be listed, or to conform to usage. Subject to the provisions of Sections 7, 11 and 22 hereof, the Right Certificates shall entitle the holders thereof to purchase such number of one one-thousandths of a Preferred Share as shall be set forth therein at the Purchase Price (as defined in Section 7(b)), but the number of such one one-thousandths of a Preferred Share and the Purchase Price shall be subject to adjustment as provided herein.

(b)Any Right Certificate issued pursuant to Section 3(a) or Section 22 hereof that represents Rights that are null and void pursuant to the second paragraph of Section 11(a)(ii) hereof and any Right Certificate issued pursuant to Section 6 or Section 11 hereof upon transfer, exchange, replacement or adjustment of any other Right Certificate referred to in this sentence, shall contain (to the extent feasible) the following legend:

THE RIGHTS REPRESENTED BY THIS RIGHT CERTIFICATE ARE OR WERE BENEFICIALLY OWNED BY A PERSON WHO WAS OR BECAME AN ACQUIRING PERSON OR AN AFFILIATE OR ASSOCIATE OF AN ACQUIRING PERSON (AS SUCH TERMS ARE DEFINED IN THE RIGHTS AGREEMENT). ACCORDINGLY, THIS RIGHT CERTIFICATE AND THE RIGHTS REPRESENTED HEREBY ARE NULL AND VOID.

The provisions of Section 11(a)(ii) hereof shall be operative whether or not the foregoing legend is contained on any such Right Certificate.

SECTION 5. COUNTERSIGNATURE AND REGISTRATION. The Right Certificates shall be executed on behalf of the Company by its Chairman of the Board, its Chief Executive Officer, its President, its Chief Financial Officer, or any of its Senior Vice Presidents, either manually or by facsimile or .PDF signature, shall have affixed thereto the Company's seal or a facsimile or .PDF thereof (to the extent the Company has one at such time), and shall be attested by the Secretary or an Assistant Secretary of the Company, either manually or by facsimile or .PDF signature. The Right Certificates shall be countersigned by the Rights Agent either manually or by facsimile or .PDF signature and shall not be valid for any purpose unless countersigned. In case any officer of the Company who shall have signed any of the Right Certificates shall cease to be such officer of the Company before countersignature by the Rights Agent and issuance and delivery by the Company, such Right Certificates, nevertheless, may be countersigned by the Rights Agent and issued and delivered by the Company with the same force and effect as though the person who signed such Right Certificates had not ceased to be such officer of the Company; and any Right Certificate may be signed on behalf of the Company by any person who, at the actual date of the execution of such Right Certificate, shall be a proper officer of the Company to sign such Right Certificate, although at the date of the execution of this Agreement any such person was not such an officer.

Following the Distribution Date, the Rights Agent will keep or cause to be kept, at its office designated for such purpose, books for registration and transfer of the Right Certificates issued hereunder. Such books shall show the names and addresses of the respective holders of the Right Certificates, the number of Rights evidenced on its face by each of the Right Certificates and the date of each of the Right Certificates.

SECTION 6. TRANSFER, SPLIT UP, COMBINATION AND EXCHANGE OF RIGHT CERTIFICATES; MUTILATED, DESTROYED, LOST OR STOLEN RIGHT CERTIFICATES. Subject to the provisions of Section 11(a)(ii), Section 14 and Section 24 hereof, at any time after the Close of Business on the Distribution Date, and at or prior to the Close of Business on the earlier of the Redemption Date or the Final Expiration Date, any Right Certificate or Right Certificates may be transferred, split up, combined or exchanged for another Right Certificate or Right Certificates, entitling the registered holder to purchase a like number of one one-thousandths of a Preferred Share as the Right Certificate or Right Certificates surrendered then entitled such holder to purchase. Any registered holder desiring to transfer, split up, combine or exchange any Right Certificate or Right Certificates shall make such request in writing delivered to the Rights Agent, and shall surrender the Right Certificate or Right Certificates to be transferred, split up, combined or exchanged at the office of the Rights Agent designated for such purpose. Neither the Rights Agent nor the Company shall be obligated to take any action whatsoever with respect to the transfer of any such surrendered Right Certificate until the registered holder shall have

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completed and signed the certificate contained in the form of assignment on the reverse side of such Right Certificate and shall have provided such additional evidence of the identity of the Beneficial Owner (or former Beneficial Owner) or Affiliates or Associates thereof as the Company or the Rights Agent shall reasonably request. Thereupon the Rights Agent shall, subject to Section 11(a)(ii), Section 14 and Section 24 hereof, countersign and deliver to the person entitled thereto a Right Certificate or Right Certificates, as the case may be, as so requested. The Company may require payment of a sum sufficient to cover any tax or governmental charge that may be imposed in connection with any transfer, split up, combination or exchange of Right Certificates.

Upon receipt by the Company and the Rights Agent of evidence reasonably satisfactory to them of the loss, theft, destruction or mutilation of a Right Certificate, and, in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to them, and, at the Company's request, reimbursement to the Company and the Rights Agent of all reasonable expenses incidental thereto, and upon surrender to the Rights Agent and cancellation of the Right Certificate if mutilated, the Company will issue, execute and deliver a new Right Certificate of like tenor to the Rights Agent for countersignature and delivery to the registered holder in lieu of the Right Certificate so lost, stolen, destroyed or mutilated.

Notwithstanding any other provisions hereof, the Company and the Rights Agent may amend this Agreement to provide for uncertificated Rights in addition to or in place of Rights evidenced by Rights Certificates.

SECTION 7. EXERCISE OF RIGHTS; PURCHASE PRICE; EXPIRATION DATE OF RIGHTS.

(a)The registered holder of any Right Certificate may exercise the Rights evidenced thereby (except as otherwise provided herein) in whole or in part at any time after the Distribution Date upon surrender of the Right Certificate, with the form of election to purchase on the reverse side thereof duly executed, to the Rights Agent at the office of the Rights Agent designated for such purpose, together with payment of the Purchase Price in cash, or by certified check or cashier's check payable to the order of the Company for each one one-thousandth of a Preferred Share (or such other number of shares or other securities) as to which the Rights are exercised, at or prior to the earliest of (i) the Close of Business on April 6, 2018, (ii) the time at which the Rights are redeemed as provided in Section 23 hereof (the "Redemption Date"), (iii) the time at which such Rights are exchanged as provided in Section 24 hereof, (iv) the Close of Business on the effective date of the repeal of Section 382 or any successor statute if the Board of Directors determines that this Agreement is no longer necessary or desirable for the preservation of Tax Benefits, (v) the Close of Business on the first day of a taxable year of the Company to which the Board of Directors determines that no Tax Benefits may be carried forward or (vi) the Close of Business on the date of the final adjournment of the Company's 2017 annual meeting of stockholders if, following the final closing of the polls at such meeting, stockholder approval of the Agreement has not been obtained (the earliest of (i), (iv), (v) and (vi), the "Final Expiration Date").

(b)The purchase price for each one one-thousandth of a Preferred Share pursuant to the exercise of a Right shall initially be \$80 (the "Purchase Price") and shall be subject to adjustment from time to time as provided in Sections 11 and 13 hereof and shall be payable in lawful money of the United States of America in accordance with paragraph (c) below.

(c)Upon receipt of a Right Certificate representing exercisable Rights, with the form of election to purchase duly executed, accompanied by payment of the Purchase Price for the shares to be purchased and an amount equal to any applicable tax or charge required to be paid by the holder of such Right Certificate in accordance with Section 9 hereof by certified check, cashier's check, bank draft or money order payable to the order of the Company, the Rights Agent shall thereupon promptly (i) (A) requisition from any transfer agent (or make available, if the Rights Agent is the transfer agent for such shares) for the Preferred Shares certificates for the number of Preferred Shares to be purchased and, if the Rights Agent is the transfer agent for such shares, the Company hereby irrevocably authorizes

the Rights Agent, in its capacity as transfer agent to comply with all such requests, or (B) if the Company, in its sole discretion, shall have elected to deposit the Preferred Shares issuable upon exercise of the Rights hereunder into a depository, requisition from the depository agent depository receipts representing such number of one one-thousandths of a Preferred Share as are to be purchased (in which case certificates for the Preferred Shares represented by such receipts shall be deposited by the transfer agent with the depository agent) and the Company hereby directs the depository agent to comply with such request, (ii) when appropriate, requisition from the Company the amount of cash to be paid in lieu of issuance of fractional shares in accordance with Section 14 hereof, (iii) after receipt of such certificates or depository receipts, cause the same to be delivered to or upon the order of the registered holder of such Right Certificate, registered in such name or names as may be designated by such holder and (iv) when appropriate, after receipt, deliver such cash to or upon the order of the registered holder of such Right Certificate. In the event that the Company is obligated to issue securities of the Company other than Preferred Shares (including Common Shares) of the Company pursuant to Section 11(a) hereof, the Company will make all arrangements necessary so that such other securities are available for distribution by the Rights Agent, if and when appropriate.

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In addition, in the case of an exercise of the Rights by a holder pursuant to Section 11(a)(ii) hereof, the Rights Agent shall return such Right Certificate to the registered holder thereof after imprinting, stamping or otherwise indicating thereon that the rights represented by such Right Certificate no longer include the rights provided by Section 11(a)(ii) hereof, and, if fewer than all the Rights represented by such Right Certificate were so exercised, the Rights Agent shall indicate on the Right Certificate the number of Rights represented thereby that continue to include the rights provided by Section 11(a)(ii) hereof.

(d) In case the registered holder of any Right Certificate shall exercise fewer than all the Rights evidenced thereby (other than a partial exercise of rights pursuant to Section 11(a)(ii) as described in Section 7(c) hereof), a new Right Certificate evidencing Rights equivalent to the Rights remaining unexercised shall be issued by the Rights Agent to the registered holder of such Right Certificate or to his duly authorized assigns, subject to the provisions of Section 14 hereof.

(e) The Company covenants and agrees that it will cause to be reserved and kept available out of its authorized and unissued Preferred Shares or any Preferred Shares held in its treasury, the number of Preferred Shares that will be sufficient to permit the exercise in full of all outstanding Rights in accordance with this Section 7.

(f) Notwithstanding anything in this Agreement to the contrary, neither the Rights Agent nor the Company shall be obligated to undertake any action with respect to a registered holder upon the occurrence of any purported exercise as set forth in this Section 7 unless such registered holder shall have (i) completed and signed the certification following the form of election to purchase set forth on the reverse side of the Rights Certificate surrendered for such exercise, (ii) tendered the Purchase Price (and an amount equal to any applicable transfer tax required to be paid by the holder of such Right Certificate in accordance with Section 9) to the Company in the manner set forth in Section 7(c), and (iii) provided such additional evidence of the identity of the Beneficial Owner (or former Beneficial Owner) or Affiliates or Associates thereof as the Company or the Rights Agent shall reasonably request.

SECTION 8. CANCELLATION AND DESTRUCTION OF RIGHT CERTIFICATES. All Right Certificates surrendered for the purpose of exercise (other than an exercise pursuant to Section 11(a)(ii) which shall be governed by the last paragraph of Section 7(c)), transfer, split up, combination or exchange shall, if surrendered to the Company or to any of its agents, be delivered to the Rights Agent for cancellation or in canceled form, or, if delivered or surrendered to the Rights Agent, shall be canceled by it, and no Right Certificates shall be issued in lieu thereof except as expressly permitted by any of the provisions of this Agreement. The Company shall deliver to the Rights Agent for cancellation and retirement, and the Rights Agent shall so cancel and retire, any other Right Certificate purchased or acquired by the Company otherwise than upon the exercise thereof. The Rights Agent shall deliver all canceled Right Certificates to the Company approximately one and one-half years after the cancellation date, or shall, at the written request of the Company, destroy such canceled Right Certificates, and in such case shall deliver a certificate of destruction thereof to the Company.

SECTION 9. AVAILABILITY OF PREFERRED SHARES. The Company covenants and agrees that so long as the Preferred Shares (and, after the time a person becomes an Acquiring Person, Common Shares or any other securities) issuable upon the exercise of the Rights may be listed on any national securities exchange or quotation system, the Company shall use its best efforts to cause, from and after such time as the Rights become exercisable, all shares reserved for such issuance to be listed on such exchange or quotation system upon official notice of issuance upon such exercise.

The Company covenants and agrees that it will take all such action as may be necessary to ensure that all Preferred Shares (or Common Shares and other securities, as the case may be) delivered upon exercise of Rights shall, at the time of delivery of the certificates for such Preferred Shares (subject to payment of the Purchase Price), be duly and

validly authorized and issued and fully paid and nonassessable shares or other securities.

The Company further covenants and agrees that it will pay when due and payable any and all federal and state transfer taxes and charges that may be payable in respect of the issuance or delivery of the Right Certificates or of any Preferred Shares upon the exercise of Rights. The Company shall not, however, be required to pay any transfer tax that may be payable in respect of any transfer or delivery of Right Certificates to a Person other than, or the issuance or delivery of certificates or depositary receipts for the Preferred Shares in a name other than that of, the registered holder of the Right Certificate evidencing Rights surrendered for exercise or to issue or to deliver any certificates or depositary receipts for Preferred Shares upon the exercise of any Rights until any such tax shall have been paid (any such tax being payable by the holder of such Right Certificate at the time of surrender) or until it has been established to the Company's or the Rights Agent's reasonable satisfaction that no such tax is due.

As soon as practicable after the Distribution Date, the Company shall use its best efforts to:

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(i)prepare and file a registration statement under the Securities Act of 1933, as amended (the “Act”), with respect to the securities purchasable upon exercise of the Rights on an appropriate form, will use its best efforts to cause such registration statement to become effective as soon as practicable after such filing and will use its best efforts to cause such registration statement to remain effective (with a prospectus at all times meeting the requirements of the Act) until the Final Expiration Date (or, if earlier, until such time as the securities purchasable upon exercise of the Rights become freely tradeable); and

(ii)use its best efforts to qualify or register the Rights and the securities purchasable upon exercise of the Rights under the blue sky laws of such jurisdictions as may be necessary or appropriate.

SECTION 10. PREFERRED SHARES RECORD DATE. Each Person in whose name any certificate for Preferred Shares or other securities is issued upon the exercise of Rights shall for all purposes be deemed to have become the holder of record of the Preferred Shares or other securities represented thereby on, and such certificate shall be dated, the date upon which the Right Certificate evidencing such Rights was duly surrendered with the forms of election and certification duly executed and payment of the Purchase Price (and any applicable transfer taxes) was made; provided, however, that if the date of such surrender and payment is a date upon which the Preferred Shares or other securities transfer books of the Company are closed, such person shall be deemed to have become the record holder of such shares on, and such certificate shall be dated, the next succeeding Business Day on which the Preferred Shares or other securities transfer books of the Company are open. Prior to the exercise of the Rights evidenced thereby, the holder of a Right Certificate, as such, shall not be entitled to any rights of a holder of Preferred Shares for which the Rights shall be exercisable, including, without limitation, the right to vote, to receive dividends or other distributions or to exercise any preemptive rights, and shall not be entitled to receive any notice of any proceedings of the Company, except as provided herein.

SECTION 11. ADJUSTMENT OF PURCHASE PRICE, NUMBER OF SHARES OR NUMBER OF RIGHTS. The Purchase Price, the number of Preferred Shares covered by each Right and the number of Rights outstanding are subject to adjustment from time to time as provided in this Section 11.

(a)

(i)In the event the Company shall at any time after the date of this Agreement (A) declare a dividend on the Preferred Shares payable in Preferred Shares, (B) subdivide the outstanding Preferred Shares, (C) combine the outstanding Preferred Shares into a smaller number of Preferred Shares or (D) issue any shares of its capital stock in a reclassification of the Preferred Shares (including any such reclassification in connection with a consolidation or merger in which the Company is the continuing or surviving corporation), except as otherwise provided in this Section 11(a), the Purchase Price in effect at the time of the record date for such dividend or of the effective date of such subdivision, combination or reclassification, and the number and kind of shares of capital stock issuable on such date, shall be proportionately adjusted so that the holder of any Right exercised after such time shall be entitled to receive the aggregate number and kind of shares of capital stock which, if such Right had been exercised immediately prior to such date and at a time when the Preferred Shares transfer books of the Company were open, such holder would have owned upon such exercise and been entitled to receive by virtue of such dividend, subdivision, combination or reclassification; provided, however, that in no event shall the consideration to be paid upon the exercise of one Right be less than the aggregate par value of the shares of capital stock of the Company issuable upon exercise of one Right. If an event occurs that would require an adjustment under both Section 11(a)(i) and Section 11(a)(ii) hereof, the adjustment provided for in this Section 11(a)(i) shall be in addition to, and shall be made prior to any adjustment required pursuant to Section 11(a)(ii) hereof.

(ii) Subject to Section 24 hereof and the provisions of the next paragraph of this Section 11(a)(ii), in the event any Person shall become an Acquiring Person, each holder of a Right shall have a right to receive, upon exercise thereof at a price equal to the then current Purchase Price multiplied by the number of one one-thousandths of a Preferred Share for which a Right is then exercisable, in accordance with the terms of this Agreement and in lieu of Preferred Shares, such number of Common Shares as shall equal the result obtained by (A) multiplying the then current Purchase Price by the number of one one-thousandths of a Preferred Share for which a Right is then exercisable and dividing that product by (B) 50% of the then current per share market price of the Common Shares (determined pursuant to Section 11(d) hereof) on the date such Person became an Acquiring Person; provided, however, that if the transaction that would otherwise give rise to the foregoing adjustment is also subject to the provisions of Section 13 hereof, then only the provisions of Section 13 hereof shall apply and no adjustment shall be made pursuant to this Section 11(a)(ii). In the event that any Person shall become an Acquiring Person and the Rights shall then be outstanding, the Company shall not take any action that would eliminate or diminish the benefits intended to be afforded by the Rights.

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Notwithstanding anything in this Agreement to the contrary, from and after the time any Person becomes an Acquiring Person, any Rights beneficially owned by (i) such Acquiring Person or an Associate or Affiliate of such Acquiring Person, (ii) a transferee of such Acquiring Person (or of any such Associate or Affiliate) who becomes a transferee after the Acquiring Person became such, or (iii) a transferee of such Acquiring Person (or of any such Associate or Affiliate) who becomes a transferee prior to or concurrently with the Acquiring Person's becoming such and receives such Rights pursuant to either (A) a transfer (whether or not for consideration) from the Acquiring Person to holders of equity interests in such Acquiring Person or to any Person with whom the Acquiring Person has any continuing agreement, arrangement or understanding regarding the transferred Rights or (B) a transfer that the Board of Directors has determined is part of a plan, arrangement or understanding that has as a primary purpose or effect the avoidance of this Section 11(a)(ii), shall become null and void without any further action and no holder of such Rights shall have any rights whatsoever with respect to such Rights, whether under any provision of this Agreement or otherwise. The Company shall use all reasonable efforts to ensure that the provisions of this Section 11(a)(ii) and Section 4(b) hereof are complied with, but neither the Company nor the Rights Agent shall have any liability to any holder of Right Certificates or other Person as a result of its failure to make any determinations with respect to an Acquiring Person or its Affiliates, Associates or transferees hereunder. No Right Certificate shall be issued at any time upon the transfer of any Rights to an Acquiring Person whose Rights would be void pursuant to the preceding sentence or any Associate or Affiliate thereof or to any nominee of such Acquiring Person, Associate or Affiliate; and any Right Certificate delivered to the Rights Agent for transfer to an Acquiring Person whose Rights would be void pursuant to the preceding sentence shall be canceled.

(iii) In lieu of issuing Common Shares in accordance with Section 11(a)(ii) hereof, the Company may, if a majority of the Board of Directors then in office determines that such action is necessary or appropriate and not contrary to the interests of holders of Rights, elect to (and, in the event that the Board of Directors has not exercised the exchange right contained in Section 24(c) hereof and there are not sufficient treasury shares and authorized but unissued Common Shares to permit the exercise in full of the Rights in accordance with the foregoing subparagraph (ii), the Company shall) take all such action as may be necessary to authorize, issue or pay, upon the exercise of the Rights, cash (including by way of a reduction of the Purchase Price), property, Common Shares, other securities or any combination thereof having an aggregate value equal to the value of the Common Shares that otherwise would have been issuable pursuant to Section 11(a)(ii) hereof, which aggregate value shall be determined by a nationally recognized investment banking firm selected by a majority of the Board of Directors then in office. For purposes of the preceding sentence, the value of the Common Shares shall be determined pursuant to Section 11(d) hereof. Any such election by the Board of Directors must be made within 60 days following the date on which the event described in Section 11(a)(ii) hereof shall have occurred. Following the occurrence of the event described in Section 11(a)(ii) hereof, a majority of the Board of Directors then in office may suspend the exercisability of the Rights for a period of up to 60 days following the date on which the event described in Section 11(a)(ii) hereof shall have occurred to the extent that such directors have not determined whether to exercise their rights of election under this Section 11(a)(iii). In the event of any such suspension, the Company shall issue a public announcement stating that the exercisability of the Rights has been temporarily suspended.

(b) In case the Company shall fix a record date for the issuance of rights, options or warrants to all holders of Preferred Shares entitling them (for a period expiring within 45 calendar days after such record date) to subscribe for or purchase Preferred Shares (or shares having the same designations and the powers, preferences and rights, and the qualifications, limitations and restrictions as the Preferred Shares ("equivalent preferred shares")) or securities convertible into Preferred Shares or equivalent preferred shares at a price per Preferred Share or equivalent preferred share (or having a conversion price per share, if a security convertible into Preferred Shares or equivalent preferred shares) less than the then current per share market price of the Preferred Shares (as such term is hereinafter defined) on such record date, the Purchase Price to be in effect after such record date shall be determined by multiplying the Purchase Price in effect immediately prior to such record date by a fraction, the numerator of which shall be the

number of Preferred Shares outstanding on such record date plus the number of Preferred Shares that the aggregate offering price of the total number of Preferred Shares and/or equivalent preferred shares so to be offered (and/or the aggregate initial conversion price of the convertible securities so to be offered) would purchase at such current market price and the denominator of which shall be the number of Preferred Shares outstanding on such record date plus the number of additional Preferred Shares and/or equivalent preferred shares to be offered for subscription or purchase (or into which the convertible securities so to be offered are initially convertible); provided, however, that in no event shall the consideration to be paid upon the exercise of one Right be less than the aggregate par value of the shares of capital stock of the Company issuable upon exercise of one Right. In case such subscription price may be paid in a consideration part or all of which shall be in a form other than cash, the value of such consideration shall be as determined in good faith by the Board of Directors, whose determination shall be described in a statement filed with the Rights Agent. Preferred Shares owned by or held for the account of the Company shall not be deemed outstanding for the purpose of any such computation. Such adjustment shall be made successively whenever such a record date is fixed; and in the event that such rights, options or warrants are not so issued, the Purchase Price shall be adjusted to be the Purchase Price that would then be in effect if such record date had not been fixed.

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(c) In case the Company shall fix a record date for the making of a distribution to all holders of the Preferred Shares (including any such distribution made in connection with a consolidation or merger in which the Company is the continuing or surviving corporation) of evidences of indebtedness or assets (other than a regular quarterly cash dividend or a dividend payable in Preferred Shares) or subscription rights or warrants (excluding those referred to in Section 11(b) hereof), the Purchase Price to be in effect after such record date shall be determined by multiplying the Purchase Price in effect immediately prior to such record date by a fraction, the numerator of which shall be the then current per share market price of the Preferred Shares (as such term is hereinafter defined) on such record date, less the fair market value (as determined in good faith by the Board of Directors, whose determination shall be described in a statement filed with the Rights Agent) of the portion of the assets or evidences of indebtedness so to be distributed or of such subscription rights or warrants applicable to one Preferred Share and the denominator of which shall be such current per share market price of the Preferred Shares; provided, however, that in no event shall the consideration to be paid upon the exercise of one Right be less than the aggregate par value of the shares of capital stock of the Company to be issued upon exercise of one Right. Such adjustments shall be made successively whenever such a record date is fixed; and in the event that such distribution is not so made, the Purchase Price shall again be adjusted to be the Purchase Price that would then be in effect if such record date had not been fixed.

(d)

(i) For the purpose of any computation hereunder, the “current per share market price” of any Security (a “Security” for the purpose of this Section 11(d)(i)) on any date shall be deemed to be the average of the daily closing prices per share of such Security for the 30 consecutive Trading Days (as such term is hereinafter defined) immediately prior to such date; provided, however, that in the event that the current per share market price of the Security is determined during a period following the announcement by the issuer of such Security of (A) a dividend or distribution on such Security payable in shares of such Security or securities convertible into such shares, or (B) any subdivision, combination or reclassification of such Security or securities convertible into such shares, or (C) any subdivision, combination or reclassification of such Security and prior to the expiration of 30 Trading Days after the ex-dividend date for such dividend or distribution, or the record date for such subdivision, combination or reclassification, then, and in each such case, the current per share market price shall be appropriately adjusted to reflect the current market price per share equivalent of such Security. The closing price for each day shall be the last sale price, regular way, or, in case no such sale takes place on such day, the average of the closing bid and asked prices, regular way, in either case as reported in the principal consolidated transaction reporting system with respect to securities listed or admitted to trading on the New York Stock Exchange (“NYSE”) or the Nasdaq Stock Market (“Nasdaq”) or, if the Security is not listed or admitted to trading on the NYSE or Nasdaq, as reported in the principal consolidated transaction reporting system with respect to securities listed on the principal national securities exchange on which the Security is listed or admitted to trading or, if the Security is not listed or admitted to trading on any national securities exchange, the last quoted price or, if not so quoted, the average of the high bid and low asked prices in the over-the-counter market, as reported by such other system then in use, or, if on any such date the Security is not quoted by any such organization, the average of the closing bid and asked prices as furnished by a professional market maker making a market in the Security selected by the Board of Directors or, if on any such date no professional market maker is making a market in the Security, the price as determined in good faith by the Board of Directors. The term “Trading Day” shall mean a day on which the principal national securities exchange on which the Security is listed or admitted to trading is open for the transaction of business or, if the Security is not listed or admitted to trading on any national securities exchange, a Business Day.

(ii) For the purpose of any computation hereunder, the “current per share market price” of the Preferred Shares shall be determined in accordance with the method set forth in Section 11(d)(i) hereof. If the Preferred Shares are not publicly traded, the “current per share market price” of the Preferred Shares shall be conclusively deemed to be the current per share market price of the Common Shares as determined pursuant to Section 11(d)(i) hereof (appropriately adjusted to

reflect any stock split, stock dividend or similar transaction occurring after the date hereof) multiplied by one thousand. If neither the Common Shares nor the Preferred Shares are publicly held or so listed or traded, "current per share market price" shall mean the fair value per share as determined in good faith by the Board of Directors, whose determination shall be described in a statement filed with the Rights Agent.

(e) No adjustment in the Purchase Price shall be required unless such adjustment would require an increase or decrease of at least 1% in the Purchase Price; provided, however, that any adjustments that by reason of this Section 11(e) are not required to be made shall be carried forward and taken into account in any subsequent adjustment. All calculations under this Section 11 shall be made to the nearest cent or to the nearest one one-thousandth of a Preferred Share or one ten-thousandth of any other share or security as the case may be. Notwithstanding the first sentence of this Section 11(e), any adjustment required by this Section 11 shall be made no later than the earlier of (i) three years from the date of the transaction that requires such adjustment or (ii) the date of the expiration of the right to exercise any Rights.

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(f) If as a result of an adjustment made pursuant to Section 11(a) hereof, the holder of any Right thereafter exercised shall become entitled to receive any shares of capital stock of the Company other than Preferred Shares, thereafter the number of such other shares so receivable upon exercise of any Right shall be subject to adjustment from time to time in a manner and on terms as nearly equivalent as practicable to the provisions with respect to the Preferred Shares contained in Sections 11(a) through 11(c) hereof, inclusive, and the provisions of Sections 7, 9, 10, 13 and 14 hereof with respect to the Preferred Shares shall apply on like terms to any such other shares.

(g) All Rights originally issued by the Company subsequent to any adjustment made to the Purchase Price hereunder shall evidence the right to purchase, at the adjusted Purchase Price, the number of one one-thousandths of a Preferred Share purchasable from time to time hereunder upon exercise of the Rights, all subject to further adjustment as provided herein.

(h) Unless the Company shall have exercised its election as provided in Section 11(i) hereof, upon each adjustment of the Purchase Price as a result of the calculations made in Section 11(b) and Section 11(c) hereof, each Right outstanding immediately prior to the making of such adjustment shall thereafter evidence the right to purchase, at the adjusted Purchase Price, that number of one one-thousandths of a Preferred Share (calculated to the nearest one one-millionth of a Preferred Share) obtained by (i) multiplying (x) the number of one one-thousandths of a Preferred Share covered by a Right immediately prior to this adjustment by (y) the Purchase Price in effect immediately prior to such adjustment of the Purchase Price and (ii) dividing the product so obtained by the Purchase Price in effect immediately after such adjustment of the Purchase Price.

(i) The Company may elect on or after the date of any adjustment of the Purchase Price to adjust the number of Rights, in substitution for any adjustment in the number of one one-thousandths of a Preferred Share purchasable upon the exercise of a Right. Each of the Rights outstanding after such adjustment of the number of Rights shall be exercisable for the number of one one-thousandths of a Preferred Share for which a Right was exercisable immediately prior to such adjustment. Each Right held of record prior to such adjustment of the number of Rights shall become that number of Rights (calculated to the nearest one ten-thousandth) obtained by dividing the Purchase Price in effect immediately prior to adjustment of the Purchase Price by the Purchase Price in effect immediately after adjustment of the Purchase Price. The Company shall make a public announcement of its election to adjust the number of Rights, indicating the record date for the adjustment, and, if known at the time, the amount of the adjustment to be made. This record date may be the date on which the Purchase Price is adjusted or any day thereafter, but, if the Right Certificates have been issued, shall be at least 10 days later than the date of the public announcement. If Right Certificates have been issued, upon each adjustment of the number of Rights pursuant to this Section 11(i), the Company shall, as promptly as practicable, cause to be distributed to holders of record of Right Certificates on such record date Right Certificates evidencing, subject to Section 14 hereof, the additional Rights to which such holders shall be entitled as a result of such adjustment, or, at the option of the Company, shall cause to be distributed to such holders of record in substitution and replacement for the Right Certificates held by such holders prior to the date of adjustment, and upon surrender thereof, if required by the Company, new Right Certificates evidencing all the Rights to which such holders shall be entitled after such adjustment. Right Certificates to be so distributed shall be issued, executed and countersigned in the manner provided for herein and shall be registered in the names of the holders of record of Right Certificates on the record date specified in the public announcement.

(j) Irrespective of any adjustment or change in the Purchase Price or the number of one one-thousandths of a Preferred Share issuable upon the exercise of the Rights, the Right Certificates theretofore and thereafter issued may continue to express the Purchase Price and the number of one one-thousandths of a Preferred Share that was expressed in the initial Right Certificates issued hereunder.

(k) Before taking any action that would cause an adjustment reducing the Purchase Price below then par value, if any, of the Preferred Shares issuable upon exercise of the Rights, the Company shall take any corporate action that may, in the opinion of its counsel, be necessary to enable the Company to validly and legally issue fully paid and nonassessable Preferred Shares at such adjusted Purchase Price.

(l) In any case in which this Section 11 shall require that an adjustment in the Purchase Price be made effective as of a record date for a specified event, the Company may elect to defer until the occurrence of such event the issuing to the holder of any Right exercised after such record date of the Preferred Shares and other capital stock or securities of the Company, if any, issuable upon such exercise on the basis of the Purchase Price in effect prior to such adjustment; provided, however, that the Company shall deliver to such holder a due bill or other appropriate instrument evidencing such holder's right to receive such additional shares upon the occurrence of the event requiring such adjustment.

(m) The Company covenants and agrees that, after the Distribution Date, it will not, except as permitted by Section 23 or Section 27 hereof, take (or permit any Subsidiary to take) any action the purpose of which is to, or if at the time

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such action is taken it is reasonably foreseeable that the effect of such action is to, materially diminish or eliminate the benefits intended to be afforded by the Rights. Any such action taken by the Company during any period after any Person becomes an Acquiring Person but prior to the Distribution Date shall be null and void unless such action could be taken under this Section 11(m) from and after the Distribution Date.

(n) Notwithstanding anything in this Section 11 to the contrary, the Company shall be entitled to make such reductions in the Purchase Price, in addition to those adjustments expressly required by this Section 11, as and to the extent that it in its sole discretion shall determine to be advisable in order that any (i) consolidation or subdivision of the Preferred Shares, (ii) issuance wholly for cash of any Preferred Shares at less than the current market price, (iii) issuance wholly for cash of Preferred Shares or securities that by their terms are convertible into or exchangeable for Preferred Shares, (iv) dividends on Preferred Shares payable in Preferred Shares or (v) issuance of rights, options or warrants referred to hereinabove in Section 11(b), hereafter made by the Company to holders of its Preferred Shares shall not be taxable to such stockholders.

(o) In the event that at any time after the date of this Agreement and prior to the Distribution Date, the Company shall (i) declare or pay any dividend on the Common Shares payable in Common Shares or (ii) effect a subdivision, combination or consolidation of the Common Shares (by reclassification or otherwise than by payment of dividends in Common Shares) into a greater or lesser number of Common Shares, then in any such case (A) the number of one one-thousandths of a Preferred Share purchasable after such event upon proper exercise of each Right shall be determined by multiplying the number of one one-thousandths of a Preferred Share so purchasable immediately prior to such event by a fraction, the numerator of which is the number of Common Shares outstanding immediately before such event and the denominator of which is the number of Common Shares outstanding immediately after such event, and (B) each Common Share outstanding immediately after such event shall have issued with respect to it that number of Rights that each Common Share outstanding immediately prior to such event had issued with respect to it. The adjustments provided for in this Section 11(o) shall be made successively whenever such a dividend is declared or paid or such a subdivision, combination or consolidation is effected.

(p) The exercise of Rights under Section 11(a)(ii) hereof shall only result in the loss of rights under Section 11(a)(ii) hereof to the extent so exercised and shall not otherwise affect the rights represented by the Rights under this Agreement, including the rights represented by Section 13 hereof.

SECTION 12. CERTIFICATE OF ADJUSTED PURCHASE PRICE OR NUMBER OF SHARES. Whenever an adjustment is made as provided in Sections 11 and 13 hereof, the Company shall promptly (a) prepare a certificate setting forth such adjustment, and a brief statement of the facts accounting for such adjustment, (b) file with the Rights Agent and with each transfer agent for the Common Shares or the Preferred Shares a copy of such certificate and (c) mail a brief summary thereof to each holder of a Right Certificate in accordance with Section 25 hereof. The Rights Agent shall be fully protected in relying on any such certificate and on any adjustment therein contained and shall not be deemed to have knowledge of any adjustment unless and until it shall have received such certificate.

SECTION 13. CONSOLIDATION, MERGER OR SALE OR TRANSFER OF ASSETS OR EARNING POWER.

(a) In the event that, following the Shares Acquisition Date or, if a Transaction is proposed, the Distribution Date, directly or indirectly (x) the Company shall consolidate with, or merge with and into, any Interested Stockholder, or if in such merger or consolidation all holders of Common Stock are not treated alike, any other Person, (y) any Interested Stockholder, or if in such merger or consolidation all holders of Common Stock are not treated alike, any other Person shall consolidate with the Company, or merge with and into the Company, and the Company shall be the continuing or surviving corporation of such merger (other than, in the case of either transaction described in (x) or (y),

a merger or consolidation that would result in all of the voting power represented by the securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into securities of the surviving entity) all of the voting power represented by the securities of the Company or such surviving entity outstanding immediately after such merger or consolidation and the holders of such securities not having changed as a result of such merger or consolidation), or (z) the Company shall sell, mortgage or otherwise transfer (or one or more of its subsidiaries shall sell, mortgage or otherwise transfer), in one or more transactions, assets or earning power aggregating more than 50% of the assets or earning power of the Company and its subsidiaries (taken as a whole) to any Interested Stockholder or Stockholders, or if in such transaction all holders of Common Stock are not treated alike, any other Person, (other than the Company or any Subsidiary of the Company in one or more transactions each of which individually and the aggregate does not violate Section 13(d) hereof) then, and in each such case, proper provision shall be made so that (i) each holder of a Right, subject to Section 11(a)(ii) hereof, shall have the right to receive, upon the exercise thereof at a price equal to the then current Purchase Price multiplied by the number of one one-thousandths of a Preferred Share for which a Right is then exercisable in accordance with the terms of this Agreement and in lieu of Preferred Shares, such number of freely tradeable Common Shares of the Principal Party (as such term is

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hereinafter defined), free and clear of liens, rights of call or first refusal, encumbrances or other adverse claims, as shall be equal to the result obtained by (A) multiplying the then current Purchase Price by the number of one one-thousandths of a Preferred Share for which a Right is then exercisable (without taking into account any adjustment previously made pursuant to Section 11(a)(ii) hereof) and dividing that product by (B) 50% of the then current per share market price of the Common Shares of such Principal Party (determined pursuant to Section 11(d) hereof) on the date of consummation of such consolidation, merger, sale or transfer; (ii) such Principal Party shall thereafter be liable for, and shall assume, by virtue of such consolidation, merger, sale or transfer, all the obligations and duties of the Company pursuant to this Agreement; (iii) the term “Company” shall thereafter be deemed to refer to such Principal Party, it being specifically intended that the provisions of Section 11 hereof shall apply to such Principal Party; and (iv) such Principal Party shall take such steps (including, but not limited to, the reservation of a sufficient number of shares of its Common Shares in accordance with Section 9 hereof) in connection with such consummation as may be necessary to assure that the provisions hereof shall thereafter be applicable, as nearly as reasonably may be, in relation to its Common Shares thereafter deliverable upon the exercise of the Rights.

(b)“Principal Party” shall mean:

(i)in the case of any transaction described in clause (x) or (y) of Section 13(a) hereof, the Person that is the issuer of any securities into which Common Shares are converted in such merger or consolidation, and if no securities are so issued, the Person that is the other party to the merger or consolidation (or, if applicable, the Company, if it is the surviving corporation); and

(ii)in the case of any transaction described in clause (z) of Section 13(a) hereof, the Person that is the party receiving the greatest portion of the assets or earning power transferred pursuant to such transaction or transactions;

provided, however, that in any case, (1) if the Common Shares of such Person are not at such time and have not been continuously over the preceding 12-month period registered under Section 12 of the Exchange Act, and such Person is a direct or indirect Subsidiary or Affiliate of another Person the Common Shares of which are and have been so registered, “Principal Party” shall refer to such other Person; (2) if such Person is a Subsidiary, directly or indirectly, or Affiliate of more than one Person, the Common Shares of two or more of which are and have been so registered, “Principal Party” shall refer to whichever of such Persons is the issuer of the Common Shares having the greatest aggregate market value; and (3) if such Person is owned, directly or indirectly, by a joint venture formed by two or more Persons that are not owned, directly or indirectly, by the same Person, the rules set forth in (1) and (2) above shall apply to each of the chains of ownership having an interest in such joint venture as if such party were a “Subsidiary” of both or all of such joint venturers and the Principal Parties in each such chain shall bear the obligations set forth in this Section 13 in the same ratio as their direct or indirect interests in such Person bear to the total of such interests.

(c)The Company shall not consummate any such consolidation, merger, sale or transfer unless the Principal Party shall have a sufficient number of authorized Common Shares that have not been issued or reserved for issuance to permit the exercise in full of the Rights in accordance with this Section 13 and unless prior thereto the Company and each Principal Party and each other Person who may become a Principal Party as a result of such consolidation, merger, sale or transfer shall have (i) executed and delivered to the Rights Agent a supplemental agreement providing for the terms set forth in paragraphs (a) and (b) of this Section 13 and (ii) prepared, filed and had declared and remain effective a registration statement under the Act on the appropriate form with respect to the Rights and the securities exercisable upon exercise of the Rights and further providing that, as soon as practicable after the date of any consolidation, merger, sale or transfer of assets mentioned in paragraph (a) of this Section 13, the Principal Party at its own expense will:

(i) cause the registration statement under the Act with respect to the Rights and the securities purchasable upon exercise of the Rights on an appropriate form to remain effective (with a prospectus at all times meeting the requirements of the Act) until the Final Expiration Date;

(ii) use its best efforts to qualify or register the Rights and the securities purchasable upon exercise of the Rights under the blue sky laws of such jurisdictions as may be necessary or appropriate;

(iii) list the Rights and the securities purchasable upon exercise of the Rights on the NYSE or Nasdaq or each such other national securities exchange on which the Common Shares were listed prior to the consummation of such consolidation, merger, sale or transfer of assets or, if the Common Shares were not listed on a national securities exchange prior to the consummation of such consolidation, merger, sale or transfer of assets, on a national securities exchange; and

(iv) deliver to holders of the Rights historical financial statements for the Principal Party and each of its Affiliates that comply in all material respects with the requirements for registration on Form 10 under the Exchange Act.

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The provisions of this Section 13 shall similarly apply to successive mergers or consolidations or sales or other transfers.

(d)After the Distribution Date, the Company covenants and agrees that it shall not (i) consolidate with, (ii) merge with or into, or (iii) sell or transfer to, in one or more transactions, assets or earning power aggregating more than 50% of the assets or earning power of the Company and its subsidiaries taken as a whole, any other Person (other than a Subsidiary of the Company in a transaction that does not violate Section 11(m) hereof), if (x) at the time of or after such consolidation, merger or sale there are any charter or bylaw provisions or any rights, warrants or other instruments or securities outstanding, agreements in effect or any other action taken that would diminish or otherwise eliminate the benefits intended to be afforded by the Rights or (y) prior to, simultaneously with or immediately after such consolidation, merger or sale, the stockholders of the Person who constitutes, or would constitute, the “Principal Party” for purposes of Section 13(a) hereof shall have received a distribution of Rights previously owned by such Person or any of its Affiliates and Associates. The Company shall not consummate any such consolidation, merger, sale or transfer unless prior thereto the Company and such other Person shall have executed and delivered to the Rights Agent a supplemental agreement evidencing compliance with this Section 13(d).

SECTION 14. FRACTIONAL RIGHTS AND FRACTIONAL SHARES.

(a)The Company shall not be required to issue fractions of Rights or to distribute Right Certificates that evidence fractional Rights. In lieu of such fractional Rights, there shall be paid to the registered holders of the Right Certificates with regard to which such fractional Rights would otherwise be issuable, an amount in cash equal to the same fraction of the current market value of a whole Right. For the purposes of this Section 14(a), the current market value of a whole Right shall be the closing price of the Rights for the Trading Day immediately prior to the date on which such fractional Rights would have been otherwise issuable. The closing price for any day shall be the last sale price, regular way, or, in case no such sale takes place on such day, the average of the closing bid and asked prices, regular way, in either case as reported in the principal consolidated transaction reporting system with respect to securities listed or admitted to trading on the NYSE or Nasdaq or, if the Rights are not listed or admitted to trading on the NYSE or Nasdaq, as reported in the principal consolidated transaction reporting system with respect to securities listed on the principal national securities exchange on which the Rights are listed or admitted to trading or, if the Rights are not listed or admitted to trading on any national securities exchange, the last quoted price or, if not so quoted, the average of the high bid and low asked prices in the over-the-counter market, as reported by such other system then in use or, if on any such date the Rights are not quoted by any such organization, the average of the closing bid and asked prices as furnished by a professional market maker making a market in the Rights selected by the Board of Directors. If on any such date no such market maker is making a market in the Rights, the fair value of the Rights on such date as determined in good faith by the Board of Directors shall be used.

(b)The Company shall not be required to issue fractions of Preferred Shares (other than fractions that are integral multiples of one one-thousandth of a Preferred Share) upon exercise of the Rights or to distribute certificates that evidence fractional Preferred Shares (other than fractions that are integral multiples of one one-thousandth of a Preferred Share). Fractions of Preferred Shares in integral multiples of one one-thousandth of a Preferred Share may, at the election of the Company, be evidenced by depositary receipts; provided, however, that holders of such depositary receipts shall have all of the designations and the powers, preferences and rights, and the qualifications, limitations and restrictions to which they are entitled as beneficial owners of the Preferred Shares represented by such depositary receipts. In lieu of fractional Preferred Shares that are not integral multiples of one one-thousandth of a Preferred Share, the Company shall pay to the registered holders of Right Certificates at the time such Rights are exercised as herein provided an amount in cash equal to the same fraction of the current market value of one Preferred Share. For the purposes of this Section 14(b), the current market value of a Preferred Share shall be closing price for

the Trading Day immediately prior the date of such exercise (or, if not publicly traded, in accordance with Section 11(d)(ii) hereof).

(c) Following the occurrence of one of the transactions or events specified in Section 11 hereof giving rise to the right to receive Common Shares, capital stock equivalents (other than Preferred Shares) or other securities upon the exercise of a Right, the Company shall not be required to issue fractions of Common Shares or units of such Common Shares, capital stock equivalents or other securities upon exercise of the Rights or to distribute certificates that evidence fractional Common Shares, capital stock equivalents or other securities. In lieu of fractional Common Shares, capital stock equivalents or other securities, the Company shall pay to the registered holders of Right Certificates at the time such Rights are exercised as herein provided an amount in cash equal to the same fraction of the current market value of one Common Share or unit of such Common Shares, capital stock equivalents or other securities. For purposes of this Section 14(c), the current market value shall be the current closing price for the Trading Day immediately prior to the date of such exercise and, if such capital stock equivalent is not traded, each such capital stock equivalent shall have the value of one one-thousandth of a Preferred Share.

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(d)The holder of a Right by the acceptance of the Right expressly waives his right to receive any fractional Rights or any fractional shares upon exercise of a Right (except as provided above).

SECTION 15. RIGHTS OF ACTION. All rights of action in respect of this Agreement, excepting the rights of action given to the Rights Agent under Sections 18 and 20 hereof, are vested in the respective registered holders of the Right Certificates (and, prior to the Distribution Date, the registered holders of the Common Shares) and any registered holder of any Right Certificate (or, prior to the Distribution Date, of the Common Shares), without the consent of the Rights Agent or of the holder of any other Right Certificate (or, prior to the Distribution Date, of the Common Shares), may, in his own behalf and for his own benefit, enforce, and may institute and maintain any suit, action or proceeding against the Company to enforce, or otherwise act in respect of, his right to exercise the Rights evidenced by such Right Certificate in the manner provided in such Right Certificate and in this Agreement. Without limiting the foregoing or any remedies available to the holders of Rights, it is specifically acknowledged that the holders of Rights would not have an adequate remedy at law for any breach of this Agreement and will be entitled to specific performance of the obligations under, and injunctive relief against actual or threatened violations of the obligations of any Person subject to, this Agreement. Holders of Rights shall be entitled to recover the reasonable costs and expenses, including attorneys fees, incurred by them in any successful action to enforce the provisions of this Agreement.

SECTION 16. AGREEMENT OF RIGHT HOLDERS. Every holder of a Right, by accepting the same, consents and agrees with the Company and the Rights Agent and with every other holder of a Right that:

(a) prior to the Distribution Date, the Rights will be transferable only in connection with the transfer of the Common Shares;

(b) after the Distribution Date, the Right Certificates are transferable (subject to the provisions of this Agreement) only on the registry books of the Rights Agent if surrendered at the principal office of the Rights Agent, duly endorsed or accompanied by a proper instrument of transfer; and

(c) the Company and the Rights Agent may deem and treat the person in whose name the Right Certificate (or, prior to the Distribution Date, the associated Common Shares certificate) is registered as the absolute owner thereof and of the Rights evidenced thereby (notwithstanding any notations of ownership or writing on the Right Certificates or the associated Common Shares certificate made by anyone other than the Company or the Rights Agent) for all purposes whatsoever, and neither the Company nor the Rights Agent shall be affected by any notice to the contrary.

SECTION 17. RIGHT CERTIFICATE HOLDER NOT DEEMED A STOCKHOLDER. No holder, as such, of any Right Certificate shall be entitled to vote, receive dividends or be deemed for any purpose the holder of the Preferred Shares or any other securities of the Company that may at any time be issuable on the exercise of the Rights represented thereby, nor shall anything contained herein or in any Right Certificate be construed to confer upon the holder of any Right Certificate, as such, any of the rights of a stockholder of the Company or any right to vote for the election of directors or upon any matter submitted to stockholders at any meeting thereof, or to give or withhold consent to any corporate action, or to receive notice of meetings or other actions affecting stockholders (except as provided in Section 25 hereof), or to receive dividends or subscription rights, or otherwise, until the Right or Rights evidenced by such Right Certificate shall have been exercised in accordance with the provisions hereof.

SECTION 18. CONCERNING THE RIGHTS AGENT. The Company agrees to pay to the Rights Agent reasonable compensation for all services rendered by it hereunder and, from time to time, on demand of the Rights Agent, its reasonable expenses and counsel fees and other disbursements incurred in the administration and execution

of this Agreement and the exercise and performance of its duties hereunder. The Company also agrees to indemnify the Rights Agent for, and to hold it harmless against, any loss, liability, or expense, incurred without gross negligence, bad faith or willful misconduct on the part of the Rights Agent, for anything done or omitted by the Rights Agent in connection with the acceptance and administration of this Agreement, including the costs and expenses of defending against any claim of liability in the premises. The indemnity provided herein shall survive the expiration of the Rights and the termination of this Agreement.

The Rights Agent shall be protected and shall incur no liability for, or in respect of any action taken, suffered or omitted by it in connection with, its administration of this Agreement in reliance upon any Right Certificate or certificate for the Preferred Shares or Common Shares or for other securities of the Company, instrument of assignment or transfer, power of attorney, endorsement, affidavit, letter, notice, direction, consent, certificate, statement, or other paper or document believed by it to be genuine and to be signed, executed and, where necessary, verified or acknowledged, by the proper person or persons, or otherwise upon the advice of counsel as set forth in Section 20 hereof. In no case will the Rights Agent be liable for special,

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indirect, incidental or consequential or consequential loss or damage at any kind whatsoever (including but not limited to lost profits), even if the Rights Agent has been advised of such loss or damage.

SECTION 19. MERGER OR CONSOLIDATION OR CHANGE OF NAME OF RIGHTS AGENT. Any Person into which the Rights Agent or any successor Rights Agent may be merged or with which it may be consolidated, or any Person resulting from any merger or consolidation to which the Rights Agent or any successor Rights Agent shall be a party, or any Person succeeding to the shareholder services or corporate trust business of the Rights Agent or any successor Rights Agent, shall be the successor to the Rights Agent under this Agreement without the execution or filing of any paper or document or any further act on the part of any of the parties hereto, provided that such Person would be eligible for appointment as a successor Rights Agent under the provisions of Section 21 hereof. In case at the time such successor Rights Agent shall succeed to the agency created by this Agreement any of the Right Certificates shall have been countersigned but not delivered, any such successor Rights Agent may adopt the countersignature of the predecessor Rights Agent and deliver such Right Certificates so countersigned; and in case at that time any of the Right Certificates shall not have been countersigned, any successor Rights Agent may countersign such Right Certificates either in the name of the predecessor Rights Agent or in the name of the successor Rights Agent; and in all such cases such Right Certificates shall have the full force provided in the Right Certificates and in this Agreement.

In case at any time the name of the Rights Agent shall be changed and at such time any of the Right Certificates shall have been countersigned but not delivered, the Rights Agent may adopt the countersignature under its prior name and deliver Right Certificates so countersigned; and in case at that time any of the Right Certificates shall not have been countersigned, the Rights Agent may countersign such Right Certificates either in its prior name or in its changed name; and in all such cases such Right Certificates shall have the full force provided in the Right Certificates and in this Agreement.

SECTION 20. DUTIES OF RIGHTS AGENT. The Rights Agent undertakes the duties and obligations imposed by this Agreement upon the following terms and conditions, by all of which the Company and the holders of Right Certificates, by their acceptance thereof, shall be bound:

(a)The Rights Agent may consult with legal counsel of its choice (who may be legal counsel for the Company), and the opinion of such counsel shall be full and complete authorization and protection to the Rights Agent as to any action taken or omitted by it in good faith and in accordance with such opinion.

(b)Whenever in the performance of its duties under this Agreement the Rights Agent shall deem it necessary or desirable that any fact or matter be proved or established by the Company prior to taking or suffering any action hereunder, such fact or matter (unless other evidence in respect thereof be herein specifically prescribed) may be deemed to be conclusively proved and established by a certificate signed by any one of the Chairman of the Board, the Chief Executive Officer, the President, the Chief Financial Officer, any Senior Vice President, the Treasurer or the Secretary of the Company and delivered to the Rights Agent; and such certificate shall be full authorization to the Rights Agent for any action taken or suffered in good faith by it under the provisions of this Agreement in reliance upon such certificate.

(c)The Rights Agent shall be liable hereunder to the Company and any other Person only for its own gross negligence, bad faith or willful misconduct.

(d)The Rights Agent shall not be liable for or by reason of any of the statements of fact or recitals contained in this Agreement or in the Right Certificates (except its countersignature thereof) or be required to verify the same, but all such statements and recitals are and shall be deemed to have been made by the Company only.

(e)The Rights Agent shall not be under any responsibility in respect of the validity of this Agreement or the execution and delivery hereof (except the due execution hereof by the Rights Agent) or in respect of the validity or execution of any Right Certificate (except its countersignature thereof); nor shall it be responsible for any breach by the Company of any covenant or condition contained in this Agreement or in any Right Certificate; nor shall it be responsible for any change in the exercisability of the Rights (including the Rights becoming void pursuant to Section 11(a)(ii) hereof) or any adjustment in the terms of the Rights (including the manner, method or amount thereof) provided for in Sections 3, 11, 13, 23 or 24 hereof, or the ascertaining of the existence of facts that would require any such change or adjustment (except with respect to the exercise of Rights evidenced by Right Certificates after receipt of a certificate pursuant to Section 12 hereof describing such change or adjustment); nor shall it by any act hereunder be deemed to make any representation or warranty as to the authorization or reservation of any Preferred Shares to be issued pursuant to this Agreement or any Right Certificate or as to whether any Preferred Shares will, when issued, be validly authorized and issued, fully paid and nonassessable.

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(f)The Company agrees that it will perform, execute, acknowledge and deliver or cause to be performed, executed, acknowledged and delivered all such further and other acts, instruments and assurances as may reasonably be required by the Rights Agent for the carrying out or performing by the Rights Agent of the provisions of this Agreement.

(g)The Rights Agent is hereby authorized and directed to accept instructions with respect to the performance of its duties hereunder from any one of the Chairman of the Board, the Chief Executive Officer, the President, the Chief Financial Officer, any Senior Vice President, the Secretary or the Treasurer of the Company, and to apply to such officers for advice or instructions in connection with its duties, and it shall not be liable for any action taken or suffered by it in good faith in accordance with instructions of any such officer or for any delay in acting while waiting for those instructions. Any application by the Rights Agent for written instructions from the Company may, at the option of the Rights Agent, set forth in writing any action proposed to be taken or omitted by the Rights Agent with respect to its duties or obligations under this Agreement and the date on and/or after which such action shall be taken or omitted and the Rights Agent shall not be liable for any action taken or omitted in accordance with a proposal included in any such application on or after the date specified therein (which date shall not be less than three Business Days after the date indicated in such application unless any such officer shall have consented in writing to an earlier date) unless, prior to taking or omitting any such action, the Rights Agent has received written instructions in response to such application specifying the action to be taken or omitted.

(h)The Rights Agent and any stockholder, director, officer or employee of the Rights Agent may buy, sell or deal in any of the Rights or other securities of the Company or become pecuniarily interested in any transaction in which the Company may be interested, or contract with or lend money to the Company or otherwise act as fully and freely as though it were not Rights Agent under this Agreement. Nothing herein shall preclude the Rights Agent from acting in any other capacity for the Company or for any other Person.

(i)The Rights Agent may execute and exercise any of the rights or powers hereby vested in it or perform any duty hereunder either itself or by or through its attorneys or agents, and the Rights Agent shall not be answerable or accountable for any act, default, neglect or misconduct of any such attorneys or agents or for any loss to the Company resulting from any such act, default, neglect or misconduct, provided reasonable care was exercised in the selection and continued employment thereof.

(j)No provision of this Agreement shall require the Rights Agent to expend or risk its own funds or otherwise incur any financial liability in the performance of any of its duties hereunder or in the exercise of its rights if there shall be reasonable grounds for believing that repayment of such funds or adequate indemnification against such risk or liability is not reasonably assured to it.

(k)If, with respect to any Right Certificate surrendered to the Rights Agent for exercise or transfer, the certificate attached to the form of assignment or form of election to purchase, as the case may be, has not been executed, the Rights Agent shall not take any further action with respect to such requested exercise of transfer without first consulting with the Company.

SECTION 21. CHANGE OF RIGHTS AGENT. The Rights Agent or any successor Rights Agent may resign and be discharged from its duties under this Agreement upon 30 days' notice in writing mailed to the Company and to each transfer agent for the Common Shares or Preferred Shares by registered or certified mail, and to the holders of the Right Certificates by first-class mail. The Company may remove the Rights Agent or any successor Rights Agent upon 30 days' notice in writing, mailed to the Rights Agent or successor Rights Agent, as the case may be, and to each transfer agent for the Common Shares or Preferred Shares by registered or certified mail, and to the holders of the Right Certificates by first-class mail. If the Rights Agent shall resign or be removed or shall otherwise become incapable of acting, the Company shall appoint a successor to the Rights Agent. If the Company shall fail to make

such appointment within a period of 30 days after giving notice of such removal or after it has been notified in writing of such resignation or incapacity by the resigning or incapacitated Rights Agent or by the holder of a Right Certificate (who shall, with such notice, submit his Right Certificate for inspection by the Company), then the registered holder of any Right Certificate may apply to any court of competent jurisdiction for the appointment of a new Rights Agent. Any successor Rights Agent, whether appointed by the Company or by such a court, shall be either (a) a Person organized and doing business under the laws of the United States or of any other state of the United States that is authorized under such laws to exercise corporate trust or stock transfer powers and is subject to supervision or examination by federal or state authority and that has at the time of its appointment as Rights Agent a combined capital and surplus of at least \$50 million or (b) a direct or indirect wholly owned Subsidiary of such Person or its wholly-owning parent. After appointment, the successor Rights Agent shall be vested with the same powers, rights, duties and responsibilities as if it had been originally named as Rights Agent without further act or deed; but the predecessor Rights Agent shall deliver and transfer to the successor Rights Agent any property at the time held by it hereunder, and execute and deliver any further assurance, conveyance, act or deed necessary for the purpose. Not later than the effective date of any such appointment the Company shall file notice thereof in writing with the predecessor Rights Agent and each transfer agent for the Common Shares

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or Preferred Shares, and mail a notice thereof in writing to the registered holders of the Right Certificates. Failure to give any notice provided for in this Section 21, however, or any defect therein, shall not affect the legality or validity of the resignation or removal of the Rights Agent or the appointment of the successor Rights Agent, as the case may be.

SECTION 22. ISSUANCE OF NEW RIGHT CERTIFICATES. Notwithstanding any of the provisions of this Agreement or of the Rights to the contrary, the Company may, at its option, issue new Right Certificates evidencing Rights in such form as may be approved by its Board of Directors to reflect any adjustment or change in the Purchase Price and the number or kind or class of shares or other securities or property purchasable under the Right Certificates made in accordance with the provisions of this Agreement. In addition, in connection with the issuance or sale of Common Shares following the Distribution Date and prior to the earlier of the Redemption Date and the Final Expiration Date, the Company (a) shall with respect to Common Shares so issued or sold pursuant to the exercise of stock options or under any employee plan or arrangement in existence prior to the Distribution Date, or upon the exercise, conversion or exchange of securities, notes or debentures issued by the Company and in existence prior to the Distribution Date, and (b) may, in any other case, if deemed necessary or appropriate by the Board of Directors, issue Right Certificates representing the appropriate number of Rights in connection with such issuance or sale; provided, however, that (i) the Company shall not be obligated to issue any such Right Certificates if, and to the extent that, the Company shall be advised by counsel that such issuance would create a significant risk of material adverse tax consequences to the Company or the Person to whom such Right Certificate would be issued, and (ii) no Right Certificate shall be issued if, and to the extent that, appropriate adjustment shall otherwise have been made in lieu of the issuance thereof.

SECTION 23. REDEMPTION.

(a)The Rights may be redeemed by action of the Board of Directors pursuant to Section 23(b) hereof and shall not be redeemed in any other manner.

(b)

(i)The Board of Directors may, at its option, at any time prior to the earlier of (A) such time as any Person becomes an Acquiring Person, or (B) the Final Expiration Date, redeem all but not less than all of the then outstanding Rights at a redemption price of \$0.01 per Right, appropriately adjusted to reflect any stock split, stock dividend or similar transaction occurring after the date hereof (such redemption price being hereinafter referred to as the "Redemption Price"), and the Company may, at its option, pay the Redemption Price in Common Shares (based on the "current per-share market price," as such term is defined in Section 11(d) hereof, of the Common Shares at the time of redemption), cash or any other form of consideration deemed appropriate by the Board of Directors. The redemption of the Rights by the Board of Directors may be made effective at such time, on such basis and subject to such conditions as the Board of Directors in its sole discretion may establish. Notwithstanding anything contained in this Agreement to the contrary, the Rights shall not be exercisable pursuant to Section 11(a)(ii) hereof prior to the expiration or termination of the Company's right of redemption under this Section 23(b)(i).

(ii)In addition, the Board of Directors may, at its option, at any time after the time a Person becomes an Acquiring Person but prior to any event described in clause (x), (y) or (z) of the first sentence of Section 13 hereof, redeem all but not less than all of the then outstanding Rights at the Redemption Price (x) in connection with any merger, consolidation or sale or other transfer (in one transaction or in a series of related transactions) of assets or earning power aggregating 50% or more of the assets or earning power of the Company and its subsidiaries (taken as a whole) in which all holders of Common Shares are treated alike and not involving (other than as a holder of Common Shares being treated like all other such holders) an Interested Stockholder or a Transaction Person or (y)(A) if and for so long

as the Acquiring Person is not thereafter the Beneficial Owner of 4.99% (or, in the case of a Grandfathered Person, the Grandfathered Percentage applicable to such Grandfathered Person) or more of the then outstanding Common Shares, and (B) at the time of redemption no other Persons are Acquiring Persons.

(c) Immediately upon the action of the Board of Directors ordering the redemption of the Rights pursuant to Section 23(b) hereof, and without any further action and without any notice, the right to exercise the Rights will terminate and the only right thereafter of the holders of Rights shall be to receive the Redemption Price. The Company shall promptly give public notice of any such redemption; provided, however, that the failure to give, or any defect in, any such notice shall not affect the validity of such redemption. Within 10 days after such action of the Board of Directors ordering the redemption of the Rights pursuant to Section 23(b) hereof, the Company shall mail a notice of redemption to all the holders of the then outstanding Rights at their last addresses as they appear upon the registry books of the Rights Agent or, prior to the Distribution Date, on the registry books of the transfer agent for the Common Shares, provided, however, that failure to give, or any defect in, any such notice shall not affect the validity of such redemption. Any notice that is mailed in the manner herein provided shall be deemed given, whether or not the holder receives the notice. Each such notice of redemption will state the method by

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which the payment of the Redemption Price will be made. Neither the Company nor any of its Affiliates or Associates may redeem, acquire or purchase for value any Rights at any time in any manner other than that specifically set forth in this Section 23 or in Section 24 hereof, and other than in connection with the purchase of Common Shares prior to the Distribution Date.

(d)The Company may, at its option, discharge all of its obligations with respect to any redemption of the Rights by (i) issuing a press release announcing the manner of redemption of the Rights and (ii) mailing payment of the Redemption Price to the registered holders of the Rights at their last addresses as they appear on the registry books of the Rights Agent or, prior to the Distribution Date, on the registry books of the transfer agent for the Common Shares, and upon such action, all outstanding Right Certificates shall be null and void without any further action by the Company.

SECTION 24. EXCHANGE.

(a)The Board of Directors may, at its option, at any time after any Person becomes an Acquiring Person, exchange all or part of the then outstanding and exercisable Rights (which shall not include Rights that have become void pursuant to the provisions of Section 11(a)(ii) hereof) for Common Shares at an exchange ratio of one Common Share per Right, appropriately adjusted to reflect any stock split, stock dividend or similar transaction occurring after the date hereof (such exchange ratio being hereinafter referred to as the “Exchange Ratio”). Notwithstanding the foregoing, the Board of Directors shall not be empowered to effect such exchange at any time after any Person (other than the Company, any Subsidiary of the Company, any employee benefit plan of the Company or any such Subsidiary, or any entity holding Common Shares for or pursuant to the terms of any such plan), together with all Affiliates and Associates of such Person, becomes the Beneficial Owner of 50% or more of the Common Shares then outstanding.

(b)Immediately upon the action of the Board of Directors ordering the exchange of any Rights pursuant to Section 24(a) hereof and without any further action and without any notice, the right to exercise such Rights shall terminate and the only right thereafter of a holder of such Rights shall be to receive that number of Common Shares equal to the number of such Rights held by such holder multiplied by the Exchange Ratio. The Company shall promptly give public notice of any such exchange; provided, however, that the failure to give, or any defect in, such notice shall not affect the validity of such exchange. The Company promptly shall mail a notice of any such exchange to all of the holders of such Rights at their last addresses as they appear upon the registry books of the Rights Agent; provided, however, that the failure to give, or any defect in, such notice shall not affect the validity of such exchange. Any notice that is mailed in the manner herein provided shall be deemed given, whether or not the holder receives the notice. Each such notice of exchange will state the method by which the exchange of the Common Shares for Rights will be effected and, in the event of any partial exchange, the number of Rights that will be exchanged. Any partial exchange shall be effected pro rata based on the number of Rights (other than Rights that have become void pursuant to the provisions of Section 11(a)(ii) hereof) held by each holder of Rights.

(c)In lieu of issuing Common Shares in accordance with Section 24(a) hereof, the Company may, if a majority of the Board of Directors then in office determines that such action is necessary or appropriate and not contrary to the interests of the holders of Rights, elect to (and, in the event that there are not sufficient treasury shares and authorized but unissued Common Shares to permit any exchange of the Rights in accordance with Section 24(a) hereof, the Company shall) take all such action as may be necessary to authorize, issue or pay, upon the exchange of the Rights, cash, property, Common Shares, other securities or any combination thereof having an aggregate value equal to the value of the Common Shares that otherwise would have been issuable pursuant to Section 24(a) hereof, which aggregate value shall be determined by a nationally recognized investment banking firm selected by a majority of the Board of Directors then in office. For purposes of the preceding sentence, the value of the Common Shares shall be determined pursuant to Section 11(d) hereof. Any election pursuant to this Section 24(c) by the Board of Directors

must be made by resolution within 60 days following the date on which the event described in Section 11(a)(ii) hereof shall have occurred. Following the occurrence of the event described in Section 11(a)(ii) hereof, a majority of the Board of Directors then in office may suspend the exercisability of the Rights for a period of up to 60 days following the date on which the event described in Section 11(a)(ii) hereof shall have occurred to the extent that such directors have not determined whether to exercise their rights of exchange under this Section 24(c). In the event of any such suspension, the Company shall issue a public announcement stating that the exercisability of the Rights has been temporarily suspended.

(d)The Company shall not be required to issue fractions of Common Shares or to distribute certificates that evidence fractional Common Shares. In lieu of such fractional Common Shares, the Company shall pay to the registered holders of the Right Certificates with regard to which such fractional Common Shares would otherwise be issuable an amount in cash equal to the same fraction of the current market value of a whole Common Share. For the purposes of this Section 24(d), the current market value of a whole Common Share shall be the closing price of a Common Share (as determined pursuant

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to the second sentence of Section 11(d)(i) hereof) for the Trading Day immediately after the date of the first public announcement by the Company that an exchange is to be effected pursuant to this Section 24.

SECTION 25. NOTICE OF CERTAIN EVENTS.

(a) In case the Company shall, at any time after the Distribution Date, propose (i) to pay any dividend payable in stock of any class to the holders of its Preferred Shares or to make any other distribution to the holders of its Preferred Shares (other than a regular quarterly cash dividend), (ii) to offer to the holders of its Preferred Shares rights or warrants to subscribe for or to purchase any additional Preferred Shares or shares of stock of any class or any other securities, rights or options, (iii) to effect any reclassification of its Preferred Shares (other than a reclassification involving only the subdivision of outstanding Preferred Shares), (iv) to effect any consolidation or merger into or with, or to effect any sale or other transfer (or to permit one or more of its Subsidiaries to effect any sale or other transfer), in one or more transactions, of 50% or more of the assets or earning power of the Company and its Subsidiaries (taken as a whole), to any other Person, (v) to effect the liquidation, dissolution or winding up of the Company, or (vi) to declare or pay any dividend on the Common Shares payable in Common Shares or to effect a subdivision, combination or consolidation of the Common Shares (by reclassification or otherwise than by payment of dividends in Common Shares), then, in each such case, the Company shall give to each holder of a Right Certificate, in accordance with Section 26 hereof, a notice of such proposed action, which shall specify the record date for the purpose of such stock dividend, or distribution of rights or warrants, or the date on which such reclassification, consolidation, merger, sale, transfer, liquidation, dissolution, or winding up is to take place and the date of participation therein by the holders of the Common Shares and/or the Preferred Shares, if any such date is to be fixed, and such notice shall be so given in the case of any action covered by clause (i) or (ii) above at least 10 days prior to the record date for determining holders of the Preferred Shares for purposes of such action, and in the case of any such other action, at least 10 days prior to the date of the taking of such proposed action or the date of participation therein by the holders of the Common Shares and/or the Preferred Shares, whichever shall be the earlier.

(b) In case the event set forth in Section 11(a)(ii) hereof shall occur, then the Company shall as soon as practicable thereafter give to each holder of a Right Certificate, in accordance with Section 26 hereof, a notice of the occurrence of such event, which notice shall describe the event and the consequences of the event to holders of Rights under Section 11(a)(ii) hereof.

SECTION 26. NOTICES. Notices or demands authorized by this Agreement to be given or made by the Rights Agent or by the holder of any Right Certificate to or on the Company shall be sufficiently given or made if sent by first-class mail, postage prepaid, addressed (until another address is filed in writing with the Rights Agent) as follows:

American Stock Transfer & Trust Company, LLC
6201 15th Avenue
Brooklyn NY 11219
Attention: Relationship Management

Subject to the provisions of Section 21 hereof, any notice or demand authorized by this Agreement to be given or made by the Company or by the holder of any Right Certificate to or on the Rights Agent shall be sufficiently given or made if sent by first-class mail, postage prepaid, addressed (until another address is filed in writing with the Company) as follows:

AMAG Pharmaceuticals, Inc.
1100 Winter Street
Waltham, MA 02451

Attention: General Counsel

Notices or demands authorized by this Agreement to be given or made by the Company or the Rights Agent to the holder of any Right Certificate shall be sufficiently given or made if sent by first-class mail, postage prepaid, addressed to such holder at the address of such holder as shown on the registry books of the Company.

SECTION 27. SUPPLEMENTS AND AMENDMENTS. For so long as the Rights are then redeemable, the Company may in its sole and absolute discretion, and the Rights Agent shall, if the Company so directs, supplement or amend any provision of this Agreement without the approval of any holders of the Rights. From and after the time that the Rights are no longer redeemable, the Company may, and the Rights Agent shall, if the Company so directs, from time to time supplement or amend any provision of this Agreement without the approval of any holders of Right Certificates in order to (i) cure any ambiguity, (ii) correct or supplement any provision contained herein that may be defective or inconsistent with any other provisions herein, or (iii) change any other provisions with respect to the Rights that the Company may deem necessary or

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desirable; provided, however, that no such supplement or amendment shall be made that would adversely affect the interests of the holders of Rights (other than the interests of an Acquiring Person or its Affiliates or Associates). Upon delivery of a certificate from an appropriate officer of the Company that states that the proposed supplement or amendment is in compliance with the terms of this Section 27, the Rights Agent shall execute such supplement or amendment, and any failure of the Rights Agent to so execute such supplement or amendment shall not affect the validity of the actions taken by the Board of Directors of the Company pursuant to this Section 27. Notwithstanding any other provision hereof, the Rights Agent's consent must be obtained regarding any amendment or supplement pursuant to this Section 27 which alters the Rights Agent's rights or duties under this Agreement. Prior to the Distribution Date, the interests of the holders of Rights shall be deemed coincident with the interests of the holders of Common Shares.

SECTION 28. DETERMINATION AND ACTIONS BY THE BOARD OF DIRECTORS, ETC. The Board of Directors shall have the exclusive power and authority to administer this Agreement and to exercise all rights and powers specifically granted to the Board, or the Company, or as may be necessary or advisable in the administration of this Agreement, including without limitation, the right and power to (i) interpret the provisions of this Agreement, and (ii) make all determinations deemed necessary or advisable for the administration of this Agreement (including a determination to redeem or not redeem the Rights or to amend the Agreement). All such actions, calculations, interpretations and determinations (including, for purposes of clause (y) below, all omissions with respect to the foregoing) that are done or made by the Board in good faith, shall (x) be final, conclusive and binding on the Rights Agent and the holders of the Rights, and (y) not subject the Board to any liability to the holders of the Rights.

SECTION 29. SUCCESSORS. All the covenants and provisions of this Agreement by or for the benefit of the Company or the Rights Agent shall bind and inure to the benefit of their respective successors and assigns hereunder.

SECTION 30. BENEFITS OF THIS AGREEMENT. Nothing in this Agreement shall be construed to give to any person or corporation other than the Company, the Rights Agent and the registered holders of the Right Certificates (and, prior to the Distribution Date, the Common Shares) any legal or equitable right, remedy or claim under this Agreement; but this Agreement shall be for the sole and exclusive benefit of the Company, the Rights Agent and the registered holders of the Right Certificates (and, prior to the Distribution Date, the Common Shares).

SECTION 31. SEVERABILITY. If any term, provision, covenant or restriction of this Agreement is held by a court of competent jurisdiction or other authority to be invalid, void or unenforceable, the remainder of the terms, provisions, covenants and restrictions of this Agreement shall remain in full force and effect and shall in no way be affected, impaired or invalidated.

SECTION 32. GOVERNING LAW. This Agreement and each Right Certificate issued hereunder shall be deemed to be a contract made under the laws of the State of Delaware and for all purposes shall be governed by and construed in accordance with the laws of such State applicable to contracts to be made and performed entirely within such State.

SECTION 33. COUNTERPARTS. This Agreement may be executed in any number of counterparts and each of such counterparts shall for all purposes be deemed to be an original, and all such counterparts shall together constitute but one and the same instrument.

SECTION 34. DESCRIPTIVE HEADINGS. Descriptive headings of the several Sections of this Agreement are inserted for convenience only and shall not control or affect the meaning or construction of any of the provisions hereof.

SECTION 35. PROCESS TO SEEK EXEMPTION. Any Person who desires to effect any acquisition of Common Shares that would, if consummated, result in such Person (together with its Affiliates and Associates) beneficially owning 4.99% (or, in the case of a Grandfathered Person, the Grandfathered Percentage) or more of the then outstanding Common Shares (a “Requesting Person”) may, prior to the Shares Acquisition Date, and in accordance with this Section 35, request that the Board of Directors grant an exemption with respect to such acquisition under this Agreement (an “Exemption Request”). An Exemption Request shall be in proper form and shall be delivered by registered mail, return receipt requested, to the Secretary of the Company at the principal executive office of the Company. To be in proper form, an Exemption Request shall set forth (i) the name and address of the Requesting Person, (ii) the number and percentage Common Shares then Beneficially Owned by the Requesting Person, together with all Affiliates and Associates of the Requesting Person, and (iii) a reasonably detailed description of the transaction or transactions by which the Requesting Person would propose to acquire Beneficial Ownership of Common Shares aggregating 4.99% (or, in the case of an Grandfathered Person, the Grandfathered Percentage) or more of the then outstanding Common Shares and the maximum number and percentage of shares of Common Shares that the Requesting Person proposes to acquire. The Board of Directors shall make a determination whether to grant an exemption in response to an Exemption Request as promptly as practicable (and, in any event, within ten (10) Business Days) after receipt thereof; provided, that the failure of the Board of Directors to make a determination within such period shall be deemed to

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constitute the denial by the Board of Directors of the Exemption Request. The Board of Directors shall only grant an exemption in response to an Exemption Request if the Board of Directors determine, in its sole discretion, that the acquisition of Beneficial Ownership of Common Shares by the Requesting Person will not jeopardize or endanger the availability to the Company of any Tax Benefits. Any exemption granted hereunder may be granted in whole or in part, and may be subject to limitations or conditions (including that the exemption be of a limited duration, a requirement that the Requesting Person agree that it will not acquire Beneficial Ownership of Common Shares in excess of the maximum number and percentage of shares approved by the Board of Directors or that it will not make another Exemption Request), in each case as and to the extent the Board of Directors shall determine necessary or desirable to provide for the protection of the Company's Tax Benefits. Any Exemption Request may be submitted on a confidential basis and, except to the extent required by applicable law, the Company shall maintain the confidentiality of such Exemption Request and the Board of Directors' determination with respect thereto.

[Remainder of page intentionally left blank.]

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IN WITNESS HEREOF, the parties hereto have caused this Agreement to be duly executed, all as of the day and year first above written.

AMAG
PHARMACEUTICALS,
INC.

/s/ Edward Myles
Senior Vice President of
Finance, Chief Financial
Officer and Treasurer

AMERICAN STOCK
TRANSFER & TRUST
COMPANY, LLC, AS
RIGHTS AGENT

By: /s/ Michael Legregin

Title: Senior Vice President

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EXHIBIT A

AMAG PHARMACEUTICALS, INC.

AMENDED AND RESTATED CERTIFICATE OF DESIGNATION

OF

SERIES A JUNIOR PARTICIPATING PREFERRED STOCK

(Pursuant to Section 151 of the
Delaware General Corporation Law)

AMAG PHARMACEUTICALS, INC., a corporation organized and existing under the General Corporation Law of the State of Delaware (hereinafter called the “Company”), hereby certifies that the following resolutions were adopted by the Board of Directors of the Company (the “Board of Directors”) as required by Section 151 of the General Corporation Law of the State of Delaware (the “General Corporation Law”) a meeting duly called and held on April 6, 2017:

WHEREAS, the Certificate of Incorporation of the Company, as amended, provides for a class of its authorized stock known as preferred stock, comprised of 2,000,000 shares, \$.01 par value per share (the “Preferred Stock”), issuable from time to time in one or more series;

WHEREAS, the Board of Directors is authorized to determine or alter the rights, preferences, powers, privileges and the restrictions, qualifications and limitations of any wholly unissued series of Preferred Stock, and the number of shares constituting any such series and the designation thereof;

WHEREAS, pursuant to its authority as aforesaid, the Board of Directors has designated forty-five thousand (45,000) shares of the Company’s Preferred Stock as Series A Junior Participating Preferred Stock, with the rights, preferences, privileges, and restrictions as set forth in a Certificate of Designation dated September 4, 2009 (the “Certificate of Designations”);

WHEREAS, no shares of Series A Junior Participating Preferred Stock have been issued since the adoption of the Certificate of Designations; and

WHEREAS, the Board of Directors wishes to amend and restate the Certificate of Designations in its entirety pursuant to Section 151 of the General Corporation Law.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors does hereby amend and restate the Certificate of Designations and hereby states the designation and number of shares, and fixes the relative designations and the powers, preferences and rights, and the qualifications, limitations and restrictions thereof (in addition to the provisions set forth in the Certificate of Incorporation of the Company, which are applicable to the Preferred Stock of all classes and series), as follows:

Series A Junior Participating Preferred Stock:

Section 1. Designation and Amount. Two Hundred Fifty Thousand (250,000) shares of Preferred Stock, par value \$0.01 per share, are designated "Series A Junior Participating Preferred Stock" with the designations and the powers, preferences and rights, and the qualifications, limitations and restrictions specified herein (the "Junior Preferred Stock"). Such number of shares may be increased or decreased by resolution of the Board of Directors; provided, that no decrease shall reduce the number of shares of Junior Preferred Stock to a number less than the number of shares then outstanding plus the number of shares reserved for issuance upon the exercise of outstanding options, rights or warrants or upon the conversion of any outstanding securities issued by the Company convertible into Junior Preferred Stock.

Section 2. Dividends and Distributions.

(A) Subject to the rights of the holders of any shares of any series of Preferred Stock (or any similar stock) ranking prior and superior to the Junior Preferred Stock with respect to dividends, the holders of shares of Junior Preferred Stock, in preference to the holders of Common Stock, par value \$0.01 per share (the "Common Stock"), of the Company, and of any other junior stock, shall be entitled to receive, when, as and if declared by the Board of Directors out of

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funds legally available for the purpose, quarterly dividends payable in cash on the first day of April, July, October and January in each year (each such date being referred to herein as a “Quarterly Dividend Payment Date”), commencing on the first Quarterly Dividend Payment Date after the first issuance of a share or fraction of a share of Junior Preferred Stock, in an amount per share (rounded to the nearest cent) equal to the greater of (a) \$1.00 or (b) subject to the provision for adjustment hereinafter set forth, 1,000 times the aggregate per share amount of all cash dividends, and 1,000 times the aggregate per share amount (payable in kind) of all non-cash dividends or other distributions, other than a dividend payable in shares of Common Stock or a subdivision of the outstanding shares of Common Stock (by reclassification or otherwise), declared on the Common Stock since the immediately preceding Quarterly Dividend Payment Date or, with respect to the first Quarterly Dividend Payment Date, since the first issuance of any share or fraction of a share of Junior Preferred Stock. In the event the Company shall at any time declare or pay any dividend on the Common Stock payable in shares of Common Stock, or effect a subdivision or combination or consolidation of the outstanding shares of Common Stock (by reclassification or otherwise than by payment of a dividend in shares of Common Stock) into a greater or lesser number of shares of Common Stock, then in each such case the amount to which holders of shares of Junior Preferred Stock were entitled immediately prior to such event under clause (b) of the preceding sentence shall be adjusted by multiplying such amount by a fraction, the numerator of which is the number of shares of Common Stock outstanding immediately after such event and the denominator of which is the number of shares of Common Stock that were outstanding immediately prior to such event.

(B) The Company shall declare a dividend or distribution on the Junior Preferred Stock as provided in paragraph (A) of this Section immediately after it declares a dividend or distribution on the Common Stock (other than a dividend payable in shares of Common Stock); provided, that in the event no dividend or distribution shall have been declared on the Common Stock during the period between any Quarterly Dividend Payment Date and the next subsequent Quarterly Dividend Payment Date, a dividend of \$1.00 per share on the Junior Preferred Stock shall nevertheless be payable on such subsequent Quarterly Dividend Payment Date.

(C) Dividends shall begin to accrue and be cumulative on outstanding shares of Junior Preferred Stock from the Quarterly Dividend Payment Date next preceding the date of issue of such shares, unless the date of issue of such shares is prior to the record date for the first Quarterly Dividend Payment Date, in which case dividends on such shares shall begin to accrue from the date of issue of such shares, or unless the date of issue is a Quarterly Dividend Payment Date or is a date after the record date for the determination of holders of shares of Junior Preferred Stock entitled to receive a quarterly dividend and before such Quarterly Dividend Payment Date, in either of which events such dividends shall begin to accrue and be cumulative from such Quarterly Dividend Payment Date. Accrued but unpaid dividends shall not bear interest. Dividends paid on the shares of Junior Preferred Stock in an amount less than the total amount of such dividends at the time accrued and payable on such shares shall be allocated pro rata on a share-by-share basis among all such shares at the time outstanding. The Board of Directors may fix a record date for the determination of holders of shares of Junior Preferred Stock entitled to receive payment of a dividend or distribution declared thereon, which record date shall be not more than 60 days prior to the date fixed for the payment thereof.

Section 3. **Voting Rights.** The holders of shares of Junior Preferred Stock shall have the following voting rights:

(A) Subject to the provision for adjustment hereinafter set forth, each share of Junior Preferred Stock shall entitle the holder thereof to 1,000 votes on all matters submitted to a vote of the stockholders of the Company. In the event the Company shall at any time declare or pay any dividend on the Common Stock payable in shares of Common Stock, or effect a subdivision or combination or consolidation of the outstanding shares of Common Stock (by reclassification or otherwise than by payment of a dividend in shares of Common Stock) into a greater or lesser number of shares of Common Stock, then in each such case the number of votes per share to which holders of shares of Junior Preferred

Stock were entitled immediately prior to such event shall be adjusted by multiplying such number by a fraction, the numerator of which is the number of shares of Common Stock outstanding immediately after such event and the denominator of which is the number of shares of Common Stock that were outstanding immediately prior to such event.

(B) Except as otherwise provided herein, in any other Certificate of Designation creating a series of Preferred Stock or any similar stock, or by law, the holders of shares of Junior Preferred Stock and the holders of shares of Common Stock and any other capital stock of the Company having general voting rights shall vote together as one class on all matters submitted to a vote of stockholders of the Company.

(C) Except as set forth herein, or as otherwise provided by law, holders of Junior Preferred Stock shall have no special voting rights and their consent shall not be required (except to the extent they are entitled to vote with holders of Common Stock as set forth herein) for taking any corporate action.

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Section 4. Certain Restrictions.

(A) Whenever quarterly dividends or other dividends or distributions payable on the Junior Preferred Stock as provided in Section 2 are in arrears, thereafter and until all accrued and unpaid dividends and distributions, whether or not declared, on shares of Junior Preferred Stock outstanding shall have been paid in full, the Company shall not:

(i) declare or pay dividends, or make any other distributions, on any shares of stock ranking junior (either as to dividends or upon liquidation, dissolution or winding up) to the Junior Preferred Stock;

(ii) declare or pay dividends, or make any other distributions, on any shares of stock ranking on a parity (either as to dividends or upon liquidation, dissolution or winding up) with the Junior Preferred Stock, except dividends paid ratably on the Junior Preferred Stock and all such parity stock on which dividends are payable or in arrears in proportion to the total amounts to which the holders of all such shares are then entitled;

(iii) redeem or purchase or otherwise acquire for consideration shares of any stock ranking junior (either as to dividends or upon liquidation, dissolution or winding up) to the Junior Preferred Stock, provided that the Company may at any time redeem, purchase or otherwise acquire shares of any such junior stock in exchange for shares of any stock of the Company ranking junior (either as to dividends or upon dissolution, liquidation or winding up) to the Junior Preferred Stock; or

(iv) redeem or purchase or otherwise acquire for consideration any shares of Junior Preferred Stock, or any shares of stock ranking on a parity (either as to dividends or upon liquidation, dissolution or winding up) with the Junior Preferred Stock, except in accordance with a purchase offer made in writing or by publication (as determined by the Board of Directors) to all holders of such shares upon such terms as the Board of Directors, after consideration of the respective annual dividend rates and other relative rights and preferences of the respective series and classes, shall determine in good faith will result in fair and equitable treatment among the respective series or classes.

(B) The Company shall not permit any subsidiary of the Company to purchase or otherwise acquire for consideration any shares of stock of the Company unless the Company could, under paragraph (A) of this Section 4, purchase or otherwise acquire such shares at such time and in such manner.

Section 5. Reacquired Shares. Any shares of Junior Preferred Stock purchased or otherwise acquired by the Company in any manner whatsoever shall be retired and cancelled promptly after the acquisition thereof. All such shares shall upon their cancellation become authorized but unissued shares of Preferred Stock and may be reissued as part of a new series of Preferred Stock subject to the conditions and restrictions on issuance set forth herein, in the Certificate of Incorporation, as amended, or in any other Certificate of Designation creating a series of Preferred Stock or any similar stock or as otherwise required by law.

Section 6. Liquidation, Dissolution or Winding Up. Upon any liquidation, dissolution or winding up of the Company, no distribution shall be made (1) to the holders of shares of stock ranking junior (either as to dividends or upon liquidation, dissolution or winding up) to the Junior Preferred Stock unless, prior thereto, the holders of shares of Junior Preferred Stock shall have received \$80 per share, plus an amount equal to accrued and unpaid dividends and distributions thereon, whether or not declared, to the date of such payment, provided that the holders of shares of Junior Preferred Stock shall be entitled to receive an aggregate amount per share, subject to the provision for adjustment hereinafter set forth, equal to 1,000 times the aggregate amount to be distributed per share to holders of shares of Common Stock, or (2) to the holders of shares of stock ranking on a parity (either as to dividends or upon liquidation, dissolution or winding up) with the Junior Preferred Stock, except distributions made ratably on the Junior Preferred Stock and all such parity stock in proportion to the total amounts to which the holders of all such

shares are entitled upon such liquidation, dissolution or winding up. In the event the Company shall at any time declare or pay any dividend on the Common Stock payable in shares of Common Stock, or effect a subdivision or combination or consolidation of the outstanding shares of Common Stock (by reclassification or otherwise than by payment of a dividend in shares of Common Stock) into a greater or lesser number of shares of Common Stock, then in each such case the aggregate amount to which holders of shares of Junior Preferred Stock were entitled immediately prior to such event under the proviso in clause (1) of the preceding sentence shall be adjusted by multiplying such amount by a fraction the numerator of which is the number of shares of Common Stock outstanding immediately after such event and the denominator of which is the number of shares of Common Stock that were outstanding immediately prior to such event.

Section 7. Consolidation, Merger, Etc. In case the Company shall enter into any consolidation, merger, combination or other transaction in which the shares of Common Stock are exchanged for or changed into other stock or

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securities, cash and/or any other property, then in any such case each share of Junior Preferred Stock shall at the same time be similarly exchanged or changed into an amount per share, subject to the provision for adjustment hereinafter set forth, equal to 1,000 times the aggregate amount of stock, securities, cash and/or any other property (payable in kind), as the case may be, into which or for which each share of Common Stock is changed or exchanged. In the event the Company shall at any time declare or pay any dividend on the Common Stock payable in shares of Common Stock, or effect a subdivision or combination or consolidation of the outstanding shares of Common Stock (by reclassification or otherwise than by payment of a dividend in shares of Common Stock) into a greater or lesser number of shares of Common Stock, then in each such case the amount set forth in the preceding sentence with respect to the exchange or change of shares of Junior Preferred Stock shall be adjusted by multiplying such amount by a fraction, the numerator of which is the number of shares of Common Stock outstanding immediately after such event and the denominator of which is the number of shares of Common Stock that were outstanding immediately prior to such event.

Section 8. No Redemption. The shares of Junior Preferred Stock shall not be redeemable.

Section 9. Rank. The Junior Preferred Stock shall rank, with respect to the payment of dividends and the distribution of assets, junior to all series of any other class of the Company's Preferred Stock.

Section 10. Amendment. The Certificate of Incorporation of the Company, as amended, shall not be amended in any manner which would materially alter or change the powers, preferences or special rights of the Junior Preferred Stock so as to affect them adversely without the affirmative vote of the holders of at least two-thirds of the outstanding shares of Junior Preferred Stock, voting together as a single class.

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IN WITNESS WHEREOF, the undersigned has executed this certificate as of April 10, 2017.

/s/ Edward Myles
Senior Vice President of Finance, Chief Financial Officer and Treasurer

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EXHIBIT B

FORM OF RIGHT CERTIFICATE

(EXHIBIT B TO RIGHTS AGREEMENT)

Certificate No. R- Rights

NOT EXERCISABLE AFTER APRIL 6, 2018 OR EARLIER IF REDEMPTION OR EXCHANGE OCCURS OR IF OTHERWISE EXPIRED PURSUANT TO THE RIGHTS AGREEMENT. THE RIGHTS ARE SUBJECT TO REDEMPTION AT \$0.01 PER RIGHT AND TO EXCHANGE ON THE TERMS SET FORTH IN THE RIGHTS AGREEMENT.

RIGHT CERTIFICATE

AMAG PHARMACEUTICALS, INC.

This certifies that or registered assigns, is the registered owner of the number of Rights set forth above, each of which entitles the owner thereof, subject to the terms, provisions and conditions of the Rights Agreement, dated as of April 7, 2017 (as amended from time to time, the "Rights Agreement"), between AMAG Pharmaceuticals, Inc., a Delaware corporation (the "Company"), and American Stock Transfer & Trust Company, LLC (the "Rights Agent"), to purchase from the Company at any time after the Distribution Date (as such term is defined in the Rights Agreement) and prior to 5:00 p.m., New York time, on the earliest of (a) April 6, 2018, (b) the effective date of the repeal of Section 382 or any successor statute if the Board of Directors determines that the Rights Agreement is no longer necessary or desirable for the preservation of any Tax Benefits (as such term is defined in the Rights Agreement), (c) the first day of a taxable year of the Company to which the Board of Directors determines that no Tax Benefits may be carried forward or (d) the date of the final adjournment of the Company's 2017 annual meeting of stockholders if, following the final closing of the polls at such meeting, stockholder approval of the Rights Agreement has not been obtained, unless earlier redeemed or exchanged by the Company as described below, at the office of the Rights Agent designated for such purpose, or at the office of its successor as Rights Agent, one one-thousandth of a fully paid non-assessable share of Series A Junior Participating Preferred Stock, par value \$0.01 per share (the "Preferred Shares"), of the Company, at a purchase price of \$80 per one one-thousandth of a Preferred Share (the "Purchase Price"), upon presentation and surrender of this Right Certificate with the Form of Election to Purchase duly executed. The number of Rights evidenced by this Right Certificate (and the number of one one-thousandths of a Preferred Share which may be purchased upon exercise hereof) set forth above, and the Purchase Price set forth above, are the number and Purchase Price as of , , based on the Preferred Shares as constituted at such date.

From and after the time any Person becomes an Acquiring Person, (as such terms are defined in the Rights Agreement), if the Rights evidenced by this Right Certificate are beneficially owned by (i) an Acquiring Person or an Affiliate or Associate of any such Acquiring Person (as such terms are defined in the Rights Agreement), (ii) a transferee of any such Acquiring Person, Associate or Affiliate who becomes a transferee after the Acquiring Person becomes such, or (iii) under certain circumstances specified in the Rights Agreement, a transferee of any such Acquiring Person, Associate or Affiliate who becomes a transferee prior to or concurrently with the Acquiring Person becoming such, such Rights shall become null and void without any further action and no holder hereof shall have any right with respect to such Rights from and after the time any Person becomes an Acquiring Person. As provided in the Rights Agreement, the Purchase Price and the number of one one-thousandths of a Preferred Share which may be purchased upon the exercise of the Rights evidenced by this Right Certificate are subject to modification and adjustment upon the happening of certain events.

This Right Certificate is subject to all of the terms, provisions and conditions of the Rights Agreement, as amended from time to time, which terms, provisions and conditions are hereby incorporated herein by reference and made a part hereof. Reference is made to the Rights Agreement for a full description of the rights, limitations of rights, obligations, duties and immunities hereunder of the Rights Agent, the Company and the holders of the Right Certificates. Copies of the Rights Agreement are on file at the principal executive offices of the Company and the above-mentioned offices of the Rights Agent.

This Right Certificate, with or without other Right Certificates, upon surrender at the office of the Rights Agent designated for such purpose, may be exchanged for another Right Certificate or Right Certificates of like tenor and date evidencing Rights entitling the holder to purchase a like aggregate number of Preferred Shares as the Rights evidenced by the Right Certificate or Right Certificates surrendered shall have entitled such holder to purchase. If this Right Certificate shall be

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exercised in part, the holder shall be entitled to receive upon surrender hereof another Right Certificate or Right Certificates for the number of whole Rights not exercised.

Subject to the provisions of the Rights Agreement, the Rights evidenced by this Certificate (i) may be redeemed by the Company at a redemption price of \$0.01 per Right or (ii) may be exchanged in whole or in part for shares of the Company's Common Stock, par value \$0.01 per share, or, upon circumstances set forth in the Rights Agreement, cash, property or other securities of the Company, including fractions of a share of Preferred Stock.

No fractional Preferred Shares will be issued upon the exercise of any Right or Rights evidenced hereby (other than fractions which are integral multiples of one one-thousandth of a Preferred Share, which may, at the election of the Company, be evidenced by depositary receipts) but in lieu thereof a cash payment will be made, as provided in the Rights Agreement.

No holder of this Right Certificate shall be entitled to vote or receive dividends or be deemed for any purpose the holder of the Preferred Shares or of any other securities of the Company which may at any time be issuable on the exercise hereof, nor shall anything contained in the Rights Agreement or herein be construed to confer upon the holder hereof, as such, any of the rights of a stockholder of the Company or any right to vote for the election of directors or upon any matter submitted to stockholders at any meeting thereof, or to give or withhold consent to any corporate action, or to receive notice of meetings or other actions affecting stockholders (except as provided in the Rights Agreement), or to receive dividends or subscription rights, or otherwise, until the Right or Rights evidenced by this Right Certificate shall have been exercised as provided in the Rights Agreement.

This Right Certificate shall not be valid or obligatory for any purpose until it shall have been countersigned by the Rights Agent.

WITNESS the facsimile or .PDF signature of the proper officers of the Company and its corporate seal.

Dated as of .

ATTEST:

AMAG PHARMACEUTICALS, INC.

Joseph D. Vittiglio

William K. Heiden

Senior Vice President, General Counsel & Secretary

Chief Executive Officer

COUNTERSIGNED:

AMERICAN STOCK TRANSFER & TRUST COMPANY, LLC

as Rights Agent

By:

[Name]

[Title]

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Form of Reverse Side of Right Certificate

FORM OF ASSIGNMENT

(To be executed by the registered holder if such holder desires to transfer the Right Certificate.)

FOR VALUE RECEIVED

hereby sells, assigns and transfers unto

(Please print name and address of transferee)

this Right Certificate, together with all right, title and interest therein, and does hereby irrevocably constitute and appoint _____ Attorney, to transfer the within Right Certificate on the books of the within-named Company, with full power of substitution.

Dated:

Signature

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SIGNATURE GUARANTEED:

Signatures must be guaranteed by an “eligible guarantor institution” as defined in Rule 17Ad-15 promulgated under the Securities Exchange Act of 1934, as amended.

The undersigned hereby certifies that (1) the Rights evidenced by this Right Certificate are not being sold, assigned or transferred by or on behalf of a Person who is or was an Acquiring Person, an Interested Stockholder or an Affiliate or Associate thereof (as such terms are defined in the Rights Agreement); and (2) after due inquiry and to the best of the knowledge of the undersigned, the undersigned did not acquire the Rights evidenced by this Right Certificate from any Person who is or was an Acquiring Person, an Interested Stockholder, or an Affiliate or Associate thereof.

Signature

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FORM OF ELECTION TO PURCHASE

(To be executed if holder desires to exercise
Rights represented by the Right Certificate.)

To American Stock Transfer & Trust Company, LLC, as Rights Agent

The undersigned hereby irrevocably elects to exercise Rights represented by this
Right Certificate to purchase the Preferred Shares (or other securities or property) issuable upon the exercise of such
Rights and requests that certificates for such Preferred Shares (or other securities or property) be issued in the name
of:

Please insert social security
or other identifying number:

(Please print name and address)

If such number of Rights shall not be all the Rights evidenced by this Right Certificate, a new Right Certificate for the
balance remaining of such Rights shall be registered in the name of and delivered to:

Please insert social security
or other identifying number:

(Please print name and address)

Dated:

Signature

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SIGNATURE GUARANTEED:

Signatures must be guaranteed by an “eligible guarantor institution” as defined in Rule 17Ad-15 promulgated under the Securities Exchange Act of 1934, as amended.

The undersigned hereby certifies that (1) the Rights evidenced by this Right Certificate are not beneficially owned by nor are they being exercised on behalf of an Acquiring Person, an Interested Stockholder or an Affiliate or Associate thereof (as such terms are defined in the Rights Agreement); and (2) after due inquiry and to the best of the knowledge of the undersigned, the undersigned did not acquire the Rights evidenced by this Right Certificate from any Person who is or was an Acquiring Person, an Interested Stockholder, or an Affiliate or Associate thereof.

Signature

NOTICE

The signature in the Form of Assignment or Form of Election to Purchase, as the case may be, must conform to the name as written upon the face of this Right Certificate in every particular, without alteration or enlargement or any change whatsoever.

In the event the certification set forth above in the Form of Assignment or the Form of Election to Purchase, as the case may be, is not completed, the Company and the Rights Agent will deem the beneficial owner of the Rights evidenced by this Right Certificate to be an Acquiring Person or an Affiliate or Associate thereof (as defined in the Rights Agreement) and such Assignment or Election to Purchase will not be honored.

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EXHIBIT C

SUMMARY OF RIGHTS TO PURCHASE PREFERRED SHARES

AMAG PHARMACEUTICALS, INC.

SUMMARY OF RIGHTS TO PURCHASE
PREFERRED SHARES

(EXHIBIT C TO RIGHTS PLAN)

On April 6, 2017, the Board of Directors of AMAG PHARMACEUTICALS, INC. (the “Company”) declared a dividend of one preferred share purchase right (a “Right”) for each outstanding share of common stock, par value \$0.01 per share (the “Common Shares”), of the Company. The dividend was effective as of April 17, 2017 (the “Record Date”) with respect to the stockholders of record on that date. The Rights also attached to new Common Shares issued after the Record Date. Each Right entitles the registered holder to purchase from the Company one one-thousandth of a share of Series A Junior Participating Preferred Stock, par value \$0.01 per share (the “Preferred Shares”), of the Company at a price of \$80 per one one-thousandth of a Preferred Share (the “Purchase Price”), subject to adjustment. Each Preferred Share is designed to be the economic equivalent of 1,000 Common Shares. The description and terms of the Rights are set forth in a Rights Agreement dated as of April 7, 2017 (as amended from time to time, the “Rights Agreement”), between the Company and American Stock Transfer & Trust Company, LLC (the “Rights Agent”).

DETACHMENT AND TRANSFER OF RIGHTS

Initially, the Rights are evidenced by the stock certificates representing Common Shares then outstanding, and no separate Right Certificates will be distributed. Until the earlier to occur of (i) the tenth day after a public announcement that a person or group of affiliated or associated persons, has become an “Acquiring Person” (as such term is defined in the Rights Agreement) or (ii) 10 business days (or such later date as the Board of Directors may determine) following the commencement of, or announcement of an intention to make, a tender offer or exchange offer which would result in the beneficial ownership by an Acquiring Person of 4.99% (or, in the case of a Grandfathered Person, the Grandfathered Percentage applicable to such Grandfathered Person) or more of the outstanding Common Shares (the earlier of such dates being called the “Distribution Date”), the Rights will be evidenced, with respect to any of the Common Share certificates outstanding as of the Record Date, by such Common Share certificate. Generally, the Rights Agreement provides that any person or group (including any affiliate or associate of such person or group) (a “Grandfathered Person”) which beneficially owned (as disclosed in public filings with the Securities and Exchange Commission) 4.99% or more of the outstanding Common Shares as of the Grandfathered Time (the percentage of such ownership, the “Grandfathered Percentage”) will not be deemed an “Acquiring Person” unless such Grandfathered Person exceeds its Grandfathered Percentage by more than 1/4%. If any Grandfathered Person shall sell, transfer or otherwise dispose of any outstanding Common Shares after the Grandfathered Time or if the percentage of outstanding Common Shares of the Company that such Grandfathered Person beneficially owns is reduced as a result of the issuance of additional securities of the Company, the related Grandfathered Percentage shall, subsequent to such sale, transfer, disposition or dilutive event, mean, with respect to the Grandfathered Person, the lesser of (a) the Grandfathered Percentage as in effect immediately prior to such sale, transfer, disposition or dilutive event or (b) the percentage of outstanding Common Shares of the Company that such Grandfathered Person beneficially owns immediately following such sale, transfer, disposition or dilutive event, plus an additional 1/4%; provided, however, if at any time after the Grandfathered Time, such Grandfathered Person is the beneficial owner of less than 4.99% of the outstanding Common Shares, then such person or group (including any

affiliate or associate of such person or group) will cease to be a Grandfathered Person.

Additionally, the Rights Agreement provides that any person who desires to effect any acquisition of Common Shares that would, if consummated, result in such person (together with its affiliates and associates) beneficially owning 4.99% (or, in the case of a Grandfathered Person, the Grandfathered Percentage) or more of the then outstanding Common Shares (a "Requesting Person") may, prior to the Shares Acquisition Date (as defined in the Rights Agreement), and in accordance with this the Rights Agreement, request that the Board of Directors grant an exemption with respect to such acquisition under the Rights Agreement (an "Exemption Request"). The Board of Directors will only grant an exemption in response to an Exemption Request if the Board of Directors determines, in its sole discretion, that the acquisition of beneficial ownership of Common Shares by the Requesting Person will not jeopardize or endanger the availability to the Company of any tax benefits. Any exemption granted may be granted in whole or in part, and may be subject to limitations or conditions (including that the exemption be of a limited duration, a requirement that the Requesting Person agree that it will not acquire beneficial ownership

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of Common Shares in excess of the maximum number and percentage of shares approved by the Board of Directors or that it will not make another Exemption Request), in each case as and to the extent the Board of Directors shall determine necessary or desirable to provide for the protection of the Company's tax benefits.

The Rights Agreement provides that, until the Distribution Date (or earlier redemption or expiration of the Rights), the Rights are transferable with and only with the Common Shares. Until the Distribution Date (or earlier redemption or expiration of the Rights), new Common Share certificates issued after the Record Date upon transfer or new issuance of Common Shares will contain a notation incorporating the Rights Agreement by reference. Until the Distribution Date (or earlier redemption or expiration of the Rights), the surrender or transfer of any certificates for Common Shares outstanding as of the Record Date, even without such notation or a copy of this Summary of Rights being attached thereto, will also constitute the transfer of the Rights associated with the Common Shares represented by such certificate. As soon as practicable following the Distribution Date, separate certificates evidencing the Rights ("Right Certificates") will be mailed to holders of record of the Common Shares as of the close of business on the Distribution Date and such separate Right Certificates alone will evidence the Rights.

EXERCISABILITY OF RIGHTS

The Rights are not exercisable until the Distribution Date. The Rights will expire on the Final Expiration Date (defined below), unless the Final Expiration Date is extended or unless the Rights are earlier redeemed or exchanged by the Company, in each case as described below. Until a Right is exercised, the holder thereof, as such, will have no rights as a stockholder of the Company, including, without limitation, the right to vote or to receive dividends. The Final Expiration Date means the earliest of the close of business on (1) April 6, 2018, (2) the effective date of the repeal of Section 382 or any successor statute if the Board of Directors determines that this Rights Agreement is no longer necessary or desirable for the preservation of tax benefits, (3) the first day of a taxable year of the Company to which the Board of Directors determines that no Tax Benefits may be carried forward or (4) the date of the final adjournment of the Company's 2017 annual meeting of stockholders if, following the final closing of the polls at such meeting, stockholder approval of the Rights Agreement has not been obtained.

The Purchase Price payable, and the number of Preferred Shares or other securities or property issuable or payable, upon exercise of the Rights are subject to adjustment from time to time to prevent dilution. The number of outstanding Rights and the number of one one-thousandths of a Preferred Share issuable upon exercise of each Right are also subject to adjustment in the event of a stock split of the Common Shares or a stock dividend on the Common Shares payable in Common Shares, or subdivisions, consolidations or combinations of the Common Shares occurring, in any such case, prior to the Distribution Date. With certain exceptions, no adjustment in the Purchase Price will be required until cumulative adjustments require an adjustment of at least 1% in such Purchase Price. No fractional Preferred Shares will be issued (other than fractions which are integral multiples of one one-thousandth of a Preferred Share, which may, at the election of the Company, be evidenced by depositary receipts) and in lieu thereof, an adjustment in cash will be made based on the market price of the Preferred Shares on the last trading day prior to the date of exercise.

TERMS OF PREFERRED SHARES

Preferred Shares purchasable upon exercise of the Rights will not be redeemable. Each Preferred Share will be entitled to a minimum preferential quarterly dividend payment of \$1 per share but will be entitled to an aggregate dividend of 1,000 times the dividend declared per Common Share. In the event of liquidation, the holders of the Preferred Shares will be entitled to a minimum preferential liquidation payment of \$80 per share but will be entitled to an aggregate payment of 1,000 times the payment made per Common Share. Each Preferred Share will have 1,000 votes, voting together with the Common Shares. Finally, in the event of any merger, consolidation or other transaction in which

Common Shares are exchanged, each Preferred Share will be entitled to receive 1,000 times the amount received per Common Share. These rights are protected by customary anti-dilution provisions. Because of the nature of the Preferred Shares' dividend, liquidation and voting rights, the value of the one one-thousandth interest in a Preferred Share purchasable upon exercise of each Right should approximate the value of one Common Share. The Preferred Shares would rank junior to any other series of the Company's preferred stock.

TRIGGER OF FLIP-IN AND FLIP-OVER RIGHTS

In the event that any person or group of affiliated or associated persons becomes an Acquiring Person, proper provision shall be made so that each holder of a Right, other than Rights beneficially owned by the Acquiring Person or any affiliate or associate thereof (which will thereafter be void), will thereafter have the right to receive upon exercise that number of Common Shares having a market value equal to two times the exercise price of the Right. This right will commence on the date that a person has become an Acquiring Person (or the effective date of a registration statement relating to the securities purchasable upon exercise of the Rights, if later).

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In the event that the Company is acquired in a merger or other business combination transaction or 50% or more of its consolidated assets or earning power are sold to an Acquiring Person, its affiliates or associates or certain other persons in which such persons have an interest, proper provision will be made so that each such holder of a Right will thereafter have the right to receive, upon the exercise thereof at the then current exercise price of the Right, that number of shares of common stock of the acquiring company which at the time of such transaction will have a market value of two times the exercise price of the Right.

REDEMPTION AND EXCHANGE OF RIGHTS

At any time prior to the earliest of (i) the day that a person has become an Acquiring Person, or (ii) the Final Expiration Date, the Board of Directors of the Company may redeem the Rights in whole, but not in part, at a price of \$0.01 per Right (the "Redemption Price"), which may be paid in cash, Common Shares or any other consideration deemed appropriate by the Board of Directors of the Company. In general, the redemption of the Rights may be made effective at such time on such basis with such conditions as the Board of Directors in its sole discretion may establish. Immediately upon any redemption of the Rights, the right to exercise the Rights will terminate and the only right of the holders of Rights will be to receive the Redemption Price.

At any time after any Person becomes an Acquiring Person and prior to the acquisition by such person or group of affiliated or associated persons of 50% or more of the outstanding Common Shares, the Board of Directors of the Company may exchange the Rights (other than Rights owned by such person or group of affiliated or associated persons which will have become void), in whole or in part, at an exchange ratio of one Common Share per Right. Under certain circumstances set forth in the Rights Agreement, in lieu of Common Shares, the Company may exchange cash, property or other securities of the Company, including fractions of a Preferred Share (or of a share of a class or series of the Company's preferred stock having equivalent designations and the powers, preferences and rights, and the qualifications, limitations and restrictions) with value equal to such Common Shares.

AMENDMENT OF RIGHTS

The terms of the Rights generally may be amended by the Board of Directors of the Company without the consent of the holders of the Rights, except that from and after the time that the Rights are no longer redeemable, no such amendment may adversely affect the interests of the holders of the Rights (excluding the interest of any Acquiring Person and any group of affiliated or associated persons).

ADDITIONAL INFORMATION

A copy of the Rights Agreement will be filed with the Securities and Exchange Commission as an Exhibit to a Current Report on Form 8-K that the Company expects to file on or about April 10, 2017. A copy of this Summary and the Rights Agreement is available from the Company by writing to: AMAG Pharmaceuticals, 1100 Winter Street, Waltham, Massachusetts 02451, Attention: General Counsel. This summary description of the Rights is not intended to be complete and is qualified in its entirety by reference to the Rights Agreement, which is hereby incorporated herein by reference.

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