

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

SCHEDULE 14A

(Rule 14a-101)

INFORMATION REQUIRED IN PROXY STATEMENT

SCHEDULE 14A INFORMATION

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

Filed by the Registrant   
Filed by a Party other than the Registrant

Check the appropriate box:

- Preliminary Proxy Statement  
 Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))  
 Definitive Proxy Statement  
 Definitive Additional Materials  
 Soliciting Material Pursuant to § 240.14a-12

ARCA BIOPHARMA, INC.

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(Name of Registrant as Specified in Its Charter)

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(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:

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2. Aggregate number of securities to which transaction applies:

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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):

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4. Proposed maximum aggregate value of transaction:

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5. Total fee paid:

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- 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.

6. Amount Previously Paid:

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7. Form, Schedule or Registration Statement No.:

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8. Filing Party:

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9. Date Filed:

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**ARCA BIOPHARMA, INC.**  
11080 CirclePoint Road, Suite 140  
Westminster, Colorado 80020

April 18, 2018

Dear Stockholders of ARCA biopharma, Inc.:

You are cordially invited to attend the Annual Meeting of Stockholders (the "Annual Meeting") of ARCA biopharma, Inc., a Delaware corporation (the "Company" or "ARCA"). The meeting will be held on Thursday, May 31, 2018, at 9:00 a.m. local time at the Renaissance Boulder Flatiron Hotel, 500 Flatiron Blvd, Broomfield, CO 80021.

The matters scheduled to be considered at the meeting are (1) to elect the nominees of the Company's Board of Directors (the "Board of Directors"), Dr. Raymond L. Woosley and Mr. Daniel J. Mitchell, to the Board of Directors to hold office until the 2021 Annual Meeting of Stockholders, (2) to ratify the selection by the Audit Committee of the Board of Directors (the "Audit Committee") of KPMG LLP ("KPMG") as the independent registered public accounting firm of the Company for its fiscal year ending December 31, 2018, and (3) to conduct any other business properly brought before the meeting. These items of business are more fully described in this proxy statement that you are encouraged to read in its entirety.

In accordance with the Securities and Exchange Commission ("SEC") rule ("Notice and Access Rule") that allows companies to furnish their proxy materials (including the form of proxy, this proxy statement and our Annual Report on Form 10-K for the fiscal year ended December 31, 2017, filed with the SEC on March 22, 2018) over the Internet, we intend to send a Notice of Internet Availability of Proxy Materials ("Notice") on or about April 20, 2018 to our stockholders of record as of April 2, 2018. We will also provide access to our proxy materials over the Internet by April 20, 2018. As a result of the Notice and Access Rule, all stockholders receiving the Notice have the ability to access the proxy materials over the Internet and request to receive a paper copy of the proxy materials by mail. Instructions on how to access the proxy materials over the Internet or to request a paper copy may be found on the Notice. In addition, the Notice contains instructions on how stockholders may request to receive proxy materials electronically by e-mail.

All stockholders are cordially invited to attend the Annual Meeting in person. Whether or not you expect to attend the Annual Meeting, please vote, as instructed in the Notice of Internet Availability of Proxy Materials, via the Internet or the telephone, as promptly as possible in order to ensure your representation at the Annual Meeting. Alternatively, you may follow the procedures outlined in the Notice of Internet Availability of Proxy Materials to request a paper proxy card to submit your vote by mail. 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 or other agent and you wish to vote at the Annual Meeting, you must obtain a proxy issued in your name from that record holder.

Sincerely,



**CHRISTOPHER OZEROFF**  
Secretary, Senior Vice President and General Counsel

ARCA BIOPHARMA, INC.  
11080 CirclePoint Road, Suite 140  
Westminster, Colorado 80020

**NOTICE OF ANNUAL MEETING OF STOCKHOLDERS  
TO BE HELD ON MAY 31, 2018**

Notice is hereby given that the Annual Meeting of Stockholders (the "Annual Meeting") of ARCA biopharma, Inc., a Delaware corporation (the "Company" or "ARCA") will be held on Thursday, May 31, 2018, at 9:00 a.m. local time at the Renaissance Boulder Flatiron Hotel, 500 Flatiron Blvd, Broomfield, CO 80021, for the following purposes:

1. To elect the Board of Directors' nominees, Dr. Raymond L. Woosley and Dan J. Mitchell, to the Board of Directors to hold office until the 2021 Annual Meeting of Stockholders.
2. To ratify the selection by the Audit Committee of the Board of Directors of KPMG LLP as independent registered public accounting firm of the Company for its fiscal year ending December 31, 2018.
3. To conduct any other business properly brought before the meeting.

These items of business are more fully described in the proxy statement accompanying this Notice.

The record date for the Annual Meeting is April 2, 2018. Only stockholders of record at the close of business on that date may vote at the meeting or any adjournment thereof.

By Order of the Board of Directors:



**CHRISTOPHER OZEROFF**  
Secretary, Senior Vice President and General Counsel

WESTMINSTER, CO  
APRIL 18, 2018

Pursuant to the Internet proxy rules promulgated by the Securities and Exchange Commission, the Company has elected to provide access to its proxy materials over the Internet. Accordingly, stockholders of record at the close of business on April 2, 2018, will receive a Notice of Internet Availability of Proxy Materials and may vote at the Annual Meeting and any adjournment or postponement thereof. The Company expects to mail the Notice of Internet Availability of Proxy Materials on or about April 20, 2018.

All stockholders are cordially invited to attend the Annual Meeting in person. Whether or not you expect to attend the Annual Meeting, please vote, as instructed in the Notice of Internet Availability of Proxy Materials, via the Internet or the telephone, as promptly as possible in order to ensure your representation at the annual meeting. Alternatively, you may follow the procedures outlined in the Notice of Internet Availability of Proxy Materials to request a paper proxy card to submit your vote by mail. 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 or other agent and you wish to vote at the Annual Meeting, you must obtain a proxy issued in your name from that record holder.

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**ARCA BIOPHARMA, INC.**  
11080 CirclePoint Road, Suite 140  
Westminster, Colorado 80020

**PROXY STATEMENT  
FOR THE 2018 ANNUAL MEETING OF STOCKHOLDERS**

**MAY 31, 2018**

This proxy statement (this “Proxy Statement”) is being furnished to holders of ARCA biopharma, Inc. (sometimes referred to as the “Company,” “ARCA,” “we,” “us,” and “our”) common stock, par value \$0.001 per share (the “Common Stock”). Proxies are being solicited on behalf of the Board of Directors of ARCA to be used at the Annual Meeting of Stockholders (the “Annual Meeting”) to be held on Thursday, May 31, 2018, at 9:00 a.m. local time at the Renaissance Boulder Flatiron Hotel, 500 Flatiron Boulevard, Broomfield, CO 80021, and at any postponement or adjournment thereof, for the purposes set forth in the Notice of Annual Meeting of Stockholders.

ARCA is using the Securities and Exchange Commission (the “SEC”) rule that allows companies to furnish their proxy materials over the Internet. As a result, we intend to mail to our stockholders a Notice of Internet Availability of Proxy Materials (the “Notice”) instead of a paper copy of the proxy materials (including the form of proxy, this Proxy Statement and our Annual Report on Form 10-K for the fiscal year ended December 31, 2017, filed with the SEC on March 22, 2018 (the “2017 Annual Report”), collectively, the “Proxy Materials”) on or about April 20, 2018. We will also provide access to our Proxy Materials over the Internet by April 20, 2018. By furnishing the Notice to our stockholders of record, you ***will not*** receive a printed copy of the Proxy Materials in the mail. Instead, the Notice instructs you on how to access and review all of the important information contained in the Proxy Statement and Annual Report electronically or to receive a printed version in the mail. The Notice also instructs you on how you may submit your proxy over the Internet, by toll-free number or in person at the Annual Meeting. After receiving the Notice, all stockholders can access the Proxy Materials over the Internet and request to receive a paper copy of the Proxy Materials by mail. Instructions on how to access the Proxy Materials over the Internet or to request a paper copy may be found on the Notice. In addition, the Notice contains instructions on how stockholders may request to receive Proxy Materials electronically by e-mail.

All stockholders may view and print ARCA’s proxy statement and the 2017 Annual Report, which are available at [www.arcabio.com](http://www.arcabio.com).

**Why did I receive a notice regarding the availability of the Proxy Materials on the Internet?**

As described above, pursuant to rules adopted by the SEC, we have elected to provide access to the Proxy Materials over the Internet. Accordingly, on or about April 20, 2018, we expect to send the Notice to ARCA's stockholders of record. The Board of Directors is soliciting your proxy to vote at the Annual Meeting. All stockholders can access the Proxy Materials on the website referred to in the Notice or request to receive a printed or electronic set of the Proxy Materials. Instructions on how to access the Proxy Materials over the Internet or to request a printed copy may be found in the Notice.

**How do I attend the Annual Meeting?**

The meeting will be held on Thursday, May 31, 2018, at 9:00 a.m. local time at the Renaissance Boulder Flatiron Hotel, 500 Flatiron Blvd, Broomfield, CO 80021. Directions to the Annual Meeting may be found at [www.arcabio.com](http://www.arcabio.com). Information on how to vote in person at the Annual Meeting is discussed below.

**Who can vote at the Annual Meeting?**

Only stockholders of record at the close of business on April 2, 2018, will be entitled to vote at the Annual Meeting. On this record date, there were 13,914,320 shares of Common Stock outstanding and entitled to vote.

*Stockholder of Record: Shares Registered in Your Name*

If, on April 2, 2018, your shares of our Common Stock were registered directly in your name with ARCA's transfer agent, Computershare Trust Company N.A., then you are a stockholder of record. As a stockholder of record, you may vote in person at the meeting or vote by proxy. Whether or not you plan to attend the meeting, we urge you to vote by proxy over the telephone or on the Internet (as instructed below) or return the proxy card we may mail to you to ensure your vote is counted.

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

If, on April 2, 2018, your shares of our Common Stock were held, not in your name, but rather in an account at a brokerage firm, bank, dealer, or other similar organization, then you are the beneficial owner of shares held in "street name" and the Notice is being forwarded to you by that organization. The organization holding your account is considered to be the stockholder of record for purposes of voting at the Annual Meeting. As a beneficial owner, you have the right to direct your broker or other agent regarding how to vote the shares in your account. You are also invited to attend the Annual Meeting. However, since you are not the stockholder of record, you may not vote your shares in person at the meeting unless you request and obtain a valid proxy from your broker or other agent.

**What am I voting on?**

There are two matters scheduled for a vote:

- Ø Election of two directors; and
- Ø Ratification of selection by the Audit Committee (the "Audit Committee") of the Board of Directors of KPMG LLP ("KPMG") as independent registered public accounting firm of the Company for its fiscal year ending December 31, 2018;

## What if another matter is properly brought before the meeting?

The Board of Directors knows of no other matters that will be presented for consideration at the Annual Meeting. If any other matters are properly brought before the meeting, it is the intention of the persons named in the accompanying proxy to vote on those matters in accordance with their best judgment.

## How do I vote?

You may either vote "For" each nominee to the Board of Directors or you may "Withhold" your vote for each nominee. For all other matters to be voted on, you may vote "For" or "Against" or abstain from voting. The procedures for voting are fairly simple:

### *Stockholder of Record: Shares Registered in Your Name*

If you are a stockholder of record, you may vote in person at the Annual Meeting, vote by proxy over the telephone, vote by proxy through the Internet or vote by proxy using a proxy card that you may request or that we may elect to deliver at a later time. Whether or not you plan to attend the meeting, we urge you to vote by proxy to ensure your vote is counted. You may still attend the meeting and vote in person even if you have already voted by proxy.

- Ø To vote in person, come to the Annual Meeting and we will give you a ballot when you arrive.
- Ø To vote using the proxy card, simply complete, sign and date the proxy card that may be delivered and return it promptly in the envelope provided. If you return your signed proxy card to us before the Annual Meeting, we will vote your shares as you direct.
- Ø To vote over the telephone, dial toll-free **1-800-652-VOTE (8683)** using a touch-tone phone and follow the recorded instructions. You will be asked to provide the company number and control number from the Notice. Your vote must be received by 1:00 a.m. Mountain Time on May 31, 2018, to be counted.
- Ø To vote through the Internet, go to **<http://www.investorvote.com/ABIO>** to complete an electronic proxy card. You will be asked to provide the company number and control number from the Notice. Your vote must be received by 1:00 a.m. Mountain Time on May 31, 2018, to be counted.

### *Beneficial Owner: Shares Registered in the Name of Broker or Bank*

If you are a beneficial owner of shares registered in the name of your broker, bank, or other agent, you should have received a Notice containing voting instructions from that organization rather than from ARCA. Simply follow the voting instructions in the Notice to ensure that your vote is counted. To vote in person at the Annual Meeting, you must obtain a valid proxy from your broker, bank, or other agent. Follow the instructions from your broker or bank included with these proxy materials, or contact your broker or bank to request a proxy form.

**We provide Internet proxy voting to allow you to vote your shares online, with procedures designed to ensure the authenticity and correctness of your proxy vote instructions. However, please be aware that you must bear any costs associated with your access to the Internet, such as usage charges from Internet access providers and telephone companies.**

## How many votes do I have?

On each matter to be voted upon, you have one vote for each share of Common Stock you owned as of April 2, 2018.

## What if I return a proxy card or otherwise vote but do not make specific choices?

If you return a signed and dated proxy card or otherwise vote without marking voting selections, your shares will be voted, as applicable, "For" the election of each nominee for director and "For" Proposal 2. If any

other matter is properly presented at the meeting, your proxy holder (one of the individuals named on your proxy card) will vote your shares using his or her best judgment.

### **Who is paying for this proxy solicitation?**

We will pay for the entire cost of soliciting proxies. In addition to these proxy materials, the directors and employees may also solicit proxies in person, by telephone, or by other means of communication. Directors and employees will not be paid any additional compensation for soliciting proxies. We may also reimburse brokerage firms, banks and other agents for the cost of forwarding proxy materials to beneficial owners.

### **What does it mean if I receive more than one Notice?**

If you receive more than one Notice, your shares may be registered in more than one name or in different accounts. Please follow the voting instructions on each Notice to ensure that all your shares are voted.

### **Can I change my vote after submitting my proxy?**

Yes. You can revoke your proxy at any time before the final vote at the meeting. If you are the record holder of your shares, you may revoke your proxy in any one of the following ways:

- Ø You may submit another properly completed proxy card with a later date.
- Ø You may grant a subsequent proxy by telephone or through the Internet.
- Ø You may send a timely written notice that you are revoking your proxy to ARCA's Secretary at 11080 CirclePoint Road, Suite 140, Westminster, Colorado, 80020.
- Ø You may attend the Annual Meeting and vote in person. Simply attending the meeting will not, by itself, revoke your proxy.

Your most current proxy card or telephone or Internet proxy is the one that is counted.

If your shares are held by your broker or bank as a nominee or agent, you should follow the instructions provided by your broker or bank.

### **When are stockholder proposals due for next year's annual meeting?**

To be considered for inclusion in next year's proxy materials, your proposal must be submitted in writing by December 19, 2018, to ARCA's Secretary at 11080 CirclePoint Road, Suite 140, Westminster, Colorado, 80020. If you wish to submit a proposal that is not to be included in next year's proxy materials or nominate a director, you must do so by no earlier than March 2, 2019, and no later than April 1, 2019. You are also advised to review the Company's Bylaws, which contain additional requirements about advance notice of stockholder proposals and director nominations.

### **How are votes counted?**

Votes will be counted by the inspector of election appointed for the meeting. For Proposal 1, to elect new directors, votes "For" and "Withhold" will be counted. For Proposal 2, votes "For" and "Against", abstentions and broker non-votes will be counted. Abstentions will be counted towards the vote total for Proposal 2, and will have the same effect as "Against" votes. Broker non-votes have no effect and will not be counted towards the vote total for any proposal.

### **What are "broker non-votes"?**

Broker non-votes occur when a beneficial owner of shares held in "street name" does not give instructions to the broker or nominee holding the shares as to how to vote. Generally, if shares are held in street name, the beneficial owner of the shares is entitled to give voting instructions to the broker or nominee holding the shares. If the beneficial owner does not provide voting instructions, the broker or nominee can still vote the shares with respect to matters that are considered to be "routine," but not with respect to "non-routine" matters. Under the rules and interpretations of the New York Stock Exchange, "non-routine" matters are matters that may substantially affect

the rights or privileges of stockholders, such as mergers, stockholder proposals and elections of directors, even if not contested.

### **How many votes are needed to approve each proposal?**

- Ø Proposal No. 1, for the election of directors. For this proposal, the two nominees receiving the most “For” votes (from the holders of votes of shares present in person or represented by proxy and entitled to vote on the election of directors) will be elected. Only votes “For” or “Withheld” votes will affect the outcome. Broker non-votes will have no effect.
- Ø Proposal No. 2, to ratify the selection of KPMG as the Company’s independent registered public accounting firm for fiscal year 2018. This proposal must receive “For” votes from the holders of a majority of shares present and entitled to vote either in person or by proxy. If you “Abstain” from voting, it will have the same effect as an “Against” vote. Broker non-votes will have no effect.

### **What is the quorum requirement?**

A quorum of stockholders is necessary to hold a valid meeting. A quorum will be present if stockholders holding a majority of the outstanding shares of Common Stock entitled to vote are present at the meeting in person or represented by proxy. On the record date, April 2, 2018, there were 13,914,320 shares of Common Stock outstanding and entitled to vote. Thus, the holders of 6,957,161 shares of Common Stock must be present in person or represented by proxy at the meeting to have a quorum.

Your shares will be counted towards the quorum only if you submit a valid proxy (or one is submitted on your behalf by your broker, bank or other nominee) or if you vote in person at the meeting. Abstentions and broker non-votes will be counted towards the quorum requirement. If there is no quorum, the holders of a majority of shares present at the meeting in person or represented by proxy may adjourn the meeting to another date.

### **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 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 additional Form 8-K to publish the final results.

**NO PERSON IS AUTHORIZED TO GIVE ANY INFORMATION OR TO MAKE ANY REPRESENTATION OTHER THAN THOSE CONTAINED IN THIS PROXY STATEMENT, AND, IF GIVEN OR MADE, SUCH INFORMATION MUST NOT BE RELIED UPON AS HAVING BEEN AUTHORIZED. THE DELIVERY OF THIS PROXY STATEMENT SHALL, UNDER NO CIRCUMSTANCES, CREATE ANY IMPLICATION THAT THERE HAS BEEN NO CHANGE IN THE AFFAIRS OF ARCA SINCE THE DATE OF THIS PROXY STATEMENT.**

## PROPOSAL 1

### ELECTION OF BOARD OF DIRECTORS

The Company's Amended and Restated Certificate of Incorporation provides that the Board of Directors is divided into three classes to provide for staggered terms and that each director will serve for a term of three years or less, depending on the class to which the Board of Directors has assigned a director not previously elected by the stockholders. There are currently no vacancies on the Board of Directors. Vacancies on the Board of Directors may be filled only by persons elected by a majority of the remaining directors. A director elected by the Board of Directors to fill a vacancy in a class, including vacancies created by an increase in the number of directors, shall serve for the remainder of the full term of that class and until the director's successor is duly elected and qualified. The Company may reduce or increase the size of the Board of Directors by resolution adopted by the affirmative vote of a majority of the directors.

There are currently two Class III directors whose terms expire at the annual stockholders' meeting in 2018, two Class I directors whose terms expire at the annual stockholders' meeting in 2019 and two Class II directors whose terms expire at the annual meeting in 2020. The Board of Directors has nominated two Class III directors, Dr. Raymond L. Woosley and Dan J. Mitchell, for election to the Board of Directors, for a three-year term ending on the date of the annual meeting in 2021 or until their successors are duly elected and qualified or appointed.

If elected at the Annual Meeting, Dr. Woosley and Mr. Mitchell would serve until the 2021 annual meeting and until their successors have been duly elected and qualified, or, if sooner, until the director's death, resignation or removal. It is the Company's policy to encourage directors and nominees for director to attend the Annual Meeting. Four of the Company's directors then on the Board of Directors attended the 2017 Annual Meeting of Stockholders in person, and one attended by telephone.

Directors are elected by a plurality of the votes of the holders of shares present in person or represented by proxy and entitled to vote on the election of directors. The two nominees receiving the highest number of affirmative votes will be elected. Each person nominated for election has agreed to serve if elected. The Company's management has no reason to believe that either nominee will be unable to serve.

#### **Director Qualifications and Diversity**

The below paragraphs provide information, as of the date of this proxy statement, about each nominee and current members of the Board of Directors, including age, all positions currently held, principal occupation and business experience for the past five years. In addition to the information presented regarding each nominee's specific experience, qualifications, attributes and skills that led the Board of Directors to conclude that such director or nominee should be able to serve as a director, the Board of Directors also believes that all of the directors and nominees have a reputation of integrity, honesty and adherence to high ethical standards. They each have demonstrated business acumen and an ability to exercise sound judgment as well as a commitment to service to ARCA and the Board of Directors.

Our Nominating and Corporate Governance Committee of the Board of Directors (the "Nominating and Corporate Governance Committee") considers diversity in the director identification and nomination process. The Nominating and Corporate Governance Committee seeks nominees with a broad diversity of experience, professions, skills, geographic representation and backgrounds. The Nominating and Corporate Governance Committee does not assign specific weights to particular criteria and no particular criterion is necessarily applicable to all prospective nominees. ARCA believes that the backgrounds and qualifications of the directors, considered as a group, should provide a significant composite mix of experience, knowledge and abilities that will allow the Board of Directors to fulfill its responsibilities. Nominees are not discriminated against on the basis of race, religion, national origin, sexual orientation, disability or any other basis proscribed by law.

**THE BOARD OF DIRECTORS RECOMMENDS  
A VOTE IN FAVOR OF THE NAMED NOMINEES.**

**Raymond L. Woosley, M.D., Ph.D.**

Dr. Woosley, age 75, was appointed to the Board of Directors in July 2013. Dr. Woosley is currently Professor of Medicine and Co-Director of the Division for Data Analytics and Decision Support in the Department of Medicine of the University of Arizona, College of Medicine in Phoenix. Since 2012, Dr. Woosley has served as the Director of the Arizona Center for Education and Research on Therapeutics (AzCERT), an independent, nonprofit research and education organization. He is also President Emeritus of the Critical Path Institute (C-Path), a non-profit, public-private partnership with the U.S. Food and Drug Administration, of which he was a founder in November 2004, and where he served as President, Chief Executive Officer and Chairman of the board of directors from 2005 to 2011. Since 2001, Dr. Woosley has also been a Professor of Medicine and Pharmacology at The University of Arizona Health Sciences Center in Tucson, AZ, and, since 2012, Professor Emeritus, where he was also Vice President for Health Sciences from 2001 to 2005, and Dean of the College of Medicine from 2001 to 2002. From 1988 to 2001, Dr. Woosley was a professor of medicine at the Georgetown University School of Medicine, where he was also Director of the Institute of Cardiovascular Sciences from 1994 to 2000, and Division Chief, Clinical Pharmacology, in the Department of Medicine from 1988 to 1994. From 1976 to 1988 he was a member of the faculty of Vanderbilt University where he rose to the rank of Professor of Medicine and Pharmacology and Associate Director of the NIH funded General Clinical Research Center. Dr. Woosley earned his Ph.D. in Pharmacology from the University of Louisville and his M.D. from the University of Miami. Dr. Woosley's research has been published in over 312 peer-reviewed publications and 52 book chapters. We believe Dr. Woosley is an appropriate member of the Board of Directors, given his expertise and experience in cardiovascular medicine and clinical pharmacology, arrhythmia therapeutics, pharmacogenetic drug development and therapeutic regulatory science.

**Dan J. Mitchell**

Mr. Mitchell, age 61, was appointed to the Board of Directors in February 2014. He founded, and is a manager of Sequel Venture Partners, L.L.C., a venture capital firm formed in January 1997. Prior to founding Sequel Venture Partners, Mr. Mitchell was a founder of Capital Health Venture Partners, a health care focused venture capital firm, where he was a General Partner from October 1986 until 2006, and he was in the Venture Capital Division of the Trust Department of the First National Bank of Chicago from 1983 to 1985. He currently serves on the board of directors of several private companies. Mr. Mitchell holds a B.S. from the University of Illinois and an M.B.A. from the University of California at Berkeley. We believe Mr. Mitchell is an appropriate member of the Board of Directors given his expertise and experience in the pharmaceutical industry, pharmaceutical development, and in corporate finance and governance.

**DIRECTORS CONTINUING IN OFFICE UNTIL THE 2019 ANNUAL MEETING**

**Linda Grais, M.D.**

Dr. Grais, age 61, has served as a member of the Board of Directors since May 2007. Dr. Grais has been a director of Ocera Therapeutics, Inc., a public biopharmaceutical company, since January 2008 and became President and Chief Executive Officer of Ocera in June 2012. Dr. Grais served as a Managing Member at InterWest Partners, a venture capital firm from has served as a member of the Board of Directors since May 2007. Dr. Grais has been a director of Ocera Therapeutics, Inc., a public biopharmaceutical company, since January 2008 and became President and Chief Executive Officer of Ocera in June 2012, and served in that role until Ocera's acquisition by Mallinckrodt Pharmaceuticals in December 2017. Dr. Grais served as a Managing Member at InterWest Partners, a venture capital firm from May 2005 until February 2011. From July 1998 to July 2003, Dr. Grais was a founder and executive vice president of SGX Pharmaceuticals Inc., a drug discovery company. Prior to that, she was a corporate attorney at Wilson Sonsini Goodrich & Rosati, where she practiced in such areas as venture financings, public offerings and

strategic partnerships. Before practicing law, Dr. Grais worked as an assistant clinical professor of Internal Medicine and Critical Care at the University of California, San Francisco. Dr. Grais received a B.A. from Yale University, magna cum laude, and Phi Beta Kappa, an M.D. from Yale Medical School and a J.D. from Stanford Law School. Since September 2015, Dr. Grais has served on the board of PRA Health Sciences, a public contract research organization. We believe Dr. Grais is an appropriate member of the Board of Directors because of her diverse training and experience as both a medical doctor and a lawyer, her experience as a founder and senior executive of a pharmaceutical company, and her experience as an investor in new life sciences companies. She also has extensive experience with and knowledge of the Company's business from her service on the Board of Directors of the Company since 2007.

**Anders Hove, M.D.**

Dr. Hove, age 52, has served as a member of the Board of Directors since February 2017. Dr. Hove owns Acorn Capital Advisors and is a managing partner at Majalin/Amzak Health, a partnership focusing on long-term investments in biotech, specialty pharma and medical device companies. Dr. Hove was most recently a general partner of Venrock Associates, a venture capital firm, which he joined in January 2004 and remained at through December 2016. In 2008, Dr. Hove was a founder of Venrock Healthcare Capital Partners, Venrock's public funds focused on small capitalization biotech companies and late-stage private companies. From 1996 to 2004, Dr. Hove was a fund manager at BB Biotech Fund, an investment firm, and from 2002 to 2003 he also served as Chief Executive Officer of Bellevue Asset Management, LLC, an investment company. Dr. Hove previously held senior level positions in the medical, clinical and business operations of the pharmaceuticals division of Ciba-Geigy. Mr. Hove was a member of the boards of directors of Anacor Pharmaceuticals, a publicly traded pharmaceutical company, from 2005 until its acquisition by Pfizer in June 2016, and Edge Therapeutics, a publicly traded biotechnology company, from 2015 to 2016. In addition, Dr. Hove is a member of the board of directors of MC2 Therapeutics. He received a M.Sc. in Biotechnology Engineering from the Technical University of Denmark, an M.D. from the University of Copenhagen and an M.B.A. from the Institut Européen d'Administration des Affaires. We believe Dr. Hove is an appropriate member of the Company's Board of Directors, given his extensive training and experience as a medical doctor and masters of business administration, an executive in the pharmaceutical industry, and as an investor in biotechnology companies.

**DIRECTORS CONTINUING IN OFFICE UNTIL THE 2020 ANNUAL MEETING**

**Michael R. Bristow, M.D., Ph.D.**

Dr. Bristow, age 73, was one of the founders of ARCA in September 2004, and has served as a Director since that time. Dr. Bristow has also served as the Company's President and Chief Executive Officer since July 2009. Previously, Dr. Bristow served as the President and Chief Executive Officer of the Company from September 2004 to November 2006, and as the Company's Chief Science and Medical Officer from November 2006 to July 2009. Dr. Bristow is a Professor of Medicine and the former Head of Cardiology at the University of Colorado Health Sciences Center, where he has been since October 1991. Dr. Bristow was one of the founders of Myogen, Inc. and served as Myogen's Chief Science and Medical Officer from October 1996 to February 2006 and as a Scientific Advisor to Myogen from February 2006 until the acquisition of Myogen by Gilead Sciences, Inc. in November 2006. We believe Dr. Bristow is an appropriate member of the Company's Board of Directors given his extensive experience and expertise as a cardiologist, medical researcher and drug developer in the field of cardiovascular medicine, and heart failure specifically, and his experience as a founder and manager of cardiovascular-focused, public pharmaceutical company. Dr. Bristow also has extensive experience with, and knowledge of, ARCA's business, as the founder and former Chief Science and Medical Officer of the Company, and the current President and Chief Executive Officer of ARCA, and as a member of the Board of Directors of ARCA since the founding of the Company. Dr. Bristow holds a M.D. and Ph.D. from the University of Illinois.

## **Robert E. Conway**

Mr. Conway, age 64, was appointed to the Board of Directors in September 2013, and has served as the Chairman of our Board of Directors since 2014. Mr. Conway served as the Chief Executive Officer and member of the board of directors of Array Biopharma, a publicly traded pharmaceutical company, from 1999 to 2012. Prior to joining Array, Mr. Conway was the Chief Operating Officer and Executive Vice President of Hill Top Research, Inc., from 1996 to 1999. From 1979 until 1996, Mr. Conway held various executive positions for Corning Inc. including Corporate Vice President and General Manager of Corning Hazleton, Inc., a contract research organization. From 2004 to 2013, he served on the board of directors of PRA International, Inc., which was a public company for a portion of his tenure there, from 2012 to the present, he has served on the board of directors of eResearch Technology, Inc., a private company, and from 2015 to July 2017, he has served on the board of directors of Nivalis Therapeutics, Inc. a public, clinical stage pharmaceutical company. In July 2017, Nivalis Therapeutics, Inc. combined with Alpine Immune Sciences, Inc., a public, clinical stage pharmaceutical company, and Mr. Conway continues to serve on the board of directors following such combination. Mr. Conway also serves as the Chairman of Wall Family Enterprise, a leading library and educational supplies company. In addition, Mr. Conway is a member of the Strategic Advisory Committee of Genstar Capital, LLC and is a member of the board of directors of Bracket, Inc. Mr. Conway received a B.S. in accounting from Marquette University in 1976. We believe Mr. Conway is an appropriate member of the Board of Directors given his experience and expertise in the pharmaceutical industry, in pharmaceutical development and clinical trials, and in corporate finance, governance, accounting and public company compliance.

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

#### **INDEPENDENCE OF THE BOARD OF DIRECTORS**

As required under the Nasdaq Stock Market (“Nasdaq”) listing standards, a majority of the members of a listed company’s board of directors must qualify as “independent,” as affirmatively determined by the board of directors. Our Board of Directors consults with the Company’s counsel to ensure that the Board of Directors’ determinations are consistent with relevant securities and other laws and regulations regarding the definition of “independent,” including those set forth in pertinent listing standards of the Nasdaq, as in effect from time to time.

Consistent with these considerations, after review of all relevant identified transactions or relationships between each director, or any of his or her family members, and the Company, its senior management and its independent registered public accounting firm, the Board of Directors has affirmatively determined that the following five directors are independent directors within the meaning of the applicable Nasdaq listing standards: Mr. Conway, Dr. Grais, Mr. Mitchell, Dr. Hove and Dr. Woosley. In making this determination, the Board of Directors found that none of the directors or nominees for director had a material or other disqualifying relationship with the Company. Dr. Bristow, the Company’s President and Chief Executive Officer, is not an independent director by virtue of his employment relationship with the Company.

#### **BOARD LEADERSHIP STRUCTURE**

The Company has structured its Board of Directors in a way that the Company believes effectively serves its objectives of corporate governance and management oversight. The Company separates the roles of Chief Executive Officer and Chairman of the Board of Directors in recognition of the differences between the two roles. The Company believes that the Chief Executive Officer should be responsible for the day to day leadership and performance of the Company, while the Chairman of the Board of Directors should work with the Chief Executive Officer and the rest of the Board of Directors to set the strategic direction for the Company and provide guidance to, and oversight of the Chief Executive Officer. The Chairman also sets the agenda for meetings of the Board of Directors and presides over them.

Mr. Conway, who is an independent director, was elected Chairman of the Board of Directors in 2014. In this capacity, Mr. Conway, among other things, calls and presides over Board meetings, including meetings of the independent directors, and sets meeting agendas. In this role, Mr. Conway can effectively coordinate between the Board and management regarding risk management issues and the implementation of appropriate responses, and can help ensure the effective independent functioning of the Board of Directors in its oversight responsibilities. Accordingly, the Chairman has substantial ability to shape the work of the Board of Directors.

## **ROLE OF THE BOARD OF DIRECTORS IN RISK OVERSIGHT AND RISK MANAGEMENT**

One of the Board of Directors' key functions is informed oversight of the Company's risk management process. The Board of Directors does not have a standing risk management committee, but rather administers this oversight function directly through the Board of Directors as a whole, as well as through various standing committees of the Board of Directors that address risks inherent in their respective areas of oversight. In particular, while the Board of Directors is responsible for monitoring and assessing strategic risk exposure, the Audit Committee has the responsibility to consider and discuss the major financial risk exposures and the steps management has taken to monitor and control these exposures, including guidelines and policies to govern the process by which risk assessment and management is undertaken. The Audit Committee also monitors compliance with legal and regulatory requirements, in addition to oversight of the performance of ARCA's accounting and financial reporting processes. The Nominating and Corporate Governance Committee monitors the effectiveness of the corporate governance guidelines, including whether they are successful in preventing illegal or improper liability-creating conduct. The compensation committee of the Board of Directors (the "Compensation Committee") assesses and monitors whether any compensation policies and programs have the potential to encourage excessive risk-taking. The entire Board of Directors and its committees address risk management issues from time-to-time and at least annually meet with the employees responsible for risk management in the committees' respective areas of oversight. Both the Board of Directors as a whole and the various standing committees receive periodic reports from the employees responsible for risk management, as well as incidental reports as matters may arise. It is the responsibility of the committee chairs to report findings regarding material risk exposures to the Board of Directors as quickly as possible.

## **MEETINGS OF THE BOARD OF DIRECTORS**

The Board of Directors met seven times during the 2017 fiscal year. The independent members of the Board of Directors met separately as a group at four of the board meetings in 2017. All members of the Board of Directors, other than Dr. Woosley, attended at least 75% of the meetings of the Board of Directors and at least 75% the meeting of the committees of the Board of Directors of which each director was a member.

## INFORMATION REGARDING COMMITTEES OF THE BOARD OF DIRECTORS

The Board of Directors has three standing committees: The Audit Committee, the Compensation Committee, and the Nominating and Corporate Governance Committee. The following table provides membership and meeting information for the fiscal year ended December 31, 2017, for each of the committees of the Board of Directors:

Name	Audit	Compensation	Nominating and Corporate Governance
Dr. Michael R. Bristow			
Dr. Linda Grais	X	X*	
Dr. Raymond L. Woosley		X	X*
Mr. Robert E. Conway	X*	X	
Mr. Dan J. Mitchell	X		X
Dr. Anders Hove			X
Total meetings in fiscal 2017	5	1	4

\* Committee Chairperson.

Dr. Hove was appointed to our Board of Directors in February 2017. Upon Dr. Hove's appointment to the Board of Directors, he joined our Nominating and Corporate Governance Committee. At the same time, Dr. Woosley left our Audit Committee, and Dr. Grais left our Nominating and Corporate Governance Committee and joined our Audit Committee.

Below is a description of each committee of the Board of Directors. Each of the committees has authority to engage legal counsel or other experts or consultants, as it deems appropriate to carry out its responsibilities. The Board of Directors has determined that each member of each committee meets the applicable Nasdaq rules and regulations regarding "independence" and that each member is free of any relationship that would impair his or her individual exercise of independent judgment regarding the Company.

### Audit Committee

The Audit Committee was established by the Board of Directors in accordance with Section 3(a)(58)(A) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), to oversee the Company's corporate accounting and financial reporting processes and audits of its financial statements. For this purpose, the Audit Committee performs several functions. The Audit Committee evaluates the performance of and assesses the qualifications of the independent registered public accounting firm; determines and approves the engagement of the independent registered public accounting firm; determines whether to retain or terminate the existing independent registered public accounting firm or to appoint and engage a new independent registered public accounting firm; reviews and approves the retention of the independent registered public accounting firm to perform any proposed permissible non-audit services; monitors the rotation of partners of the independent registered public accounting firm on the Company's audit engagement team as required by law; reviews and approves or rejects transactions between the company and any related persons; confers with management and the independent registered public accounting firm regarding the effectiveness of internal controls over financial reporting; establishes procedures, as required under applicable law, for the receipt, retention and treatment of complaints received by the Company regarding accounting, internal accounting controls or auditing matters and the confidential and anonymous submission by employees of concerns regarding questionable accounting or auditing matters; and meets to review the Company's annual audited financial statements and quarterly financial statements with management and the independent registered public accounting firm, including a review of the Company's disclosures under the "Management's Discussion and Analysis of Financial Condition and Results of Operations" discussion in its Annual Reports on Form 10-K and Quarterly Reports on Form 10-Q. The Audit Committee is currently composed of three directors: Mr. Conway (chair), Mr. Mitchell and Dr. Grais. The Audit Committee met five times during the fiscal year. The Board of Directors has adopted a written charter of the Audit Committee that is available to stockholders on the Company's website at [www.arcabio.com](http://www.arcabio.com).

The Board of Directors reviews the Nasdaq listing standards definition of independence for audit committee members on an annual basis and has determined that all members of the Audit Committee are independent (as independence is currently defined in Rule 5605(c)(2)(A)(i) and (ii) of the Nasdaq listing standards). The Board of Directors has also determined that Mr. Conway qualifies as an “audit committee financial expert,” as defined in applicable SEC rules. The Board of Directors made a qualitative assessment of Mr. Conway’s level of knowledge and experience based on several factors, including his prior experience, business acumen and independence.

### **Report of the Audit Committee of the Board of Directors<sup>1</sup>**

The Audit Committee has reviewed and discussed the audited financial statements for the fiscal year ended December 31, 2017, with management of the Company. The Audit Committee has discussed with the independent registered public accounting firm the matters required to be discussed by Public Company Accounting Oversight Board (“PCAOB”) Auditing Standard No. 1301, Communications with Audit Committees. The Audit Committee has also received the written disclosures and the letter from the independent registered public accounting firm required by applicable requirements of the PCAOB regarding the independent registered public accounting firm’s communications with the Audit Committee concerning independence, and has discussed with the independent registered public accounting firm the accounting firm’s independence. Based on the foregoing, the Audit Committee has recommended to the Board of Directors that the audited financial statements be included in the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2017.

Mr. Robert Conway  
Mr. Dan Mitchell  
Dr. Linda Grais

### **Compensation Committee**

The Compensation Committee is currently composed of three directors: Mr. Conway, Dr. Grais (chair) and Dr. Woosley. All members of the Compensation Committee are independent, as independence is currently defined in Rule 5605(a)(2) of the Nasdaq listing standards. The Compensation Committee met one time during the fiscal year. The Compensation Committee has adopted a written charter that is available to stockholders on the Company’s website at [www.arcabio.com](http://www.arcabio.com).

The Compensation Committee of the Board of Directors acts on behalf of the Board of Directors to review, adopt and oversee the Company’s compensation strategy, policies, plans and programs, including:

- overseeing succession planning for senior management of the Company, including a review of the performance and advancement potential of current and future senior management and succession plans for each and recommending, as appropriate, the retention of potential succession candidates;
- assessing the overall compensation structure of the Company and evaluating and recommending changes to the Company’s compensation philosophies and strategies;
- reviewing and approving performance-based compensation plans or programs, including establishing goals and targets, applicable to the Chief Executive Officer and other members of the management team;
- administering, reviewing, and approving all executive compensation programs or plans, and all of the Company’s incentive compensation and stock plans and awards thereunder of the Company, including amendments to the programs, plans or awards made thereunder; and

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<sup>1</sup> The material in this report is not “soliciting material,” is not deemed “filed” with the Commission and is not to be incorporated by reference in any filing of the Company under the Securities Act of 1933, as amended, or the Exchange Act, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

- preparing and approving the Report of the Compensation Committee to be included as part of the Company's annual meeting proxy statement, to the extent required.

### *Compensation Committee Processes and Procedures*

Typically, the Compensation Committee meets on a regular basis as it deems appropriate. The agenda for each meeting is usually developed by the Chair of the Compensation Committee. The Compensation Committee meets regularly in executive session. However, from time to time, various members of management and other employees as well as outside advisors or consultants may be invited by the Compensation Committee to make presentations, to provide financial or other background information or advice or to otherwise participate in Compensation Committee meetings. The Chief Executive Officer may not participate in, or be present during, any deliberations or determinations of the Compensation Committee regarding his compensation or individual performance objectives. The Compensation Committee has the sole authority to retain compensation consultants to assist in its evaluation of executive and director compensation, including the authority to approve the consultant's reasonable fees and other retention terms.

In June 2013, the Company's Compensation Committee reviewed the Company's executive compensation considering general market conditions in the life science industry. As part of this review process, the Compensation Committee identified a peer group of biotechnology companies that it viewed as having a similar profile to ARCA at that time.

In setting 2017 base salary and cash bonus award amounts for the Company's named executive officers, the Compensation Committee considered peer group data and factors specific to the Company, and targeted cash compensation to be consistent with these metrics. The Compensation Committee recommended, and the Board of Directors approved, a base salary of \$295,359 for Dr. Bristow, the Company's President and Chief Executive Officer, a base salary of \$294,170 for Mr. Keuer, the Company's Chief Operating Officer, and a base salary of \$288,683 for Mr. Ozeroff, the Company's Senior Vice President and General Counsel, for the fiscal year ended December 31, 2016. In early 2017, the Compensation Committee recommended and the Board of Directors approved cash bonuses based on previous performance for the Named Executive Officers (as defined below), and also approved increases to Named Executive Officer salaries for the fiscal year 2017 as described in below under "Executive Compensation." There were no changes to the Company's named executive officers' salaries for 2018.

Historically, the Compensation Committee has made most of the significant adjustments to annual compensation, determined bonus and equity awards and established new performance objectives at one or more meetings held during the first quarter of the year. However, the Compensation Committee also considers matters related to individual compensation, such as compensation for new executive hires, as well as high-level strategic issues, such as the efficacy of the Company's compensation strategy, potential modifications to that strategy and new trends, plans or approaches to compensation, at various meetings throughout the year. Generally, the Compensation Committee's process comprises two related elements: the determination of compensation levels and the establishment of performance objectives for the current year.

The Compensation Committee reviews and approves the compensation of the Chief Executive Officer and the other executive officers of the Company, including annual base salaries, annual and long-term incentive or bonus awards, employment agreements, and severance and change in control agreements/provisions, in each case as, when and if appropriate, and any special or supplemental benefits. For executives other than the Chief Executive Officer, the Compensation Committee solicits and considers evaluations and recommendations submitted to the Compensation Committee by the Chief Executive Officer. The Compensation Committee evaluates the performance of the Chief Executive Officer in light of Company and individual goals and objectives, and makes appropriate recommendations for improving performance. In performing the evaluation, the Chair of the Compensation Committee may solicit comments from the other non-employee members of the Board of Directors and lead the Board of Directors in an overall review of the Chief Executive Officer's performance in an executive session of non-employee members of the Board of Directors. If the compensation for the Chief Executive Officer or any other executive officer is governed by an employment agreement, the Compensation Committee approves such employment agreement and any amendments thereto.

For all executives as part of its deliberations, the Compensation Committee may review and consider, as appropriate, materials such as financial reports and projections, operational data, tax and accounting information, tally sheets that set forth the total compensation that may become payable to executives in various hypothetical scenarios, executive and director stock ownership information, company stock performance data, analyses of historical executive compensation levels and current Company-wide compensation levels.

The Compensation Committee also considers the results of any “say-on-pay” vote of the Company’s stockholders with regard to the compensation of the Company’s executive officers when making compensation decisions. At the 2016 annual meeting of stockholders, the Company’s stockholders approved, on an advisory basis, the compensation of the Company’s named executive officers as described in the proxy statement for such annual meeting. The Compensation Committee believes that this advisory vote supports that the Company’s current compensation practices are aligned with the best interests of stockholders and anticipates taking into account any subsequent advisory vote when making compensation decisions in the future.

### **Nominating and Corporate Governance Committee**

The Nominating and Corporate Governance Committee is responsible for identifying, reviewing and evaluating candidates to serve as directors of the Company (consistent with criteria approved by the Board of Directors), reviewing and evaluating incumbent directors, recommending to the Board of Directors candidates for election to the Board of Directors, making recommendations to the Board of Directors regarding compensation for service on the Board of Directors and the committees thereof, making recommendations to the Board of Directors regarding the membership of the committees of the Board of Directors, assessing the performance of the Board of Directors, developing a set of corporate governance principles for the Company and endeavoring to ensure that the Company’s Board and Board Committees are operating in accord with best practices of corporate governance. The Nominating and Corporate Governance Committee is currently composed of three directors: Dr. Hove, Mr. Mitchell and Dr. Woosley (chair). All members of the Nominating and Corporate Governance Committee in 2017 were independent (as independence is currently defined in Rule 5605(a)(2) of the Nasdaq listing standards). The Nominating and Corporate Governance Committee met four times during the 2017 fiscal year. The Nominating and Corporate Governance Committee has adopted a written charter that is available to stockholders on the Company’s website at [www.arcabio.com](http://www.arcabio.com).

The Nominating and Corporate Governance Committee periodically reviews the compensation of non-employee Directors for service on the Board of Directors and committees thereof. In 2015, the Nominating and Corporate Governance Committee began a review of its Director compensation levels considering general market conditions in the life science industry, and in comparison to other clinical stage biopharmaceutical companies similarly situated to the Company, and in early 2016, the Committee recommended, and the Board of Directors approved, revised compensation for non-employee Directors, discussed in “Director Compensation” below.

The Board of Directors has adopted a process for identifying and evaluating director nominees, including stockholder nominees. Before recommending an individual to the Board of Directors for membership on the Board of Directors, the Nominating and Corporate Governance Committee canvasses its members and the Company’s management team for potential candidates for the Board of Directors. The Nominating and Corporate Governance Committee also uses its network of contacts to identify potential candidates and, if it deems appropriate, may also engage a professional search firm. The Nominating and Corporate Governance Committee will consider stockholders’ recommendations for nominees to serve as director if notice is timely received by the Secretary of the Company. Candidates nominated by stockholders will be evaluated in the same manner as other candidates. The Nominating and Corporate Governance Committee keeps the Board of Directors apprised of its discussions with potential nominees, and the names of potential nominees received from its current directors, management, and stockholders, if the stockholder notice of nomination is timely made.

Although the Board of Directors has not adopted a fixed set of minimum qualifications for candidates for membership on the Board of Directors, the Nominating and Corporate Governance Committee generally considers several factors in its evaluation of a potential member, such as the candidate’s education, professional background and field of expertise including industry or academic experience in the pharmaceutical, biotechnology and cardiovascular fields, experience in corporate governance and management, the reasonable availability of the potential member to devote time to the affairs of the Company, as well as any other criteria deemed relevant by the Board of Directors or the Nominating and Corporate Governance Committee. However, the Nominating and

Corporate Governance Committee retains the right to modify these qualifications from time to time. Candidates for director nominees are reviewed in the context of the current composition of the Board of Directors, the operating requirements of the Company and the long-term interests of stockholders. In conducting this assessment, the Nominating and Corporate Governance Committee typically considers diversity, age, skills and such other factors as it deems appropriate given the current needs of the Board of Directors and the Company, to maintain a balance of knowledge, experience and capability. The Nominating and Corporate Governance Committee believes it is essential that Board of Directors members come from a variety of backgrounds and experiences.

In the case of incumbent directors whose terms of office are set to expire, the Nominating and Corporate Governance Committee reviews these directors' overall contributions to the Company and the Board of Directors during their terms, including level of attendance, level of participation, quality of performance and contribution to the Board of Directors' responsibilities and actions, and any relationships and transactions that might impair the directors' independence. In the case of new director candidates, the Nominating and Corporate Governance Committee also determines whether the nominee is independent for Nasdaq and SEC purposes, which determination is based upon applicable Nasdaq listing standards, applicable SEC rules and regulations and the advice of counsel, if necessary. The Nominating and Corporate Governance Committee conducts any appropriate and necessary inquiries into the backgrounds and qualifications of possible candidates after considering the function and needs of the Board of Directors. The Nominating and Corporate Governance Committee meets to discuss and consider the candidates' qualifications and then determines whether to recommend a nominee to the Board of Directors by majority vote.

Stockholders who wish to recommend individuals for consideration by the Nominating and Corporate Governance Committee to become nominees for election to the Board of Directors may do so by delivering a written recommendation to the Nominating and Corporate Governance Committee addressed to the Corporate Secretary, between 60 and 90 days before the one-year anniversary date of ARCA's last annual meeting of stockholders. Recommendations must include the full name of the proposed nominee, a description of the proposed nominee's business experience for at least the previous five years, complete biographical information, a description of the proposed nominee's qualifications as a director, and a representation that the recommending stockholder is a beneficial or record owner of ARCA's stock. Any such submission must be accompanied by the written consent of the proposed nominee to be named as a nominee and to serve as a director if elected. To date, the Nominating and Corporate Governance Committee has not rejected a timely director nominee from a stockholder.

In 2017, the Nominating and Corporate Governance Committee did not pay any fees to assist in the process of identifying or evaluating director candidates.

#### **STOCKHOLDER COMMUNICATIONS WITH THE BOARD OF DIRECTORS**

Stockholders who wish to communicate with the Board of Directors may do so by e-mail by using the following email address: [directors@arcabio.com](mailto:directors@arcabio.com); or by mail by following the directions as set forth on ARCA's website at [www.arcabio.com](http://www.arcabio.com), under the section titled "Corporate Governance" and the subsection titled "Governance Documents".

#### **CODE OF BUSINESS CONDUCT AND ETHICS**

The Company has adopted the ARCA biopharma, Inc. Code of Business Conduct and Ethics that applies to all officers, directors and employees. The Code of Business Conduct and Ethics is available on the Company's website at [www.arcabio.com](http://www.arcabio.com). If the Company makes any substantive amendments to the Code of Business Conduct and Ethics or grants any waiver from a provision of the Code of Business Conduct and Ethics to any executive officer or director, the Company will promptly disclose the nature of the amendment or waiver on its website and file any current report on Form 8-K required by applicable law or NASDAQ listing standards.

## PROPOSAL 2

### RATIFICATION OF SELECTION OF THE INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Audit Committee has selected KPMG as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2018, and has further directed that management submit the selection of the independent registered public accounting firm for ratification by the stockholders at the Annual Meeting. KPMG has audited the Company's fiscal year financial statements since 2006. Representatives of KPMG are expected to be present at the Annual Meeting. They will have an opportunity to make a statement if they so desire and will be available to respond to appropriate questions.

Neither the Company's Bylaws nor other governing documents or law require stockholder ratification of the selection of KPMG as the Company's independent registered public accounting firm. However, the Board of Directors is submitting the selection of KPMG to the stockholders for ratification as a matter of good corporate practice. If the stockholders fail to ratify the selection, the Audit Committee will reconsider whether to retain that firm. Even if the selection is ratified, the Audit Committee in its discretion may direct the appointment of a different independent registered public accounting firm at any time during the year if they determine that such a change would be in the best interests of the Company and its stockholders.

The affirmative vote of the holders of a majority of the shares present in person or represented by proxy and entitled to vote at the Annual Meeting will be required to ratify the selection of KPMG. Broker non-votes are counted towards a quorum, but are not counted for any purpose in determining whether this matter has been approved.

#### PRINCIPAL ACCOUNTANT FEES AND SERVICES

The following table represents aggregate fees billed, or expected to be billed, to the Company for the fiscal year ended December 31, 2017, and December 31, 2016, by KPMG, the Company's independent registered public accounting firm.

	<b>Fiscal Year Ended 2017</b>	<b>Fiscal Year Ended 2016</b>
Audit Fees (1)	\$193,500	\$156,255
Audit-related Fees	—	—
Tax Fees	—	—
All Other Fees	—	—
<b>Total Fees</b>	<b>\$193,500</b>	<b>\$156,255</b>

- (1) Audit Fees include fees for the (i) audit of the financial statements included in our Form 10-K for our fiscal years ended December 31, 2017, and December 31, 2016, (ii) review of interim financial statements included on Forms 10-Q and (iii) attest, consent and review services normally provided by the accountant in connection with SEC filings.

All fees described above were approved by the Audit Committee.

## **PRE-APPROVAL POLICIES AND PROCEDURES**

The above services performed by the independent registered public accounting firm were pre-approved in accordance with the pre-approval policy and procedures adopted by the Audit Committee. This policy describes the permitted audit, audit-related, tax, and other services that the independent registered public accounting firm may perform. The policy also requires that the independent registered public accounting firm provide in writing:

- an annual description of all relationships between the independent registered public accounting firm and the client that may reasonably be thought to bear on independence;
- confirm that, in the independent registered public accounting firm's professional judgment, the independent registered public accounting firm is independent of the client under SEC requirements;
- discuss with the Audit Committee the independent registered public accounting firm's independence and the potential effects on its independence of performing any non-audit related services.

The services expected to be performed by our independent registered public accounting firm during the subsequent fiscal year are presented to the Audit Committee for pre-approval. Any pre-approval must describe, in writing, the particular service or category of services.

Requests for audit, audit-related, tax, and other services not contemplated by those pre-approved services must be submitted to the Audit Committee for specific pre-approval. Generally, pre-approval is considered at the Audit Committee's regularly scheduled meetings. However, the authority to grant specific pre-approval between meetings, as necessary, has been delegated to the chairman of the Audit Committee. If the chairman is not available, the other two Audit Committee members together have the authority to grant specific pre-approval between meetings. The chairman or the other members must update the Audit Committee at the next regularly scheduled meeting of any services that were granted specific pre-approval.

The Audit Committee pre-approved all audit related, tax and other services rendered in 2017 and did not rely on the waiver of pre-approval requirement provided by paragraph (c)(7)(i)(C) of Rule 2-01 of Regulation S-X promulgated under the Exchange Act.

**THE BOARD OF DIRECTORS RECOMMENDS  
A VOTE IN FAVOR OF PROPOSAL 2.**

**SECURITY OWNERSHIP OF  
CERTAIN BENEFICIAL OWNERS AND MANAGEMENT**

*Principal Stockholders*

The following table sets forth certain information regarding the ownership of the Company's Common Stock as of April 4, 2018, by: (i) each director and nominee for director, (ii) each of our named executive officers, (iii) all executive officers and directors of the Company as a group, and (iv) all those known by the Company to be beneficial owners of more than five percent of its Common Stock. Unless otherwise noted below, the address of each beneficial owner listed on the table is c/o ARCA biopharma, Inc., 11080 CirclePoint Road, Suite 140, Westminster, Colorado, 80020.

We have determined beneficial ownership in accordance with the rules of the SEC. Except as indicated by the footnotes below, we believe, based on the information furnished to us, that the persons and entities named in the table below have sole voting and investment power with respect to all shares of Common Stock that they beneficially own, subject to applicable community property laws. The table is based upon information supplied by officers, directors and principal stockholders and Schedules 13G or 13D, Form 4s or other ownership reports filed with the SEC. For purposes of this table, certain of our outstanding warrants that may be exercisable for fractional shares have been rounded down to the nearest whole number.

In computing the number of shares of Common Stock beneficially owned by a person and the percentage ownership of that person, we deemed outstanding shares of Common Stock subject to options, restricted stock units, or warrants held by that person that are currently exercisable or exercisable within 60 days of April 4, 2018. We did not deem these shares outstanding, however, for the purpose of computing the percentage ownership of any other person.

The percentages below are based on 13,923,825 shares of our Common Stock outstanding as of April 4, 2018.

<b>Beneficial Owner</b>	<b>Shares Beneficially Owned</b>	<b>Percentage of Shares Beneficially Owned</b>
<b>Directors and Named Executive Officers</b>		
Michael R. Bristow, M.D., Ph.D. (1)	198,027	1.41%
Thomas A. Keuer (2)	44,785*	
Christopher D. Ozeroff (3)	47,042*	
Linda Grais, M.D. (4)	25,472*	
Robert E. Conway (5)	59,275*	
Raymond L. Woosley (6)	24,397*	
Dan J. Mitchell (7)	34,772*	
Anders Hove, M.D. (8)	13,334*	
<b>All current directors and executive officers as a group (9 persons) (9)</b>		
<b>5% Stockholders</b>	474,241	3.33%
<b>Tekla Life Sciences Investors (10)</b>	811,227	5.83%

\* Represents beneficial ownership of less than 1% of our Common Stock.

- (1) Includes the following owned by (i) Investocor Trust: 19,986 shares, Dr. Bristow is the sole trustee of Investocor Trust; (ii) NFS as Custodian for Michael Bristow's IRA: (a) 25,459 shares and (b) 17,821 shares issuable upon the exercise of warrants, which warrants are immediately exercisable; (iii) 5,578 shares issuable upon the exercise of warrants, which warrants are immediately exercisable and held directly; and (iv) options to purchase 88,027 shares that are exercisable within 60 days of April 4, 2018.
- (2) Includes options to purchase 31,632 shares that are exercisable within 60 days of April 4, 2018.
- (3) Includes options to purchase 29,525 shares that are exercisable within 60 days of April 4, 2018.
- (4) Includes options to purchase 25,472 shares that are exercisable within 60 days of April 4, 2018.
- (5) Includes options to purchase 24,275 shares that are exercisable within 60 days of April 4, 2018.
- (6) Includes options to purchase 24,397 shares that are exercisable within 60 days of April 4, 2018.
- (7) Includes options to purchase 23,772 shares that are exercisable within 60 days of April 4, 2018.

- (8) Includes options to purchase 13,334 shares that are exercisable within 60 days of April 4, 2018.
- (9) See Notes (1) through (8) above. Also, includes additional options to purchase 27,137 shares that are exercisable within 60 days of April 4, 2018 beneficially owned by our executive officers not listed by name in the table above.
- (10) Based solely on a Schedule 13G filed with the SEC on February 12, 2018. Tekla Capital Management LLC (“TCM”), as an investment adviser to Tekla Life Sciences Investors (“HQL”), shares beneficial ownership over the shares held by HQL. Each of TCM and Daniel R. Omstead, through his control of TCM, has sole power to dispose of the shares beneficially owned by HQL. Neither TCM nor Daniel R. Omstead has the sole power to vote or direct the vote of the shares beneficially owned by HQL, which power resides in the fund’s Board of Trustees. TCM carries the voting of shares under written guidelines established by the funders Board of Trustees. The address for Tekla Life Sciences Investors is 100 Federal Street, 19th Floor, Boston, MA 02110.

#### **SECTION 16(A) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE**

Section 16 of the Exchange Act requires the Company’s directors and executive officers, and persons who own more than 10% of its Common Stock, to file with the SEC initial reports of ownership and reports of changes in ownership of Common Stock of the Company. Such persons are required by SEC regulation to furnish us with copies of all Section 16(a) forms that they file.

To the Company’s knowledge, based solely upon its review of the copies of such reports furnished to it and written representations that no other reports were required, during the fiscal year ended December 31, 2017, all Section 16(a) filing requirements applicable to its officers, directors and ten percent beneficial owners were complied with.

## EXECUTIVE OFFICERS

Set forth below is information regarding each of the executive officers as of March 31, 2018.

<b>Name</b>	<b>Age</b>	<b>Position</b>
Michael R. Bristow, M.D., Ph.D.*	73	President and Chief Executive Officer
Brian L. Selby	56	Vice President, Finance and Chief Accounting Officer
Thomas A. Keuer	59	Chief Operating Officer
Christopher D. Ozeroff	59	Secretary, Senior Vice President and General Counsel

\* Also serves as a director.

*Michael R. Bristow, M.D., Ph.D.* See Mr. Bristow's biography in Proposal Number 1 – Election of Directors.

*Brian L. Selby.* Mr. Selby has served as the Company's Vice President, Finance and Chief Accounting Officer since December 2014. Previously, Mr. Selby served as the Company's Controller from 2007 to 2014. Prior to joining the Company, Mr. Selby served as the Controller for Myogen, Inc., a publicly traded pharmaceutical company subsequently acquired by Gilead, from 2004 to 2007. Prior to Myogen, Mr. Selby served as the Controller for several private and publicly traded companies and earlier in his career was an audit professional with Deloitte. Mr. Selby received his M.S. in Accounting from the University of Colorado and received his B.S., in Business Administration and Finance from Colorado State University, and is a certified public accountant.

*Thomas A. Keuer.* Mr. Keuer has served as the Company's Chief Operating Officer since December 2014. Mr. Keuer served as the Company's Executive Vice President, Pharmaceutical Operations from 2006 to 2014. Prior to joining the Company, Mr. Keuer served as the SVP of Operations for Insmmed, Inc. from 2004 to 2006. Prior to Insmmed, Mr. Keuer served as the VP of Engineering for Baxter Healthcare from 1998 to 2004. Prior to Baxter, Mr. Keuer served as the VP of Operations for Somatogen, Inc. Mr. Keuer received his M.S. in Biochemical Engineering from Rice University and received his B.S. in Chemical Engineering from the University of Texas, Austin.

*Christopher D. Ozeroff.* Mr. Ozeroff is a co-founder of ARCA. Mr. Ozeroff has served as the Company's Senior Vice President, General Counsel and Secretary since 2009, has served as the Company's General Counsel and Secretary since the Company's founding, and has also served as Executive Vice President, Business Development from 2004 to 2009. Prior to joining the Company, Mr. Ozeroff was a partner with the law firm of Hogan & Hartson L.L.P., where he practiced in such areas as finance, acquisitions, public offerings, and licensing. Mr. Ozeroff completed his undergraduate degree at Stanford University and his law degree at the University of Chicago Law School.

## Executive Compensation

The following table shows for the fiscal years ended December 31, 2017 and/or December 31, 2016, compensation awarded to, paid to, or earned by the Company's principal executive officer and its two most highly compensated executive officers as of December 31, 2017, collectively, the Named Executive Officers:

**SUMMARY COMPENSATION TABLE FOR FISCAL 2017 AND 2016**

Name and Principal Position	Year	Salary \$(1)	Option Awards \$(2)	Stock Awards \$(2)	Non-Equity Incentive Plan Awards \$(3)	All Other Compensation (\$)	Total (\$)
Michael R. Bristow President and Chief Executive Officer	2017	302,856	137,281	—	91,300	16,256	547,693
	2016	294,036	169,693	—	92,300	16,227	572,256
Thomas A. Keuer Chief Operating Officer	2017	301,642	80,428	—	54,500	20,597	457,167
	2016	292,852	97,174	—	55,200	17,782	463,008
Christopher D. Ozeroff Secretary, Senior Vice President and General Counsel	2017	296,011	76,654	—	53,500	12,110	438,275
	2016	287,389	92,447	—	54,100	5,381	439,317

- (1) The amounts reported under "Salary" in the above table represent the actual amounts paid during the calendar year. Because the Company's actual pay dates do not always coincide with the first and last days of the year, these amounts may differ from the base salary amounts authorized by the Company's Board of Directors and described in the narrative that follows.
- (2) The amounts reported under "Option Awards" and "Stock Awards" in the above table reflect the grant date fair value of these awards as determined in accordance with Financial Accounting Standards Board Accounting Standards Codification Topic 718, Compensation – Stock Compensation, excluding the effects of estimated forfeitures. The value of stock option awards was estimated using the Black-Scholes option-pricing model. The valuation assumptions used in the valuation of option grants may be found in Note 8 to the Company's financial statements included in our annual report on Form 10-K for the year ended December 31, 2017, and filed with the SEC on March 22, 2018.
- (3) Represents cash bonuses earned under the 2017 and 2016 Bonus Plans. Cash bonuses earned and reported above in 2016 were paid in 2017, and cash bonuses earned and reported above in 2017 were paid in 2018. See "Executive Compensation" for descriptions of the 2017 and 2016 Bonus Plans.

## **Narrative Disclosure to Summary Compensation Table**

### *Employment Agreements or Arrangements*

*Michael R. Bristow, M.D., Ph.D.* Dr. Bristow serves as the Company's President and Chief Executive Officer under an Employment and Retention Agreement that was amended and restated as of June 4, 2008, and further amended pursuant to a Waiver and Amendment Agreement executed as of June 13, 2013. Pursuant to such employment agreement, Dr. Bristow is permitted to continue his academic work for the University of Colorado Health Sciences Center and for the Cardiovascular Institute, so long as it does not interfere with his duties as President and Chief Executive Officer of ARCA.

On February 16, 2017, the Board of Directors approved a cash bonus of \$92,300 for Dr. Bristow. The cash bonus was earned under the 2016 Bonus Plan for services rendered in 2016. See "*Non-Equity Incentive Plan Compensation*" below for descriptions of the 2016 Bonus Plan. The Board of Directors also approved a 2017 base salary of \$304,219 for Dr. Bristow.

On March 1, 2018, the Board of Directors approved a cash bonus of \$91,300 for Dr. Bristow. The cash bonus was earned under the 2017 Bonus Plan for services rendered in 2017. See "*Non-Equity Incentive Plan Compensation*" below for descriptions of the 2017 Bonus Plan. There were no changes to Dr. Bristow's salary for 2018.

If the Company terminates Dr. Bristow's employment without "cause," or if Dr. Bristow terminates his employment with "good reason" (as these terms are defined in his employment agreement), the Company has agreed to pay Dr. Bristow a severance payment equivalent to (i) (a) 12 months of his base salary, if such termination occurs on the same day as or within 13 months after a change of control of the Company, or (b) six months of his base salary if such termination does not occur on the same day as or within 13 months after a change of control of the Company, (ii) a pro rata portion of any bonus compensation under any employee bonus plan that has been approved by the Board of Directors payable to him for the fiscal year in which his employment terminated to be paid at the same time that such incentive bonus would have been paid had the termination not occurred, and (iii) reimbursement to cover out-of-pocket costs to continue group health insurance benefits under COBRA for 6 months, whether he elects or is eligible to receive COBRA (provided, that even if he does not elect or is not eligible to receive COBRA, he will receive the equivalent of such out-of-pocket expenses paid by him not to exceed the costs that the benefits would equal under COBRA if he were so eligible). In addition, ARCA may elect in its sole discretion, to pay additional severance equal to up to 6 months of base salary, which additional payment would extend the covenants and obligations under Dr. Bristow's Employee Intellectual Property, Confidentiality and Non-Compete Agreement for such additional period. The severance payment is conditioned on the execution by Dr. Bristow of a legal release in a form acceptable to the Company. A termination for "cause" includes Dr. Bristow's willful misconduct, gross negligence, theft, fraud, or other illegal or dishonest conduct, any of which are considered to be materially harmful to the Company; refusal, unwillingness, failure, or inability to perform his material job duties or habitual absenteeism; or violation of fiduciary duty, violation of any duty of loyalty, or material breach of any material term of his employment agreement or his Employee Intellectual Property, Confidentiality and Non-Compete Agreement, or any other agreement, with the Company. "Good reason" includes a relocation by us of Dr. Bristow's normal work location greater than 30 miles; a decrease in current base salary by more than 15%, with certain exceptions; and the Company's unilateral decision to significantly and detrimentally reduce Dr. Bristow's job responsibilities.

*Thomas A. Keuer.* Mr. Keuer serves as the Company's Chief Operating Officer under an Amended and Restated Employment Agreement that was effective as of January 1, 2015.

Under his employment agreement, Mr. Keuer is entitled to receive an annual base salary of \$280,000, subject to annual increases if approved by the Company's Board of Directors or Compensation Committee and is eligible to receive an annual bonus as determined by the Board of Directors or Compensation Committee in its sole discretion.

On February 16, 2017, the Board of Directors approved a cash bonus of \$55,200 for Mr. Keuer. The cash bonus was earned under the 2016 Bonus Plan for services rendered in 2016. See “*Non-Equity Incentive Plan Compensation*” below for descriptions of the 2016 Bonus Plan. The Board of Directors also approved a 2017 base salary of \$303,000 for Mr. Keuer.

On March 1, 2018, the Board of Directors approved a cash bonus of \$54,500 for Mr. Keuer. The cash bonus was earned under the 2017 Bonus Plan for services rendered in 2017. See “*Non-Equity Incentive Plan Compensation*” below for descriptions of the 2017 Bonus Plan. There were no changes to Mr. Keuer’s salary for 2018.

If the Company terminates Mr. Keuer’s employment without “cause,” or if Mr. Keuer terminates his employment with “good reason” (as these terms are defined in his employment agreement), the Company has agreed to pay Mr. Keuer a severance payment equivalent to (i) (a) 12 months of his base salary, if such termination occurs on the same day as or within 13 months after a change of control of the Company, or (b) six months of his base salary if such termination does not occur on the same day as or within 13 months after a change of control of the Company, (ii) a pro rata portion of any bonus compensation under any employee bonus plan that has been approved by the Board of Directors payable to him for the fiscal year in which his employment terminated to be paid at the same time that such incentive bonus would have been paid had the termination not occurred, and (iii) reimbursement to cover out-of-pocket costs to continue group health insurance benefits under COBRA for (x) 12 months, if such termination occurs on the same day as or within 13 months after a change of control of the Company, or (y) six months if such termination does not occur on the same day as or within 13 months after a change of control of the Company, whether he elects or is eligible to receive COBRA (provided, in either event, that even if he does not elect or is not eligible to receive COBRA, he will receive the equivalent of such out-of-pocket expenses paid by him not to exceed the costs that the benefits would equal under COBRA if he were so eligible). In addition, ARCA may elect in its sole discretion, to pay additional severance equal to up to 12 months of base salary, which additional payment would extend the covenants and obligations under Mr. Keuer’s Employee Intellectual Property, Confidentiality and Non-Compete Agreement for such additional period. The severance payment is conditioned on the execution by Mr. Keuer of a legal release in a form acceptable to the Company. A termination for “cause” includes Mr. Keuer’s willful misconduct, gross negligence, theft, fraud, or other illegal or dishonest conduct, any of which are considered to be materially harmful to the Company; refusal, unwillingness, failure, or inability to perform his material job duties or habitual absenteeism; or violation of fiduciary duty, violation of any duty of loyalty, or material breach of any material term of his employment agreement or his Employee Intellectual Property, Confidentiality and Non-Compete Agreement, or any other agreement, with the Company. “Good reason” includes a relocation by us of Mr. Keuer’s normal work location greater than 30 miles; a decrease in current base salary by more than 15%, with certain exceptions; and the Company’s unilateral decision to significantly and detrimentally reduce Mr. Keuer’s job responsibilities.

*Christopher D. Ozeroff*. Mr. Ozeroff serves as the Company’s Senior Vice President and General Counsel under an Employment and Retention Agreement that was amended and restated as of June 12, 2008, and further amended pursuant to a Waiver and Amendment Agreement executed as of June 13, 2013.

Under his employment agreement, Mr. Ozeroff is entitled to receive an annual base salary of \$259,000, subject to annual increases if approved by the Company’s Board of Directors or Compensation Committee and is eligible to receive an annual bonus as determined by the Board of Directors or Compensation Committee in its sole discretion.

On February 16, 2017, the Board of Directors approved a cash bonus of \$54,100 for Mr. Ozeroff. The cash bonus was earned under the 2016 Bonus Plan for services rendered in 2016. See “*Non-Equity Incentive Plan Compensation*” below for descriptions of the 2016 Bonus Plan. The Board of Directors also approved a 2017 base salary of \$297,343 for Mr. Ozeroff.

On March 1, 2018, the Board of Directors approved a cash bonus of \$53,500 for Mr. Ozeroff. The cash bonus was earned under the 2017 Bonus Plan for services rendered in 2017. See “*Non-Equity Incentive Plan Compensation*” below for descriptions of the 2017 Bonus Plan. There were no changes to Mr. Ozeroff’s salary for 2018.

If the Company terminates Mr. Ozeroff's employment without "cause," or if Mr. Ozeroff terminates his employment with "good reason" (as these terms are defined in his employment agreement), the Company has agreed to pay Mr. Ozeroff a severance payment equivalent to (i) (a) 12 months of his base salary, if such termination occurs on the same day as or within 13 months after a change of control of the Company, or (b) six months of his base salary if such termination does not occur on the same day as or within 13 months after a change of control of the Company, (ii) a pro rata portion of any bonus compensation under any employee bonus plan that has been approved by the Board of Directors payable to him for the fiscal year in which his employment terminated to be paid at the same time that such incentive bonus would have been paid had the termination not occurred, and (iii) reimbursement to cover out-of-pocket costs to continue group health insurance benefits under COBRA for 6 months, whether he elects or is eligible to receive COBRA (provided, that even if he does not elect or is not eligible to receive COBRA, he will receive the equivalent of such out-of-pocket expenses paid by him not to exceed the costs that the benefits would equal under COBRA if he were so eligible). In addition, ARCA may elect in its sole discretion, to pay additional severance equal to up to 6 months of base salary, which additional payment would extend the covenants and obligations under Mr. Ozeroff's Employee Intellectual Property, Confidentiality and Non-Compete Agreement for such additional period. The severance payment is conditioned on the execution by Mr. Ozeroff of a legal release in a form acceptable to the Company. A termination for "cause" includes Mr. Ozeroff's willful misconduct, gross negligence, theft, fraud, or other illegal or dishonest conduct, any of which are considered to be materially harmful to the Company; refusal, unwillingness, failure, or inability to perform his material job duties or habitual absenteeism; or violation of fiduciary duty, violation of any duty of loyalty, or material breach of any material term of his employment agreement or his Employee Intellectual Property, Confidentiality and Non-Compete Agreement, or any other agreement, with the Company. "Good reason" includes a relocation by us of Mr. Ozeroff's normal work location greater than 30 miles; a decrease in current base salary by more than 15%, with certain exceptions; and the Company's unilateral decision to significantly and detrimentally reduce Mr. Ozeroff's job responsibilities.

#### *Non-Equity Incentive Plan Compensation*

In February 2007, the Compensation Committee and the Board of Directors of ARCA established a bonus structure for its entire executive team. The philosophy employed was to create incentives for the executive officers to achieve key corporate goals. The Compensation Committee retained discretion to change the bonus structure and the bonus payment amounts as it considered appropriate.

#### *2016 Cash Bonus Plan*

On February 16, 2017, the Board of Directors approved cash bonuses for certain employees. The cash bonuses were paid in 2017 for performance in 2016, including for attainment of the Company's 2016 Goals under its 2016 Cash Bonus Plan (the "2016 Goals"), as determined by the Compensation Committee. The 2016 bonuses were based on the Board of Directors' determination with respect to the Company's achievement of the 2016 Goals.

The 2016 Goals were based on (1) enrollment of GENETIC-AF (2) development pipeline objectives, and (3) corporate transaction objectives.

#### *2017 Cash Bonus Plan*

The Board of Directors has set corporate goals for 2017 (the "2017 Goals"), which may be updated at the Board of Directors' discretion during 2017. Attainment of the 2017 Goals is a prerequisite to the payment of any awards to employees under the Company's 2017 Cash Bonus Plan, including executive officers.

The amount payable to each employee is set as a target percentage of each employee's annual salary, or the target bonus percentage ("TBP"), but employees, including executive officers, may receive more or less than 100% of their TBP, based upon corporate goal achievement, individual performance and the discretion of the Board of Directors.

To receive a cash bonus (if any), each individual employee must be actively employed by the Company, and in good standing, on December 31, 2017. Employees hired after January 1, 2017, will have their cash bonus (if any) prorated based on the percentage of time the employee worked at ARCA in 2017. The 2017 Goals are based on

(1) the GENETIC-AF Data and Safety Monitoring Board analysis and enrollment of GENETIC-AF; (2) financing goals; and (3) corporate transaction objectives.

*2018 Cash Bonus Plan*

The Compensation Committee and Board of Directors have not approved a bonus structure or goals for 2018.

*Other Elements of Executive Compensation Program*

The remaining elements of the Company’s executive compensation program, like its broader employee compensation programs, are intended to make the Company’s overall compensation program competitive with those of its peer companies, keeping in mind the constraints imposed by the Company’s reliance on capital markets as a primary source of cash. The remaining elements of the Company’s executive compensation program, (401(k) Plan, Medical, Dental, and Vision Plans, Life and Disability Insurance) are available to all Company employees.

**EQUITY COMPENSATION PLAN INFORMATION**

The following table sets forth information as of December 31, 2017, for all of our equity compensation plans:

	<b>No. of Securities to be Issued Upon Exercise of Outstanding Options or Upon Vesting of Restricted Stock Units (a)</b>	<b>Weighted Average Exercise Price of Outstanding Options (\$) (b)</b>	<b>No. of Securities Remaining Available for Future Issuance Under Equity Compensation Plans Excluding Securities Reflected in Column(a) (c)</b>
Equity compensation plans approved by security holders	627,143	6.00	610,194
Equity compensation plans not approved by security holders	—	—	—
<b>Total</b>	<b>627,143</b>	<b>6.00</b>	<b>610,194</b>

On September 17, 2013, our stockholders approved the ARCA biopharma, Inc. 2013 Equity Incentive Plan (the “2013 Plan”) at the Company’s 2013 annual meeting of stockholders. The 2013 Plan is the successor to the Amended and Restated ARCA biopharma, Inc. 2004 Equity Incentive Plan (the “2004 Plan”). On June 9, 2016, our stockholders approved the Amended 2013 Plan. A description of the 2013 Plan and the Amended 2013 Plan is set forth in Note 8 to the Company’s financial statements included in our annual report on Form 10-K for the year ended December 31, 2017, and filed with the SEC on March 22, 2018.

*Compensation Risks*

ARCA believes its approach to goal setting, setting of targets with payouts at multiple levels of performance, and evaluation of performance results assist in mitigating excessive risk-taking that could harm the

value or reward poor judgment by its executives. ARCA believes several features of the Company's programs reflect sound risk management practices. ARCA believes it has allocated compensation among base salary and short and long-term compensation target opportunities in such a way as to not encourage excessive risk-taking. The multi-year vesting of equity awards properly accounts for the time horizon of risk. Furthermore, the Compensation Committee assesses and monitors whether any of ARCA's compensation policies and programs has the potential to encourage excessive risk-taking on an annual basis.

**OUTSTANDING EQUITY AWARDS AT FISCAL YEAR END**

The following table shows for the fiscal year ended December 31, 2017, certain information regarding outstanding equity awards at fiscal year end for the Named Executive Officers.

A description of the equity incentive plans we maintain is set forth in Note 8 to the Company's financial statements included in our annual report on Form 10-K for the year ended December 31, 2017, and filed with the SEC on March 22, 2018.

Name	Option Awards			
	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price (\$)	Option Expiration Date
Michael R. Bristow, President and Chief Executive Officer	596	—	233.94	1/23/2019
	380	—	124.74	2/18/2020
	714	—	94.08	5/20/2021
	28,142	—	9.66	9/16/2023
	12,260	—	9.66	9/16/2023
	7,050	307 (1)(5)	13.65	2/26/2024
	3,494	206 (2)(5)	4.69	2/11/2025
	13,600	13,600 (3)(5)	3.30	6/8/2026
	11,667	30,333 (4)(5)	2.50	2/15/2027
	Thomas A. Keuer, Chief Operating Officer	270	—	78.12
262		—	216.30	11/14/2018
584		—	121.80	6/25/2019
190		—	124.74	2/18/2020
476		—	94.08	5/20/2021
4,775		—	9.66	9/16/2023
1,428		—	10.85	10/14/2023
1,437		63 (1)(5)	13.65	2/26/2024
1,841		109 (2)(5)	4.69	2/11/2025
7,800		7,800 (3)(5)	3.30	6/8/2026
Christopher Ozeroff, Secretary, Senior Vice President and General Counsel	7,000	18,200 (4)(5)	2.50	2/15/2027
	152	—	124.74	2/18/2020
	476	—	94.08	5/20/2021
	6,091	—	9.66	9/16/2023
	1,437	63 (1)(5)	13.65	2/26/2024
	1,747	103 (2)(5)	4.69	2/11/2025
	7,400	7,400 (3)(5)	3.30	6/8/2026
	6,667	17,333 (4)(5)	2.50	2/15/2027

- (1) Options vest in monthly installments through February 27, 2018.
- (2) Options vest in 36 monthly installments measured from February 12, 2015.
- (3) Options vest in 36 monthly installments measured from June 9, 2016.
- (4) Options vest in 36 monthly installments measured from February 16, 2017.
- (5) In the event of a change in control of the Company, 50% of the unvested shares subject to this award shall become fully and immediately vested upon the closing date of such change in control, provided, however, that on the earlier of (i) the one-year anniversary of the closing date or (ii) involuntary termination, any options that remain unvested on such earlier date shall become fully and immediately vested.

Name	Stock Awards	
	Number of Shares or Units of Stock That Have Not Vested (#) Unvested	Market Value of Shares or Units of Stock That Have Not Vested (\$)
Michael R. Bristow, President and Chief Executive Officer	2,025 (1)(3) 2,291 (2)(3)	2,734 3,093
Thomas A. Keuer, Chief Operating Officer	1,222 (1)(3) 1,207 (2)(3)	1,650 1,629
Christopher Ozeroff, Secretary, Senior Vice President and General Counsel	1,222 (1)(3) 1,145 (2)(3)	1,650 1,546

- (1) Restricted Stock Units vest on February 27, 2018.  
(2) Restricted Stock Units vest on April 2, 2018.  
(3) In the event of a change in control of the Company, 50% of the unvested shares subject to this award shall become fully and immediately vested upon the closing date of such change in control, provided, however, that on the earlier of (i) the one-year anniversary of the closing date or (ii) involuntary termination, any options that remain unvested on such earlier date shall become fully and immediately vested.

### Option Exercises And Stock Vested

The following table sets forth certain information regarding option exercises and restricted stock units that vested during the year ended December 31, 2017, with respect to the Named Executive Officers:

Name	Option Awards		Stock Awards	
	Number of Shares Acquired on Exercise (#)	Value Realized on Exercise (\$)(1)	Number of Shares Acquired on Vesting (#)	Value Realized on Vesting (\$)(2)
Michael R. Bristow	—	—	4,315	10,761
Thomas A. Keuer	—	—	2,428	6,071
Christopher Ozeroff	—	—	2,366	5,923

- (1) The value realized on exercise of the options equals the difference between the market price of the underlying stock at exercise and the exercise or base price of the options, multiplied by the number of shares acquired on exercise.  
(2) The value realized on vesting of restricted stock units equals the market value of the Company's Common Stock on the vesting date, multiplied by the number of shares that vested.

## DIRECTOR COMPENSATION

The following table shows for the fiscal year ended December 31, 2017, certain information with respect to the compensation of all non-employee directors of the Company:

### DIRECTOR COMPENSATION FOR FISCAL 2017 (1)

	Fees Earned or Paid in Cash (\$)	Option Awards \$(2)	Nonqualified Deferred Compensation Earnings (\$)	All Other Compensation (\$)	Total (\$)
Linda Grais, M.D. (3)	52,500	12,220	—	—	64,720
Raymond L. Woosley, M.D. (4)	50,000	12,220	—	—	62,220
Robert E. Conway (5)	80,000	12,220	—	—	92,220
Dan J. Mitchell (6)	47,500	12,220	—	—	59,720
Anders Hove (7)	40,000	15,114	—	—	55,114

- (1) Dr. Bristow, our President and Chief Executive Officer, was also a director during the year ended December 31, 2017, but did not receive any additional compensation for his service as a director. Dr. Bristow's compensation as an executive officer is set forth above under "Executive Compensation—Summary Compensation Table."
- (2) The amounts reported under "Option Awards" in the above table reflect the aggregate grant date fair value of these awards as determined in accordance with Financial Accounting Standards Board Accounting Standards Codification Topic 718, Compensation – Stock Compensation, excluding the effects of estimated forfeitures. The value of stock option awards was estimated using the Black-Scholes option-pricing model. The valuation assumptions used in the valuation of option awards may be found in Note 8 to the Company's financial statements included in our annual report on Form 10-K for the year ended December 31, 2017, and filed with the SEC on March 22, 2018.
- (3) The aggregate number of shares issuable upon exercise of option awards outstanding at December 31, 2017, for Dr. Grais was 22,138, of which all shares were fully vested.
- (4) The aggregate number of shares issuable upon exercise of option awards outstanding at December 31, 2017, for Dr. Woosley was 21,063, of which all shares were fully vested.
- (5) The aggregate number of shares issuable upon exercise of option awards outstanding at December 31, 2017, for Mr. Conway was 20,941, of which all shares were fully vested.
- (6) The aggregate number of shares issuable upon exercise of option awards outstanding at December 31, 2017, for Mr. Mitchell was 20,438, of which all shares were fully vested.
- (7) The aggregate number of shares issuable upon exercise of option awards outstanding at December 31, 2017, for Dr. Hove was 10,000, of which 8,334 shares were fully vested.

In 2016, the Company revised its compensation plan for non-employee directors to provide that non-employee directors will be compensated for their service on the Board of Directors, as follows:

- Each non-employee director will receive an annual retainer fee of \$35,000;
- As additional compensation for their services, each non-employee director will receive (i), upon joining the Board of Directors, an initial option grant to purchase 10,000 shares of the Company's Common Stock under the Amended 2013 Plan and (ii), on an annual basis, an annual option grant to purchase 8,000 shares of the Company's Common Stock under the Amended 2013 Plan;
- The Chairman of the Board of Directors will receive an additional annual retainer fee of \$25,000;
- The Audit Committee chair will receive an additional annual retainer fee of \$15,000;
- The chairs of the Compensation Committee and the Nominating and Corporate Governance Committee will each receive an additional annual retainer fee of \$10,000;
- Each non-chair member of the Audit Committee will receive an additional annual retainer fee of \$7,500; and
- Each non-chair member of the Compensation Committee and the Nominating and Corporate Governance Committees will receive an additional annual retainer fee of \$5,000.

At the February 16, 2017, meeting of the Board of Directors, the Board of Directors awarded annual stock option grants to the Company's non-employee directors. Mr. Mitchell, Dr. Grais, Dr. Woosley and Mr. Conway each were granted options to purchase 8,000 shares of Common Stock under the Amended 2013 Plan vesting over one year. In addition, the Board granted an option to purchase 10,000 shares of Common Stock to Dr. Hove in connection with his joining the Board. These options were issued under the Amended 2013 Plan and vest over one year. The purchase price for the options issued on February 16, 2017, was \$2.50 per share, which was equal to the closing price of the Company's Common Stock on Nasdaq on the date of the grant. If the non-employee director's service terminates in connection with or at any time following a change in control, then any unexpired options that remain unvested shall become fully vested.

At the March 1, 2018, meeting of the Board of Directors, the Board of Directors awarded annual stock option grants to the Company's non-employee directors. Mr. Mitchell, Dr. Grais, Dr. Woosley, Mr. Conway and Dr. Hove each were granted options to purchase 8,000 shares of Common Stock under the Amended 2013 Plan vesting over one year. The purchase price for the options issued on March 1, 2018, was \$0.72 per share, which was equal to the closing price of the Company's Common Stock on Nasdaq on the date of the grant. If the non-employee director's service terminates in connection with or at any time following a change in control, then any unexpired options that remain unvested shall become fully vested.

## **CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS**

### **Certain Transactions With or Involving Related Persons**

The following is a summary of transactions since January 1, 2016, to which we have been a party in which the amount involved exceeded the lesser of \$120,000 or one percent of the average of our total assets at fiscal years ended 2017, and in which any of our executive officers, directors or holders of more than 5% of our capital stock, or any member of the immediate family of any of the foregoing persons, had or will have a direct or indirect material interest, other than compensation arrangements disclosed above under the heading "Executive Compensation".

### **Transactions With the Company's President and Chief Executive Officer**

The Company has entered into unrestricted research grants with the academic research laboratory of Dr. Bristow, the Company's President and Chief Executive Officer, at the University of Colorado. Funding of any unrestricted research grants is contingent upon the Company's financial condition, and can be deferred or terminated at the Company's discretion. Total expense under these arrangements for the years ended December 31, 2017 and 2016 was approximately \$418,000 and \$427,000, respectively.

### **Policies and Procedures for Related Party Transactions**

Our Audit Committee reviews and approves all related party transactions. This review covers any material transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships, in which we were or are to be a participant, and a related party had or will have a direct or indirect material interest, including, purchases of goods or services by or from the related party or entities in which the related party has a material interest, indebtedness, guarantees of indebtedness and employment by us of a related party.

## HOUSEHOLDING OF PROXY MATERIALS

The SEC has adopted rules that permit companies and intermediaries (e.g., brokers) to satisfy the delivery requirements for Notices of Internet Availability of Proxy Materials or other Annual Meeting materials with respect to two or more stockholders sharing the same address by delivering a single Notice of Internet Availability of Proxy Materials or other Annual Meeting materials addressed to those stockholders. This process, which is commonly referred to as “householding,” potentially means extra convenience for stockholders and cost savings for companies.

This year, a number of brokers with account holders who are ARCA biopharma, Inc. stockholders will be “householding” the Company’s proxy materials. A single Notice of Internet Availability of Proxy Materials will be delivered to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Once you have received notice from your broker that they will be “householding” communications to your address, “householding” will continue until you are notified otherwise or until you revoke your consent. If, at any time, you no longer wish to participate in “householding” and would prefer to receive a separate Notice of Internet Availability of Proxy Materials, please notify your broker or ARCA biopharma, Inc. Direct your written request to Secretary, ARCA biopharma, Inc., 11080 CirclePoint Road, Suite 140, Westminster, Colorado, 80020 or contact Investor Relations at 720-940-2100. The Company undertakes to promptly deliver a separate copy of the Notice of Internet Availability of Proxy Materials promptly upon receiving your written request. Stockholders who currently receive multiple copies of the Notices of Internet Availability of Proxy Materials at their addresses and would like to request “householding” of their communications should contact their brokers.

## OTHER MATTERS

The Board of Directors knows of no other matters that will be presented for consideration at the Annual Meeting. If any other matters are properly brought before the meeting, it is the intention of the persons named in the accompanying proxy to vote on such matters in accordance with their best judgment.

By Order of the Board of Directors



Christopher Ozeroff  
Secretary, Senior Vice President and General Counsel

April 18, 2018

**A copy of the Company’s Annual Report to the Securities and Exchange Commission on Form 10-K for the fiscal year ended December 31, 2017, is available without charge upon written request to: Corporate Secretary, ARCA biopharma, Inc., 11080 CirclePoint Road, Suite 140, Westminster, Colorado 80020**



IMPORTANT ANNUAL MEETING INFORMATION

000004

ENDORSEMENT\_LINE \_\_\_\_\_ SACKPACK \_\_\_\_\_



MR A SAMPLE DESIGNATION (IF ANY) ADD 1 ADD 2 ADD 3 ADD 4 ADD 5 ADD 6



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Electronic Voting Instructions

Available 24 hours a day, 7 days a week!

Instead of mailing your proxy, you may choose one of the voting methods outlined below to vote your proxy.

VALIDATION DETAILS ARE LOCATED BELOW IN THE TITLE BAR.

Proxies submitted by the Internet or telephone must be received by 1:00 a.m., Mountain Time, on May 31, 2018.



Vote by Internet

- Go to www.investorvote.com/ABIO Or scan the QR code with your smartphone Follow the steps outlined on the secure website

Vote by telephone

- Call toll free 1-800-652-VOTE (8683) within the USA, US territories & Canada on a touch tone telephone Follow the instructions provided by the recorded message

Using a black ink pen, mark your votes with an X as shown in this example. Please do not write outside the designated areas.



Annual Meeting Proxy Card

1234 5678 9012 345

IF YOU HAVE NOT VOTED VIA THE INTERNET OR TELEPHONE, FOLD ALONG THE PERFORATION, DETACH AND RETURN THE BOTTOM PORTION IN THE ENCLOSED ENVELOPE.

Proposals — The Board of Directors recommends a vote FOR the nominees listed and FOR Proposal 2.

1. Election of two directors to hold office until the 2021 Annual Meeting of Stockholders.

For Withhold

For Withhold

01 - Raymond L. Woosley

Input boxes for Raymond L. Woosley

02 - Daniel J. Mitchell

Input boxes for Daniel J. Mitchell

2. To ratify the selection of KPMG LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2018.

For Against Abstain

Input boxes for Proposal 2

In their discretion, the proxies are also authorized to vote upon such other matters as may properly come before the Annual Meeting.

Non-Voting Items

Change of Address — Please print your new address below.

Comments — Please print your comments below.

Meeting Attendance

Mark the box to the right if you plan to attend the Annual Meeting.

Change of Address input box

Comments input box

Meeting Attendance checkbox



**Important notice regarding the Internet availability of  
proxy materials for the Annual Meeting of Stockholders.  
The ARCA biopharma, Inc. Annual Report  
and ARCA biopharma, Inc. Notice of Annual Meeting are available at:  
[www.edocumentview.com/ABIO](http://www.edocumentview.com/ABIO)**

q IF YOU HAVE NOT VOTED VIA THE INTERNET OR TELEPHONE, FOLD ALONG THE PERFORATION, DETACH AND RETURN THE BOTTOM PORTION IN THE ENCLOSED ENVELOPE. q



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**Proxy — ARCA BIOPHARMA, INC.**

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**PROXY SOLICITED BY THE BOARD OF DIRECTORS OF ARCA BIOPHARMA, INC.  
FOR THE ANNUAL MEETING OF STOCKHOLDERS TO BE HELD ON MAY 31, 2018**

The undersigned hereby acknowledges receipt of the Notice of Annual Meeting of Stockholders and Proxy Statement of ARCA biopharma, Inc. (the “Company”) in connection with the Company’s Annual Meeting of Stockholders to be held at the Renaissance Boulder Flatiron Hotel, 500 Flatiron Blvd., Broomfield, Colorado 80021 at 9:00 a.m., Mountain Time, on Thursday, May 31, 2018, and does hereby appoint Michael R. Bristow, M.D., Ph.D., Thomas A. Keuer and Christopher D. Ozeroff, and each of them (with full power to act alone), as proxies of the undersigned with all the powers the undersigned would possess if personally present and with full power of substitution in each of them, to appear and vote all shares of Common Stock of the Company which the undersigned would be entitled to vote if personally present at the 2018 Annual Meeting of Stockholders, and at any postponement or adjournment thereof.

The shares represented hereby will be voted as directed herein. **IN EACH CASE, IF NO DIRECTION IS INDICATED, SUCH SHARES WILL BE VOTED “FOR” THE NOMINEES LISTED AND “FOR” PROPOSAL 2. AS TO ANY OTHER MATTER THAT MAY PROPERLY COME BEFORE THE MEETING OR ANY POSTPONEMENT OR ADJOURNMENT THEREOF, SAID PROXY HOLDERS WILL VOTE IN ACCORDANCE WITH THEIR BEST JUDGMENT. THIS PROXY MAY BE REVOKED IN WRITING AT ANY TIME PRIOR TO THE VOTING THEREOF.**

**PLEASE VOTE, DATE AND SIGN ON THE REVERSE SIDE AND RETURN PROMPTLY IN THE ENCLOSED ENVELOPE.**

**Please be sure to sign and date this Proxy.**



**IMPORTANT ANNUAL MEETING INFORMATION**



Using a **black ink** pen, mark your votes with an **X** as shown in this example.   
Please do not write outside the designated areas.

## Annual Meeting Proxy Card

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

**A Proposals — The Board of Directors recommends a vote FOR the nominees listed and FOR Proposal 2.**

1. Election of two directors to hold office until the 2021 Annual Meeting of Stockholders.



	For	Withhold		For	Withhold
01 - Raymond L. Woosley	<input type="checkbox"/>	<input type="checkbox"/>	02 - Daniel J. Mitchell	<input type="checkbox"/>	<input type="checkbox"/>

2. To ratify the selection of KPMG LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2018.

For	Against	Abstain
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In their discretion, the proxies are also authorized to vote upon such other matters as may properly come before the Annual Meeting.

**B Authorized Signatures — This section must be completed for your vote to be counted. — Date and Sign Below**

Please date and sign exactly as the name appears on this card. Joint owners should each sign. Please give full title when signing as executor, administrator, trustee, attorney, guardian for a minor, etc. Signatures for corporations and partnerships should be in the corporate or firm name by a duly authorized person.

Date (mm/dd/yyyy) — Please print date below.

Signature 1 — Please keep signature within the box.

Signature 2 — Please keep signature within the box.



1UPX 3757542



02TQCB

**Important notice regarding the Internet availability of  
proxy materials for the Annual Meeting of Stockholders.  
The ARCA biopharma, Inc. Annual Report  
and ARCA biopharma, Inc. Notice of Annual Meeting are available at:  
[www.edocumentview.com/ABIO](http://www.edocumentview.com/ABIO)**

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



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**Proxy — ARCA BIOPHARMA, INC.**

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**PROXY SOLICITED BY THE BOARD OF DIRECTORS OF ARCA BIOPHARMA, INC.  
FOR THE ANNUAL MEETING OF STOCKHOLDERS TO BE HELD ON MAY 31, 2018**

The undersigned hereby acknowledges receipt of the Notice of Annual Meeting of Stockholders and Proxy Statement of ARCA biopharma, Inc. (the "Company") in connection with the Company's Annual Meeting of Stockholders to be held at the Renaissance Boulder Flatiron Hotel, 500 Flatiron Blvd., Broomfield, Colorado 80021 at 9:00 a.m., Mountain Time, on Thursday, May 31, 2018, and does hereby appoint Michael R. Bristow, M.D., Ph.D., Thomas A. Keuer and Christopher D. Ozeroff, and each of them (with full power to act alone), as proxies of the undersigned with all the powers the undersigned would possess if personally present and with full power of substitution in each of them, to appear and vote all shares of Common Stock of the Company which the undersigned would be entitled to vote if personally present at the 2018 Annual Meeting of Stockholders, and at any postponement or adjournment thereof.

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**PLEASE VOTE, DATE AND SIGN ON THE REVERSE SIDE AND RETURN PROMPTLY IN THE ENCLOSED ENVELOPE.**

**Please be sure to sign and date this Proxy.**