

7015 Albert Einstein Drive Columbia, MD 21046 Tel: 443.545.1800 Fax: 443.545.1701

www.Osiris.com

April 8, 2013

Dear Stockholders,

You are cordially invited to attend the 2013 Annual Meeting of Stockholders of Osiris Therapeutics, Inc. to be held at 2:00 p.m. Eastern Daylight Time ("EDT"), on Thursday, May 30, 2013, at our corporate offices located at 7015 Albert Einstein Drive, Columbia, Maryland 21046.

At the Annual Meeting, we will ask you to vote on:

- 1. The election of two directors, each for a term of three years and until their respective successors are duly elected and qualified;
- 2. The ratification of the appointment of Grant Thornton LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2013; and
- 3. Such other matters as may properly come before the Annual Meeting, or any adjournments or postponements thereof.

If you were a stockholder of record at the close of business on April 5, 2013, you are entitled to notice of, and to vote at, the annual meeting. Your vote is very important to us. You may vote over the Internet or, if you request to receive a printed copy of the proxy materials, by completing, signing and mailing a proxy card. Beneficial stockholders may also vote by telephone by following the directions provided on the Notice of Internet Availability Voting Instructions.

Sincerely,

C. Randal Mills, Ph.D.

President and Chief Executive Officer

OSIRIS THERAPEUTICS, INC.

NOTICE OF 2013 ANNUAL MEETING OF STOCKHOLDERS

TIME: 2:00 P.M. EDT on Thursday, May 30, 2013

PLACE: Osiris Therapeutics, Inc.

7015 Albert Einstein Drive Columbia, Maryland 21046

ITEMS OF BUSINESS:

1. To elect two members of the Board of Directors, each for

a three-year term and until their respective successors are

duly elected and qualified.

2. To ratify the appointment of Grant Thornton LLP as our

independent registered public accounting firm for the

fiscal year ending December 31, 2013.

3. To consider such other business as may properly be brought before the 2013 Annual Meeting and any

adjournment or postponement thereof.

RECORD DATE: You are entitled to vote at the 2013 Annual Meeting if you

were a stockholder of record at the close of business on

April 5, 2013.

ANNUAL MEETING ADMISSION: We hope you will be able to attend the Annual Meeting. You

may be asked to present valid picture identification at the Annual Meeting, such as a driver's license or passport. Cameras, recording devices and other electronic devices will

not be permitted at the meeting.

PROXY VOTING: It is important that your shares be represented and voted at

the meeting. You may vote your shares by voting in person at the meeting, by Internet, or by completing and returning a proxy card. Beneficial stockholders may also vote by telephone. See details under the heading "How do I vote?"

BY ORDER OF THE BOARD OF DIRECTORS

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Philip R. Jacoby, Jr. *Corporate Secretary*

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April 8, 2013

PROXY STATEMENT FOR 2013 ANNUAL MEETING OF STOCKHOLDERS

This proxy statement provides information that you should read before you vote on the proposals that will be presented at the 2013 Annual Meeting of Stockholders of Osiris Therapeutics, Inc. The 2013 Annual Meeting is scheduled to be held on Thursday, May 30, 2013, at 2:00 p.m., EDT, at Osiris Therapeutics, Inc.'s principal executive office, located at 7015 Albert Einstein Drive, Columbia, Maryland 21046.

On or about April 20, 2013, we will begin mailing either a Notice of Internet Availability of Proxy Materials or, in certain cases, printed sets of the proxy materials, including the Notice of 2013 Annual Meeting of Stockholders, this proxy statement, the accompanying proxy card, the Annual Report on Form 10-K for the year ending December 31, 2012 and Osiris Therapeutics, Inc.'s 2012 Annual Report to Stockholders, to stockholders who according to our records owned shares of our common stock at the close of business on April 5, 2013. For those stockholders of record located outside of the United States, notice is also being sent by email or facsimile to any email or facsimile number provided by the stockholder, and appearing on the records of the financial institution that holds the shares.

This proxy statement and the accompanying annual report to stockholders are also available electronically at http://investor.osiris.com/documents.cfm.

GENERAL INFORMATION ABOUT THE ANNUAL MEETING

Why am I receiving these proxy materials?

We are providing you with proxy materials, or access thereto, in connection with the solicitation by the Board of Directors of Osiris Therapeutics, Inc., a Maryland corporation ("Osiris," the "Company," "we," "us" or "our"), of proxies to be used at our 2013 Annual Meeting of Stockholders and at any adjournment or postponement thereof. Stockholders are invited to attend the 2013 Annual Meeting, which is scheduled to be held at 2:00 p.m., EDT, on Thursday, May 30, 2013, and are requested to vote on the proposals described in this Proxy Statement.

A full set of printed proxy materials, or a Notice of Internet Availability of Proxy Materials ("Notice of Internet Availability") will be sent to holders of record and beneficial owners of our common stock, starting on or around April 20, 2013, and the proxy materials, including the Notice of Annual Meeting, Proxy Statement, Proxy Card, 2012 Annual Report on Form 10-K and our 2012 Annual Report, will be made available to stockholders on the Internet on the same date.

Why did I receive a Notice of Internet Availability of Proxy Materials instead of a full set of proxy materials? Alternatively, why did I receive a full set of printed proxy materials this year instead of a Notice of Internet Availability?

Pursuant to rules adopted by the Securities and Exchange Commission ("SEC"), we are providing access to the Company's proxy materials over the Internet rather than printing and mailing the proxy materials. We believe electronic delivery will expedite the receipt of materials and will help lower our costs and reduce the environmental impact of our annual meeting materials. Therefore, a Notice of Internet Availability will be mailed to holders of record and beneficial owners of our common (or e-mailed, in the case of stockholders of record that have previously requested to receive proxy materials electronically) starting on or around April 20, 2013. The Notice of Internet Availability will provide instructions as to how stockholders may access and review the proxy materials, including the Notice of Annual Meeting, Proxy Statement, Proxy Card, 2012 Annual Report on Form 10-K and our 2012 Annual Report, on the website referred to in the Notice of Internet Availability or, alternatively, how to request that a copy of the proxy materials, including a proxy card, be sent to them by mail. The Notice of Internet Availability will also provide voting instructions. In addition, stockholders of record may request to receive the proxy materials in printed form by mail or electronically by e-mail on an ongoing basis for future stockholder meetings. Please note that, while our proxy materials are available at the website referenced in the Notice of Internet Availability, and our Notice of Annual Meeting, Proxy Statement and 2012 Annual Report on Form 10-K and our 2012 Annual Report are available on our website, no other information contained on either website is incorporated by reference in or considered to be a part of this document.

Our holders of record of our common stock may receive a full set of printed proxy materials this year instead of a Notice of Internet Availability either because that stockholder previously requested to receive materials in printed form or because the Company has the option to stratify its mailing by sending a Notice of Internet Availability to certain stockholders and a full printed set of proxy materials to others. The following questions and answers about the proxy materials and the Annual Meeting, while generally referring to the Notice of Internet Availability, apply equally to those stockholders receiving a full set of printed proxy materials

What information is contained in these materials?

The information included in this Proxy Statement relates to proposals you will vote on at the 2013 Annual Meeting, the voting process, the compensation of directors and our named executive officers in 2012 and certain other information.

How may I obtain directions to attend the 2013 Annual Meeting of Stockholders and vote in person?

Beneficial owners of our common stock may obtain directions to attend the meeting and vote in person by calling the toll-free number provided on the Notice of Internet Availability, or visiting the website at http://www.proxyvote.com or sending us an e-mail at sendmaterial@proxyvote.com. Registered stockholders may obtain directions to the meeting and vote in person by visiting the website at http://www.pstvote.com/osiris2013.

Why did I receive more than one Notice of Internet Availability or set of printed proxy materials?

You may receive multiple Notices of Internet Availability or sets of printed proxy materials if you hold your shares of Osiris's common stock in multiple accounts (such as through a brokerage account and an employee benefit plan). If you hold your shares of Osiris's common stock in multiple accounts, you should vote your shares as described in each separate Notice of Internet Availability or set of printed proxy materials you receive.

If you are a stockholder of record, you may contact the Corporate Secretary, Osiris Therapeutics, Inc., 7015 Albert Einstein Drive, Columbia, Maryland 21046 (telephone: (443) 545-1800) if you are currently receiving multiple Notices of Internet Availability or sets of printed proxy materials and want to request delivery of a single Notice of Internet Availability or set of printed proxy materials in the future. If your shares are held in "street name" and you want to increase or decrease the number of Notices of Internet Availability or sets of printed proxy materials delivered to your household in the future, you should contact your broker, bank or other custodian who holds the shares on your behalf.

What is the difference between a "stockholder of record" and a "street name" holder?

If your shares are registered directly in your name with Osiris's transfer agent, Philadelphia Stock Transfer, Inc., you are considered a "stockholder of record" or a "registered holder" of those shares. In such case, a Notice of Internet Availability or set of printed proxy materials has been sent to you directly by Philadelphia Stock Transfer.

If your shares are held in a stock brokerage account or by a bank, trust or other nominee or custodian, you are considered the "beneficial owner" of those shares, which are held in "street name." A Notice of Internet Availability or set of printed proxy materials has been forwarded to you by or on behalf of your broker, bank, trustee or other holder, who is considered the stockholder of record of those shares. As the beneficial owner, you have the right to direct your broker, bank, trustee or other holder of record as to how to vote your shares by following its instructions for voting.

Who is entitled to vote at the 2013 Annual Meeting?

Osiris's Board of Directors has established April 5, 2013 as the record date for the 2013 Annual Meeting of Stockholders. Only stockholders of record at the close of business on the record date are entitled to receive notice of, and to vote at, the 2013 Annual Meeting. At the close of business on April 5, 2013, there were 32,930,429 outstanding shares of Osiris's common stock. Each share of common stock is entitled to one vote on each matter properly brought before the 2013 Annual Meeting.

What will I vote on?

There are two proposals scheduled to be voted on at the 2013 Annual Meeting:

• the election of two members of our Board of Directors, each to serve for a three-year term expiring at the annual meeting of stockholders to be held in 2016 and until their successors shall be duly elected and qualified; and

• the ratification of the appointment of Grant Thornton LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2013.

How many votes must be present to hold the 2013 Annual Meeting?

A "quorum" is necessary to call the 2013 Annual Meeting to order and transact business. A quorum is established if the holders of a majority of the votes entitled to be cast by stockholders are present at the meeting, either in person or by proxy. Abstentions and broker nonvotes are counted as present for purposes of determining a quorum. Shares of common stock represented by executed proxies received by the Company will be counted for purposes of establishing a quorum at the meeting, regardless of how or whether such shares are voted on any specific proposal.

What are the voting recommendations of Osiris's Board of Directors?

Osiris's Board of Directors recommends that you vote your shares as follows:

- "FOR" the election of each of the two nominees to the Board; and
- **"FOR"** the ratification of the appointment of Grant Thornton LLP as Osiris' independent registered public accounting firm for the fiscal year ending December 31, 2013.

How do I vote?

You may vote in several different ways:

In person at the 2013 Annual Meeting

You may vote in person at the 2013 Annual Meeting. You may also be represented by another person at the meeting by executing a proxy properly designating that person. If you are the beneficial owner of shares held in "street name," you must obtain a legal proxy from your broker, bank or other holder of record and present it to the inspectors of election with your ballot to be able to attend and vote in person at the meeting.

By telephone

Beneficial stockholders may vote by calling the telephone number specified on the Voting Instruction Form. Please have your proxy card handy when you call and use any touch-tone phone to transmit your voting instructions. Record stockholders do not have the option to vote their shares by telephone.

By Internet

You may vote by using the Internet by following the instructions on your Notice of Internet Availability. Beneficial owners may vote their shares using the Internet at www.proxyvote.com to submit your voting instructions. Record stockholders may vote their shares using the Internet at www.pstvote.com/osiris2013 to submit your voting instructions. Please have your proxy card handy when you go online. If you vote on the Internet, you may also request electronic delivery of future proxy materials.

By mail

You may vote by completing, signing, dating and returning a proxy card. A proxy card is available on line at the website provided in the Notice of Internet Availability, and a proxy card will also be mailed to you with a full set of proxy materials upon request. If you did not receive a Notice of Internet Availability, but instead received delivery of a full set of proxy materials, a proxy card is

included with the full set of proxy materials mailed to you. In either case, a postage-paid envelope will be provided along with the proxy card.

Unless in the unlikely event the meeting is adjourned or postponed, in which case the time may be extended, telephone and Internet voting for stockholders of record will be available until 11:59 PM Eastern Time on May 27, 2013, and mailed proxy cards must be received by May 27, 2013 in order to be voted at the Annual Meeting. The availability of telephone and Internet voting for beneficial owners of other shares held in "street name" will depend on your broker, bank or other holder of record and we recommend that you follow the voting instructions on the Notice of Internet Availability that you receive from them.

If you are mailed or otherwise receive or obtain a proxy card or voting instruction card, and you choose to vote by telephone or by Internet, you do not have to return your proxy card or voting instruction card. However, even if you plan to attend the 2013 Annual Meeting, we recommend that you vote your shares in advance so that your vote will be counted if you later decide not to attend the meeting.

How can I change my vote?

If you are a stockholder of record, you may revoke your proxy before it is exercised by:

- Sending a written notice to the Corporate Secretary, Osiris Therapeutics, Inc., 7015 Albert Einstein Drive, Columbia, Maryland 21046, stating that your proxy is revoked. The notice must be received prior to the 2013 Annual Meeting;
- Signing and delivering a later-dated proxy card to the Corporate Secretary after voting by telephone or using the Internet, so that it is received prior to the 2013 Annual Meeting;
- Voting by telephone or using the Internet after the date of your proxy card and before the 2013 Annual Meeting; or
- Attending the 2013 Annual Meeting and voting in person by ballot. Your attendance at the 2013 Annual Meeting in person will not cause your previously granted proxy to be revoked unless you specifically so request or you vote by ballot at the meeting.

If you are a beneficial owner of shares held in "street name", you may submit new proxy voting instructions by contacting your bank, broker or other holder of record.

Who will count the votes?

A stockholder will be appointed at the 2013 Annual Meeting to serve as the Company's inspector of election at the 2013 Annual Meeting and will tabulate the votes.

What is an abstention?

An "abstention" occurs when a stockholder executes a proxy using the Internet, by phone or by returning a proxy card, but he or she refrains from voting as to a particular matter by indicating that he or she "abstains" as to that matter.

What is a broker non-vote?

Broker non-votes occur when a broker, such as a bank holding shares on behalf of beneficial owners, does not receive voting instructions from the beneficial owners at least ten days before the meeting. If that happens, the broker may vote those shares only on matters deemed "routine," such as the ratification of the appointment of the independent registered public accounting firm. On non-routine matters, brokers cannot vote unless they receive voting instructions from beneficial owners,

resulting in the submission by the brokers of proxies indicating so called "broker non-votes." All of the items being considered at the 2013 Annual Meeting, except for the ratification of the appointment of the independent registered public accounting firm, are considered "non-routine" matters.

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

Proposal 1: Election of Director Nominees

A plurality of the votes cast is required to elect a director, assuming the presence of a quorum. The two individuals receiving the most votes will be elected. Abstentions are not counted for purposes of electing directors. You may vote FOR each nominee or WITHHOLD your vote from either or both nominees. Votes that are withheld will not be included in the vote tally for the election of directors. Assuming that only two nominees are proposed for election and at least one vote is cast for each of the nominees, abstentions and broker non-votes will have no effect on the result of the vote.

Proposal 2: Ratify Appointment of Independent Registered Public Accounting Firm

Approval of the proposal to ratify the appointment of Grant Thornton LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2013 requires the affirmative vote of the holders of a majority of the votes cast at the Annual Meeting, assuming the presence of a quorum. Brokers may vote on this proposal on a discretionary basis without direction from stockholders. Abstentions are not considered as votes cast on the matter and thus will have no effect on the results of the vote. We are not required to obtain the approval of our stockholders to select our independent registered public accounting firm. However, if our stockholders do not ratify the appointment of Grant Thornton LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2013, the Audit Committee of our Board of Directors may determine to reconsider the appointment.

Who will bear the costs of soliciting these proxies?

We will pay all of the costs of soliciting these proxies. Our directors and employees may solicit proxies in person or by telephone, fax or email. We will pay these employees and directors no additional compensation for these services. We will ask banks, brokers and other institutions, nominees and fiduciaries to forward these proxy materials to their principals and to obtain authority to execute proxies. We will then reimburse them for their expenses. We do not expect to engage a third party to assist us in the solicitation.

Where can I find the voting results of the 2013 Annual Meeting?

We will announce preliminary voting results at the 2013 Annual Meeting and will publish final results in a Current Report on Form 8-K to be filed with the SEC within four business days of the 2013 Annual Meeting.

How do I obtain a separate Notice of Internet Availability or set of printed proxy materials if I share an address with other stockholders?

When more than one stockholder of record of Osiris's common stock shares the same address, we may deliver only one Notice of Internet Availability or set of printed proxy materials to that address

unless we have received contrary instructions from one or more of those stockholders. Similarly, brokers and other nominees holding shares of Osiris's common stock in "street name" for more than one beneficial owner with the same address may deliver only one Notice of Internet Availability or set of printed proxy materials to that address if they have received consent from those beneficial owners. We will deliver promptly upon written or oral request a separate Notice of Internet Availability or set of printed proxy materials to any stockholder at a shared address to which a single Notice of Internet Availability or set of printed proxy materials was delivered. To receive additional Notices of Internet Availability or sets of printed proxy materials, or if you are a stockholder of record and would like to receive separate Notices of Internet Availability or sets of printed proxy materials for future annual meetings, you may call or write the Corporate Secretary, Osiris Therapeutics, Inc., 7015 Albert Einstein Drive, Columbia, Maryland 21046 (telephone: 443-545-1800). If you are a beneficial owner of shares held in "street name" and would like to receive separate Notices of Internet Availability or sets of printed proxy materials, you may contact your bank, broker or other holder of record. In addition, if you are a stockholder of record who shares the same address with another stockholder of record and you currently receive separate copies of the Notice of Internet Availability or set of printed proxy materials, you may write or call the Office of the Secretary as indicated above to request that a single Notice of Internet Availability or set of printed proxy materials be delivered to that address.

How can I obtain a copy of Osiris's Annual Report on Form 10-K for the year ended December 31, 2012?

Osiris will, upon receipt of a request in writing, provide without charge to each person from whom proxies are being solicited for the 2013 Annual Meeting a copy of our Annual Report on Form 10-K for the year ended December 31, 2012, including the financial statements and any schedules, required to be filed with the Securities and Exchange Commission, excluding exhibits. We may impose a reasonable fee for providing the exhibits to the Form 10-K. Requests should be made to Corporate Secretary, Osiris Therapeutics, Inc., 7015 Albert Einstein Drive, Columbia, MD 21046. Osiris's Annual Report on Form 10-K is also available free of charge through the Investor Relations—SEC Filings link on our website, http://investor.osiris.com/documents.cfm.

PROPOSALS TO BE PRESENTED AT THE ANNUAL MEETING

PROPOSAL NO. 1—ELECTION OF DIRECTOR NOMINEES

The Board currently consists of five members, classified into three classes as follows: Jay M. Moyes and Hans-Georg Klingemann constitute the Class I directors, with a term ending at this Annual Meeting; C. Randal Mills and Felix Gutzwiller constitute the Class II directors, with a term ending at the Annual Meeting to be held in 2014; and Peter Friedli constitutes the Class III director, with a term ending at the Annual Meeting to be held in 2015. In each case, subject to earlier death, resignation, removal or retirement, the directors remain in office until their respective successors are duly elected and qualified, notwithstanding the expiration of the otherwise applicable term.

On February 12, 2013, our Board accepted the recommendation of its Nominating Committee, comprised of independent directors, to nominate Mr. Moyes and Dr. Klingemann for re-election at the Annual Meeting for a term of three years to serve until the 2016 Annual Meeting of Stockholders, and until their successors have been elected and qualified, or until their earlier death, resignation, retirement or removal.

Unless authority to vote for any of these nominees is withheld, the shares represented by a validly executed proxy will be voted **FOR** the election as directors of nominees Mr. Moyes and Dr. Klingemann. In the event that the any nominee should become unable or unwilling to serve, the shares represented by a validly executed proxy will be voted for the election of such other person as the Board may recommend in his place, unless the Board chooses to reduce the number of directors serving on the Board. We have no reason to believe that any nominee will be unable or unwilling to serve as a director.

OUR BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THE ELECTION OF JAY MOYES AND HANS-GEORG KLINGEMANN AS DIRECTORS.

PROPOSAL NO. 2—RATIFICATION OF THE APPOINTMENT OF GRANT THORNTON LLP AS OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE FISCAL YEAR ENDING DECEMBER 31, 2013

Our Board and management are committed to the quality, integrity and transparency of our financial reports. Independent auditors play an important part in our system of financial control. In accordance with the duties set forth in its written charter, the Audit Committee of our Board has appointed Grant Thornton LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2013. A representative of Grant Thornton LLP is expected to attend this year's Annual Meeting, to be available to respond to appropriate questions from stockholders, and to have the opportunity to make a statement if he or she desires to do so.

If the stockholders do not ratify the appointment of Grant Thornton LLP, the audit committee may reconsider its selection, but is not required to do so. Notwithstanding the proposed ratification of the appointment of Grant Thornton LLP by the stockholders, the Audit Committee, in its discretion, may direct the appointment of a new independent registered public accounting firm at any time during the year without notice to, or the consent of, the stockholders, if the Audit Committee determines that such a change would be in the Company's best interests and the best interests of its stockholders.

The Board proposes that the stockholders ratify the appointment of Grant Thornton LLP to serve as our independent registered public accounting firm for our fiscal year ending December 31, 2013, although such ratification is not required under Maryland law or our Charter or By-Laws.

Grant Thornton LLP has served as our independent registered public accounting firm since April 17, 2009 and audited our financial statements for the four years ended December 31, 2012. The audit report of Grant Thornton LLP on the Company's financial statements as of and for the three fiscal years ended December 31, 2012, did not contain any adverse opinion or disclaimer of opinion, nor was such report qualified or modified as to uncertainty, audit scope or accounting principles.

The audit report of Grant Thornton LLP on the effectiveness of internal control over financial reporting as of December 31, 2012, did not contain any adverse opinion or disclaimer of opinion, and was not qualified or modified as to uncertainty, audit scope, or accounting principles.

During the fiscal years ended December 31, 2012, December 31, 2011 and December 31, 2010: (1) the Company had no disagreements with Grant Thornton LLP on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure, which disagreements, if not resolved to the satisfaction of Grant Thornton LLP, would have caused Grant Thornton LLP to make reference to the subject matter of the disagreement in connection with its report; and (2) there have been no "reportable events" (as defined in Regulation S-K Item 304(a)(1)(v)).

Recommendation of the Board of Directors

THE BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THE RATIFICATION OF THE APPOINTMENT OF GRANT THORNTON LLP AS OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE FISCAL YEAR ENDED DECEMBER 31, 2013, AND SUBMITTED PROXIES WILL BE VOTED IN FAVOR OF SUCH RATIFICATION UNLESS A STOCKHOLDER INDICATES OTHERWISE WHEN SUBMITTING ITS PROXY.

STOCKHOLDER PROPOSALS AND NOMINATIONS FOR DIRECTOR

In order to be eligible for inclusion in our proxy materials for next year's Annual Meeting of Stockholders, any stockholder proposal to take action at such meeting must be received at the offices of Osiris Therapeutics, Inc. at 7015 Albert Einstein Drive, Columbia, Maryland 21046, no later than December 9, 2013. Any such proposal shall be subject to the requirements of the proxy rules adopted under the Securities Exchange Act of 1934.

Our By-Laws require advance notice of business to be brought before a stockholders meeting, including nominations of persons for election as directors. Generally, under our By-Laws, to be timely, notice must be received by our Corporate Secretary no later than ninety (90) days prior to the day we released our proxy statement in connection with our previous year's annual meeting (or one hundred twenty (120) days if the business is to be included in our proxy statement, or in the case of stockholder nominations for election of directors); provided, however, that in the event that the date of the annual meeting is changed by more than thirty (30) days from the date of the prior year's annual meeting, notice by the stockholder, to be timely, must be so delivered no later than ninety (90) days prior to the newly announced date that we will mail our proxy statement. Any such notice must include information specified in our By-Laws, including information concerning the nominee or proposal, as the case may be, and information about the stockholder's ownership of our stock.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth certain information with respect to the beneficial ownership of our common stock as of April 5, 2013 for (a) the executive officers named in the Summary Compensation Table on page 24 of this proxy statement, (b) each of our executive officers and directors and director nominees, (c) all of our current directors and executive officers as a group and (d) each stockholder that we know to be the beneficial owner of more than 5% of our common stock. Beneficial ownership is determined in accordance with the rules of the SEC and includes voting or investment power with respect to the securities. We deem shares of common stock that may be acquired by an individual or group within 60 days of April 5, 2013 pursuant to the exercise of options or warrants to be outstanding for the purpose of computing the percentage ownership of such individual or group, but those shares are not deemed to be outstanding for the purpose of computing the percentage ownership of any other person shown in the table. Except as indicated in footnotes to this table, we believe that the stockholders named in this table have sole voting and investment power with respect to all shares of common stock shown to be beneficially owned by them based on information provided to us by these

stockholders. Percentage of ownership is based on 32,930,429 shares of common stock outstanding on April 5, 2013.

	Amount and Nature of Beneficial	Percent of
Name and Address of Beneficial Owners	Ownership	Class(8)
Executive Officers and Directors(1)		
Lode Debrabandere, Ph.D.	145,000(2)	
Peter Friedli	15,232,845(3)	44.9%
Felix Gutzwiller, M.D., Dr.P.H.	77,500	_
Philip R. Jacoby, Jr.	69,125(4)	_
Hans-Georg Klingeman, M.D., Ph.D.	1,250	
C. Randal Mills, Ph.D.	685,000(5)	2.0%
Jay M. Moyes	21,500	_
Michelle LeRoux Williams, Ph.D.	120,750(6)	_
All directors and executive officers as a group (9 persons)	16,352,970	48.4%
Other 5% Stockholders		
Venturetec, Inc.	4,103,301	12.5%
c/o Osiris Therapeutics, Inc.		
7015 Albert Einstein Drive		
Columbia, Maryland 21046		
Thomas Schmidheiny	3,053,267(7)	9.3%
Zurcherstrasse 156		
8645 Jona Switzerland		
BIH SA	2,658,113	8.2%
3 Faubourg de'Hopital		
2000 Neuchatel, Switzerland		

- Mailing address for all directors and officers is c/o Osiris Therapeutics, Inc., 7015 Albert Einstein Drive, Columbia, Maryland 21046.
- (2) Represents 145,000 shares issuable upon exercise of options.
- (3) Consists of 9,626,794 shares owned directly by Peter Friedli & Co., Inc.; 1,000,000 shares issuable upon the exercise of outstanding warrants, assuming the warrants are exercised in full for cash; 500,000 shares owned by Mr. Friedli's minor daughter; 2,750 shares owned by Mr. Friedli's spouse; and 4,103,301 shares owned by Venturetec, Inc. Mr. Friedli is President of Venturetec, Inc. and the 100% beneficial owner and President of Peter Friedli & Co., Inc.
- (4) Consists of 12,500 shares owned directly by Mr. Jacoby and 56,625 shares issuable upon the exercise of options.
- (5) Consists of 122,000 shares owned directly by Dr. Mills; 3,000 shares owned in custodial accounts where Dr. Mills is the custodian; and 560,000 shares issuable upon the exercise of options.
- (6) Represents 120,750 shares issuable upon exercise of options.
- (7) Consists of 395,154 shares owned directly by Mr. Schmidheiny and 2,658,113 shares owned by BIH SA. Mr. Schmidheiny is the Chairman and controlling shareholder of BIH SA.
- (8) Percentage not provided if less than 1%.

MANAGEMENT—Information About the Board of Directors and Committees / Corporate Governance

Board of Directors

Our Charter and By-Laws provide that our business is to be managed by or under the direction of our Board of Directors (the "Board"). Our Board is divided into three classes for purposes of election. One class is elected at each annual meeting of stockholders to serve for a three-year term and until their respective successors are duly elected and qualified.

The members of our Board, as well as their respective committee memberships, are as follows:

			Committee Membership		ership
Name	Age	Positions	Audit	Compensation	Nominating
Peter Friedli		Chairman of the Board of			
	59	Directors			
C. Randal Mills, Ph.D.		President & Chief Executive			
	41	Officer			
Felix Gutzwiller, M.D.,	65	Chairman, Compensation and			
Dr.P.H.		Nominating Committees	X	X	X
Jay M. Moyes	59	Chairman, Audit Committee	X		X
Hans-Georg					
Klingemann, M.D.,					
Ph.D.	63	Director	X	X	X

Our Board currently consists of five members, classified into three classes as follows: Jay M. Moyes and Hans-Georg Klingemann, M.D., Ph.D. constitute a class with a term ending at this Annual Meeting (the "Class I directors"); C. Randal Mills, Ph.D., and Felix Gutzwiller, M.D., Dr.P.H. constitute a class with a term ending at the Annual Meeting to be held in 2014 (the "Class II directors"); and Peter Friedli constitutes a class with a term ending at the Annual Meeting to be held in 2015 (the "Class III director"). In each case, the directors remain in office notwithstanding the expiration of the otherwise applicable term, until their respective successors have been duly elected and qualified, or until their earlier death, resignation, retirement or removal.

On February 12, 2013, our Nominating Committee and Board, upon the recommendation and with the approval of our independent directors, determined to nominate Mr. Moyes and Dr. Klingemann for re-election at the Annual Meeting for terms of three years to serve until the 2016 Annual Meeting of Stockholders, and until their successors have been elected and qualified, or until earlier death, resignation, retirement or removal.

Set forth below are the names of the persons nominated as directors and directors whose terms do not expire this year, their ages, the officer positions held by them at Osiris, if any, their principal occupations or employment for at least the past five years, the length of their tenure as directors and the names of other public companies in which such persons hold directorships:

Peter Friedli, age 59, is our Chairman of the Board and was co-founder of Osiris. Mr. Friedli has been a director of Osiris since January 1996, except for the period between February and June 2004. Since 1986, he has been a principal of the investment-banking firm Friedli Corporate Finance, Inc., a leading Swiss venture capital firm which has made significant investments in the biotechnology industry and has been the primary source of financing for Osiris. Mr. Friedli is also the President and a director of New Venturetec Ltd., a Swiss publicly traded investment company. Mr. Friedli has extensive experience as an independent investment manager in venture capital and has specialized in investments domiciled in the United States in the areas of biotechnology and technology. Previously, he worked in the field of international management consulting for service and industrial companies in Europe and the United States. He serves as a director in certain private companies. Mr. Friedli's business experience and service on the boards of other companies and organizations, and particularly his

longtime commitment to Osiris and extensive experience in finance, enable him to contribute extensively to the work of the Osiris board.

C. Randal Mills, Ph.D., age 41, is our President and Chief Executive Officer and joined us in this capacity in May 2004. Dr. Mills has also been a member of our Board since May 2004. Prior to joining Osiris, Dr. Mills was an executive officer of RTI Biologics, Inc. ("RTI"). Dr. Mills served in several leadership positions at RTI from its formation in 1998 until 2004, including Vice President of Business Development and Vice President of Operations and R&D. Prior to RTI, Dr. Mills was a member of the founding management team of the University of Florida Tissue Bank, Inc., the predecessor company to RTI. Dr. Mills received a bachelor's degree in microbiology and cell science and a Ph.D. in drug development, both from the University of Florida. Dr. Mills' leadership and management experience, as well as his day-to-day service as Chief Executive Officer and technical expertise, make him a valued member of the Osiris board.

Felix Gutzwiller, M.D., Dr.P.H., age 65, has been a member of our Board since 2003, and is Professor and Chairman of the Department of Public Health of the University of Zurich Medical School. Dr. Gutzwiller is also an elected member of the Swiss Parliament. Dr. Gutzwiller received a medical degree from the University of Basel in 1974 and did his post-graduate training at both Harvard University and Johns Hopkins University. He received his Dr.P.H. from the Johns Hopkins University School of Hygiene and Public Health in 1980. Dr. Gutzwiller has received many honors and awards over the years in the health profession. Dr. Gutzwiller's extensive experience across the full spectrum of the health sciences field is of significant value to the Osiris board. Dr. Gutzwiller makes important contributions as chairman of the Nominating and Compensation Committees, including its evaluation of the performance and compensation of Osiris's management team.

Jay M. Moyes, age 59, has been a member of our Board since the completion of our initial public offering in August 2006. From May 2008 through July 2009, Mr. Moyes served as the Chief Financial Officer of XDx, Inc. Prior to that, Mr. Moyes has served as the Chief Financial Officer of Myriad Genetics, Inc. from June 1996 until his retirement in November 2007, and served as Myriad's Vice President of Finance from July 1993 until July 2005. From 1991 to 1993, Mr. Moyes served as Vice President of Finance and Chief Financial Officer of Genmark, Inc. Mr. Moyes held various positions with the accounting firm of KPMG LLP from 1979 through 1991, most recently as a Senior Manager. He holds an M.B.A. degree from the University of Utah, a B.A. degree in economics from Weber State University, and is formerly a Certified Public Accountant. Mr. Moyes has also served as a member of the Board of Trustees of the Utah Life Science Association from 1999 through 2006. In April 2012, Mr. Moyes joined the Board of Directors of Puma Biotechnology, Inc.(NYSE: PBYI), where he serves as the Chairman of the Compensation and Corporate Governance Committees and is a member of the Audit Committee. Mr. Moyes' extensive background in finance and accounting in the context of the life sciences industry enables him to make significant contributions to our Board in general, and particularly to the Audit Committee.

Hans-Georg Klingemann, M.D., Ph.D., age 63, elected to the Board of Directors in 2012, is the former Director of the Bone Marrow and Stem Cell Transplant Program at Tufts Medical Center in Boston where he maintains a professorship at the University. Before coming to Boston, Dr. Klingemann served as Director of Bone Marrow Transplant and Cell Therapy at Rush University Medical Center, and founding Director of the Sramek Center for Cell Engineering in Chicago, Illinois. He has worked as a physician, scientist, educator and administrator in leadership positions for over twenty years at various academic medical centers in Europe and North America and has authored over 170 scientific and medical papers. Recently he was appointed Chief Medical and Scientific Officer of Conkwest Inc. the cell therapy company he founded in 2002. Dr. Klingemann received his M.D. from the University of Würzburg Medical School, Germany, and his Ph.D. from the University of Marburg, Germany. Dr. Klingemann serves as a member on the Audit, Compensation and Nominating Committee.

Our Board has determined that the following members of the Board qualify as "independent" under the definition promulgated by The NASDAQ Stock Market, Inc: Mr. Moyes, Dr. Gutzwiller and Dr. Klingemann. Furthermore, our Board has determined that none of the members of the three standing committees of the Board has any material relationship with us (either directly or as a partner, stockholder or officer of an organization that has a relationship with us), and therefore, each committee is "independent" within the meaning of our independence standards.

Board Leadership Structure

Our Corporate Governance Principles, which can be found on the Investor Relations—Corporate Governance section of our website at http://investor.osiris.com/documents.cfm, describe our policies concerning, among other things, the role of the Board and management, proper Board functions, independence, and committee matters. The positions of Chairman of the Board and Chief Executive Officer are currently held by different persons, although we do not have a policy requiring that to be the case. Instead, our Board has the authority to choose its Chairman in any way it deems best for us at any given point in time. Accordingly, our Board reserves the right to vest the responsibilities of the Chief Executive Officer and Chairman in the same person or in two different individuals depending on what it believes is in our best interest. At this time, our Board has determined that separation of these roles most appropriately suits us. Mr. Friedli is uniquely qualified to serve as our Chairman given his historical leadership of our Board, his long history with us, and his skills and experience in the biotechnology industry and in matters of corporate finance. Further, our Board believes that this division of roles allows Dr. Mills to focus more of his efforts toward the management of our business. Our Board believes that there is no single leadership structure that would be most effective in all circumstances and, therefore, retains the authority to modify our Board's structure to best address our circumstances as and when appropriate.

Board's Role in Risk Oversight

At the direction of our Board of Directors, we have instituted an enterprise-wide risk management system to assess, monitor and mitigate risks that arise in the course of our business. The Board has determined that the Board of Directors as a whole, and not a separate committee, will oversee the Company's risk management process. Each of our Board Committees has historically focused on specific risks within their areas of responsibility, but the Board believes that the overall enterprise risk management process is more properly overseen by all of the members of the Board. Our Audit Committee is primarily responsible to the Board in the planning, assessment and reporting of our risk profile. At this stage in the implementation of our risk management system, the Board reviews the status of the implementation of the process and findings at every regularly scheduled Board meeting.

Committees of the Board of Directors and Meetings

As described below, our Board has an Audit Committee, a Compensation Committee and a Nominating Committee.

Meeting Attendance. During the year ended December 31, 2012, there were five meetings of the Board, and the various committees of the Board met a total of seven times. During 2012, no then-incumbent director attended fewer than 75% of the total number of meetings of the Board and committees on which the director served. We do not have a policy on director attendance at Annual Meetings, but all of our directors are invited and encouraged to attend Annual Meetings. Four directors attended last year's annual meeting.

Audit Committee. Our Audit Committee met four times during 2012. This committee currently has three members, Mr. Moyes (Chairman), Dr. Gutzwiller and Dr. Klingemann. Our Audit Committee has the authority to retain and terminate the services of our independent registered public accounting

firm, reviews quarterly and annual financial statements, considers matters relating to accounting policy and internal controls and reviews the scope of annual audits. All members of the Audit Committee satisfy the current independence standards promulgated by the Securities and Exchange Commission and by the NASDAQ Marketplace Rules, as such standards apply specifically to members of audit committees. The Board has determined that Mr. Moyes is an "audit committee financial expert," as defined by the rules and regulations of the SEC. None of the members of the Audit Committee have participated in the preparation of any of our financial statements at any time during the last three fiscal years. Please also see the report of the Audit Committee set forth on page 28 of this proxy statement.

Compensation Committee. Our Compensation Committee met one time during 2012. This committee currently has two members, Dr. Gutzwiller (Chairman) and Dr. Klingemann. Our Compensation Committee administers our stock plans and reviews, approves and makes recommendations on our compensation policies, practices and procedures to ensure that legal and fiduciary responsibilities of the Board are carried out and that such policies, practices and procedures contribute to our success. The Compensation Committee is also responsible for recommending to the independent members of our Board the compensation of our Chief Executive Officer and our other officers, and conducts its decision-making process with respect to that issue without the Chief Executive Officer present. All members of the Compensation Committee qualify as "independent" under the definition promulgated by the NASDAQ Marketplace Rules. Please also see the report of the Compensation Committee set forth on page 23 of this proxy statement. Our Compensation may delegate authority to our President and Chief Executive Officer with regard to select compensation matters, but that delegation has generally been limited. Our Compensation Committee has not to date used compensation consultants in making compensation decisions.

Nominating Committee. Our Nominating Committee met two times during 2012. This committee currently has three members, Dr. Gutzwiller (Chairman), Mr. Moyes and Dr. Klingemann. Our Nominating Committee is responsible for developing and implementing policies and procedures that are intended to assure that the Board will be appropriately constituted and organized to meet its fiduciary obligations to the company and the shareholders on an ongoing basis. All members of the Compensation Committee qualify as "independent" under the definition promulgated by the NASDAQ Marketplace Rules.

The foregoing summary of our corporate governance policies is qualified in its entirety and subject to the terms of such policies as modified by the Board from time to time. The following corporate governance documents are publicly available on the Investor Relations—Corporate Governance section of our website at http://investor.osiris.com/documents.cfm:

- Corporate Governance Principles
- Corporate Code of Conduct
- Audit Committee Charter
- Compensation Committee Charter
- Nominating Committee Charter
- Code of Business Conduct and Ethics for Members of the Board of Directors and Executive Officers
- Insider Trading Policy

Compensation Committee Interlocks and Insider Participation. No member of the compensation committee who served on the compensation committee in 2012 (Dr. Gutzwiller (Chairman) and Dr. Klingemann) was an officer or employee of the Company during 2012, was formerly an officer of the registrant, or had any relationships requiring disclosure by the Company under the SEC's rules

regarding certain relationships and related party transactions. None of our executive officers served as a member of the compensation committee (or other board committee performing similar functions or, in the absence of such committee, the entire board) of another corporation where one of the executive officers of the other corporation served on our compensation committee or as one of our directors. None of our executive officers served as a director of another corporation, where one of the executive officers of the other corporation served on our compensation committee.

Director Nominations

Our Nominating Committee follows the Corporate Governance Principles initially adopted by our Board of Directors on July 19, 2006, which provide for the nomination of persons to serve on our Board upon the approval of a majority of our independent directors. The qualifications of recommended candidates will also be reviewed and approved by the full Board. Our Board, through the adoption of the Corporate Governance Principles, has indicated its preference for this approach, which allows all of our Board members to contribute more readily to the nomination process. Stockholders may recommend director candidates for inclusion by the Board in the slate of nominees recommended to stockholders for election as described below.

The process followed by our Nominating Committee and Board and independent directors to identify and evaluate potential candidates includes requests to board members and others for recommendations, meetings from time to time to evaluate biographical information and background material relating to potential candidates and interviews of selected candidates by independent directors and the Board. In considering whether to recommend any candidate for inclusion in the Board's slate of recommended director nominees, the Board and the independent directors apply the standards established for service on the Board in the Corporate Governance Principles, as follows: directors should possess the highest personal and professional ethics, integrity and values, and be committed to representing the long-term interests of the stockholders; they must also have an inquisitive and objective perspective, practical wisdom and mature judgment; the selection of director nominees should further an objective of having a board representing diverse experience at policy-making levels in business, government, education and technology, and in areas that are relevant to our global activities; directors must be willing to devote sufficient time to carrying out their duties and responsibilities effectively, and should be committed to serve on the Board for an extended period of time; and directors should offer their resignation in the event of any significant changes in their personal circumstances, including a change in their principal job responsibilities. The Board does not believe that arbitrary term limits on directors' service are appropriate, nor does it believe that directors should expect to be re-nominated annually. The Board and the independent directors do not assign specific weights to particular criteria and no particular criterion is necessarily applicable to all prospective nominees. Although we do not have a specific policy with respect to the nomination of directors by stockholders, nominations made by stockholders will be considered. To have a candidate considered by the Nominating Committee, a stockholder must submit the recommendation in writing and must include the name of the stockholder and evidence of the person's ownership of Company stock, including the number of shares owned and the length of time of ownership, and the name of the candidate, the candidate's resume or a listing of his or her qualifications to be a director of the Company and the person's consent to be named as a director if selected and nominated. The shareholder recommendation and information must be sent to the Corporate Secretary at 7015 Albert Einstein Drive, Columbia, Maryland 21046. Once a potential candidate has been identified, the Nominating Committee may collect and review information regarding the candidate to assess whether the person should be considered further. If the Nominating Committee determines that the candidate warrants further consideration, personal contact with the candidate may be made and further review of the candidate's accomplishments, qualifications and willingness to serve may be undertaken and compared to other candidates. The Nominating Committee's evaluation process does not vary based on whether or not a candidate is recommended by a stockholder, although, as stated above, the Board may

take into consideration other factors, such as the number of shares held by the recommending shareholder and the length of time that such shares have been held. We believe that it is not necessary to have a policy for director nominations by stockholders because the Board, including the independent directors, is able to effectively locate and evaluate potential candidates for nomination to the Board due to the directors' intimate knowledge of our business and the life science industry. Stockholders may communicate directly with the Board by written communication as described below.

The Board does not have a specific policy with regard to the consideration of diversity in identifying director nominees, although our Board's policies on director qualifications emphasize the Company's commitment to diversity at the Board level—diversity not only of sex, sexual orientation, race, religion or national origin, but also diversity of experience, expertise and training. As a company, we are committed to creating and sustaining a culture of inclusion and fairness. We believe diversity is important to our success in many ways, including the recruitment and retention of top talent.

Stockholder Communications to the Board

Generally, stockholders who have questions or concerns should contact our Investor Relations department at (443) 545-1800. However, any stockholder who wishes to address questions regarding our business directly to the Board, or any individual director, may do so by sending a written communication addressed to: Corporate Secretary, 7015 Albert Einstein Drive, Columbia, Maryland 21046. All such communications will be compiled by the Corporate Secretary and submitted to the Board or the individual director so designated on a periodic basis. The Board has instructed the Corporate Secretary, prior to forwarding any correspondence, to review such correspondence and, in his discretion, not to forward items if they are deemed of a commercial, irrelevant or frivolous nature or otherwise inappropriate for consideration by the Board. These screening procedures are designed to assist the Board in reviewing and responding to stockholder communications in an appropriate manner. All communications directed to the Audit Committee in accordance with the procedures set forth in this paragraph that relate to questionable accounting or auditing matters will be forwarded promptly and directly to the Chairman (or another member) of the Audit Committee.

Compensation of Directors

All directors are reimbursed for their out-of-pocket expenses incurred in attending meetings. Each director who is not an employee is eligible to receive compensation from us for his or her services as a member of our Board or any of its standing committees. Director compensation is determined by the Compensation Committee, subject sometimes to approval by the Board as a whole. In determining compensation for directors, the Compensation Committee's decision is generally guided by three goals: compensation should fairly pay the directors for work required of directors of a company of our size and scope; compensation should align directors' interests with the long-term interests of stockholders; and the structure of the compensation should be simple, transparent and easy for stockholders to understand. Consistent with these goals, in 2012, our non-employee directors received a retainer in the form of an award of 2,500 shares of our common stock plus an additional common stock award of up to 7,500 shares based on Board participation and performance. Directors were provided the option to receive all or a portion of their award in cash or shares.

The following table summarizes compensation paid to our non-employee directors during 2012.

Director Compensation

Name	Fees Earned or Paid in Cash(\$)	Stock Awards(\$)(1)	Option Awards(\$)	All Other Compensation(\$)	Total(\$)
Gregory H. Barnhill(2)	_	25,400		_	25,400
Peter Friedli	_	50,800	_	_	50,800
Felix Gutzwiller	15,240	35,560	_	_	50,800
Jay M. Moyes	10,160	15,240		_	25,400

- (1) Reflects the grant of awards in March 2012 under our Amended and Restated 2006 Omnibus Plan for 10,000 shares of common stock to Mr. Friedli, 10,000 shares of common stock to Dr. Felix Gutzwiller (\$15,240 of which was paid in cash) and 5,000 shares of common stock to each of Messrs. Barnhill and Moyes (\$10,160 of which was paid in cash to Mr. Moyes) for their service on our Board in 2011. The fair value of these shares at the time of grant was \$5.08 per share and the directors were provided the option of receiving their award in shares, cash or a combination of cash and shares.
- (2) Mr. Barnhill died in September 2012 and Dr. Klingemann was nominated and elected to serve the remaining unexpired term

Options granted during 2012 to any named executive officers serving on the Board are reported under "Executive Compensation—Option Grants in Last Fiscal Year."

Executive Officers

The following discussion sets forth certain information regarding our executive officers. Additional biographical information for C. Randal Mills, Ph.D. appears above under "Management—Board of Directors."

Name	Age	Positions	Employment Date
C. Randal Mills, Ph.D.	41	President and Chief Executive Officer	May 2004
Philip R. Jacoby, Jr.	60	Chief Financial Officer, Treasurer and Secretary	October 2005
Lode Debrabandere, Ph.D.	48	Chief Operating Officer	July 2006
Michelle LeRoux Williams, Ph.D.	38	Chief Scientific Officer	October 2001

Philip R. Jacoby, Jr., age 60, is our Chief Financial Officer (since July 2009), Treasurer (since May 2010) and Corporate Secretary (since November 2007). Mr. Jacoby joined us in a consulting capacity in April 2005 and became our employee in October 2005. Mr. Jacoby previously served as our Vice President of Finance, Corporate Controller and Chief Accounting Officer. From 1999 to 2004, Mr. Jacoby served as Vice President and Corporate Controller for FTI Consulting, Inc., a global business financial and economic consulting firm. Mr. Jacoby began his career with Arthur Andersen & Co. and earned his undergraduate degree in business and public administration from the University of Maryland.

Lode Debrabandere, Ph.D., age 48, was promoted to be our Chief Operating Officer in 2012. He previously served as our Senior Vice President, Therapeutics and joined us in July 2006. Prior to joining us, Dr. Debrabandere served for over four years with Bristol-Myers Squibb as Vice President for Strategic Marketing for Neuroscience and Infectious Diseases. Prior to that, Dr. Debrabandere led the Marketing department of UCB Pharma Inc., focusing in the areas of allergy/respiratory and neurology

and before that held various positions in the Research and Development Department at UCB Pharma, including the management of clinical development activities in the U.S., Europe, and Japan. Dr. Debrabandere earned an M.B.A., a Ph.D. in pharmaceutical sciences, toxicology, and a Pharm. D. degree in pharmaceutical sciences, all from the University of Leuven, Belgium.

Michelle LeRoux Williams, Ph.D., age 38, is our Chief Scientific Officer and joined us in October 2001. Dr. Williams previously served as our Director of Orthopedics and in that role was responsible for the development of Osteocel from initial concept through market launch. Prior to joining us, Dr. Williams completed an NIH postdoctoral fellowship in tissue engineering at Columbia University, evaluating cellular constructs for the repair and regeneration of cartilage in arthritis patients. Dr. Williams earned a bachelor's degree in mechanical engineering from Rice University and a Ph.D. in biomedical engineering from Duke University.

Codes of Conduct and Ethics

We have adopted a Corporate Code of Conduct that applies to all of our employees, including our chief executive officer and chief financial and accounting officers, and every member of our Board. We have also adopted a Code of Business Conduct and Ethics for Members of the Board of Directors and Executive Officers. Copies of these documents are publicly available on the Investors Relations—Corporate Governance section of our website at http://investor.osiris.com/documents.cfm. Disclosure regarding any amendments to, or waivers from, provisions of our Corporate Code of Conduct or our Code of Business Conduct and Ethics for Members of the Board of Directors and Executive Officers that apply to our directors and principal executive and financial officers will be included in a Current Report on Form 8-K within four business days following the date of the amendment or waiver, unless website posting of such amendments or waivers is then permitted by the rules of The NASDAQ Stock Market, Inc.

EXECUTIVE COMPENSATION

Compensation Discussion and Analysis

Overview

The Compensation Committee of the Board is composed entirely of independent directors as such term is defined by the rules of The NASDAQ Stock Market, Inc. The Compensation Committee, which consists of Dr. Felix Gutzwiller (Chairman) and Dr. Han Kligemann, is responsible for establishing and administering our executive compensation policies. This Compensation Discussion and Analysis addresses the material elements of compensation of our named executive officers.

General Compensation Policy

The objectives of our executive compensation programs are to:

- Provide a competitive compensation package that will attract and retain superior talent and reward performance.
- Support the achievement of desired company performance.
- Align the interests of executives with the long-term interests of stockholders through award opportunities that can result in
 ownership of common stock, thereby encouraging the achievement of superior results over an extended period.

The executive compensation programs are designed to promote the attraction, performance and retention of executives. The Compensation Committee reviews the allocation of compensation components regularly to help ensure alignment with strategic and operating goals, competitive market practices and legislative changes. The Compensation Committee does not apply a specific formula to determine the allocation between cash and non cash forms of compensation. Certain compensation components, such as base salaries, benefits and perquisites, are intended primarily to attract and retain qualified executives. Other compensation elements, such as annual and long-term incentive opportunities, are designed to motivate and reward performance. The annual incentive motivates named executive officers to achieve specific operating objectives for the fiscal year. Long-term incentives are intended to reward long-term Company performance and achievement of specific financial goals and to strongly align named executive officers' interest with those of stockholders.

Elements of Executive Officer Compensation

Our executive officer compensation program is comprised of: (i) base salary, which is set on an annual basis; (ii) annual incentive bonuses, which are based on overall company performance and the achievement of individual excellence; and (iii) long-term incentive compensation in the form of periodic stock option or share equity grants, with the objective of aligning the executive officers' long-term interests with those of the stockholders and encouraging the achievement of superior results over an extended period.

The Compensation Committee performs annual reviews of executive compensation to confirm the competitiveness of the overall executive compensation packages as compared with the members' understanding of the compensation packages of companies who compete with us to attract and retain employees. The Compensation Committee does not employ a third party compensation consultant, nor does it benchmark in any formal manner against the compensation practices of others.

In considering compensation of executives, one of the factors the Compensation Committee takes into account is the anticipated tax treatment of various components of compensation. We do not believe Section 162(m) of the Internal Revenue Code of 1986, as amended (the "Code"), which generally disallows a tax deduction for certain compensation in excess of \$1 million to any of our named executive officers, will have a material effect on us. The Compensation Committee has considered the requirements of Section 162(m) of the Code and its related regulations. It is the Compensation Committee's present policy to consider measures to preserve the full deductibility of executive compensation, to the extent consistent with its other compensation objectives.

Opportunity for Shareholder Feedback

The Compensation Committee carefully considers feedback from our shareholders regarding our executive compensation program. The advisory vote on our overall executive compensation policies and procedures that we instituted in 2011 provides shareholders with an opportunity to communicate their views on our executive compensation program on a regular basis.

At our 2011 shareholders meeting, we provided our shareholders with the opportunity to cast an advisory vote on executive compensation. Over 86% of the votes cast on this "2011 say-on-pay vote" were voted in favor of the proposal. We have considered the 2011 say-on-pay vote and we believe that overwhelming support from our shareholders for the 2011 say-on-pay vote proposal indicates that our shareholders are supportive of our approach to executive compensation. Thus we have not made any material changes to our executive compensation arrangements in response to the 2011 say-on-pay vote. At our 2011 shareholders meeting, our shareholders also voted in favor of the proposal to hold say-on-pay votes every third year. In the future, we will continue to consider the outcome of our say-on-pay votes when making compensation decisions regarding the named executive officers.

Risk Considerations in Compensation Decisions

The Compensation Committee believes that payment for performance is an important part of its compensation philosophy, but recognizes the risk that incentivizing specific measures of performance may pose to the performance of Osiris as a whole if personnel were to act in ways designed primarily to maximize their compensation. Our Compensation Committee engages in ongoing and active discussion with management regarding our progress in the pursuit of our overall corporate objectives and the contributions made by members of our management team and our employees. Through this process, and given our relative size and number of employees, our Compensation Committee is able to develop an understanding of the issues of importance relative to its duties and responsibilities, including in matters of risk management associated with our compensation programs. On an annual basis, typically in February, the Compensation Committee meets both with and without management present, and considers annual compensation issues, including salary adjustments, bonus amounts and equity compensation awards. One of the issues considered at that meeting is the mix of compensation to be paid or awarded to management and our employees, and the implication of that mix and specific compensation elements on risk. The Compensation Committee considers whether our compensation programs and practices reward reasonable, without encouraging unreasonable, risk-taking and whether the incentive opportunities achieve the proper balance between the need to reward employees for our overall success and the need to protect the company. While our compensation program is in part performance-based, our Compensation Committee does not believe that it encourages excessive risk-taking.

The Compensation Committee believes that in a company of our size, an approach of ongoing and active discussion with management regarding progress on short-term and long-term goals enables informed decisions while avoiding the risks sometimes associated with managing short-term results to achieve pre-determined formulaic outcomes. We believe that our compensation program provides appropriate incentives to create long-term value for stockholders while taking thoughtful and prudent risks to grow the value of the Company. Accordingly, our Compensation Committee has determined that our compensation policies and practices do not create risks that are reasonably likely to have a material adverse effect on us.

Management's Role in Determining Executive Compensation

The Compensation Committee approves the final determination of compensation for all the executive officers. Our Chief Executive Officer provides our Compensation Committee with recommendations regarding compensation for the other named executive officers. Our Compensation Committee reviews such recommendations and approves annual compensation for named executive officers, consisting of base salary and any annual cash incentive (discussed below), on an annual basis. Our Compensation Committee may request additional information and analysis and ultimately determines in its discretion, based on its own analysis and judgment and the recommendations of the Chief Executive Officer, whether to approve any recommended changes in compensation.

Base Salary

The Compensation Committee reviews base salary levels for our executive officers on an annual basis. Base salaries are set competitively relative to the understanding of the Compensation Committee of the compensation practices of other companies in the biotechnology industry and other comparable companies. In determining salaries, the Compensation Committee also takes into consideration individual experience and performance, and seeks to compare the salaries paid by companies similar in size and stage of development. Within this comparison group, we seek to make comparisons to executives at a comparable level of experience, who have a comparable level of responsibility and expected level of contribution to their company. In setting base salaries, the Compensation Committee also takes into account the intense level of competition among biotechnology companies to attract

talented personnel. The Compensation Committee does not, however, employ a third party compensation consultant, nor does it benchmark in any formal manner against the compensation practices of others.

Our goal is to pay each named executive officer a base salary sufficient to remain competitive in the market. On February 12, 2013, the Compensation Committee of the Board approved the 2013 annual base salaries for each of the named executive officers, effective March 1, 2013 as follows:

Name	Position(s)	2013 Base Salary	2012 Base Salary
C. Randal Mills, Ph.D.	President and Chief Executive Officer	\$ 470,000	\$ 470,000
Philip R. Jacoby, Jr.	Chief Financial Officer, Treasurer and Secretary	210,000	194,000
Lode Debrabandere, Ph.D.	Chief Operating Officer	320,000	294,000
Michelle LeRoux Williams, Ph.D.	Chief Scientific Officer	280,000	273,000
Stephen W. Potter	Former Senior Vice President	_	281,000

Stephen Potter resigned in November 2012.

We believe the 2013 base salaries for Dr. Mills, Mr. Jacoby, and Drs. Debrabandere and Williams are consistent with the range of salaries received by their respective counterparts in companies in the biotechnology industry and other comparable companies.

Annual Incentive Bonuses

Our overriding objective, and the objective of our executive officers, during calendar year 2012 was to advance our clinical and regulatory programs, to obtain regulatory approval for our biological drug candidates and to further the commercial launch of our Biosurgery products. Our product development programs are based on novel technologies. As a result, the development and commercialization pathway for our therapies, and therefore how we define elements of our overall success, is subject to greater variability, as compared to traditional drug development companies, and even more so, as compared to more traditional businesses.

Given this variability, and the overall nature of our business, the determination of annual bonuses for our executives remains discretionary. For these purposes, we did not establish individual performance metrics as objectives for the year ending December 31, 2012, but instead reviewed the performance of our executives following the close of the fiscal year and evaluated the contributions of each to our progress over the preceding calendar year.

These evaluations were subjective and retrospective and focused on a number of factors, including individual tasks accomplished, teamwork, leadership, and inventiveness and creativity in the area of the individual's scope of responsibility. We evaluated the progress of the development and commercialization of our Biosurgery products. We also evaluated the overall progress of the Company in advancing our clinical and regulatory programs and obtaining regulatory approval of our biological drug candidates, and the extent to which the Company had met clinical trial objectives, including initial patient dosing, completion of clinical trial enrollment, receipt and processing of clinical trial data, the success of our interactions with the FDA, including BLA submissions and success in the procurement of Orphan Drug and Fast Track designation, and whether other objectives, such as patent filings and maintenance of minimum cash on hand, were met. None of these individual factors or company objectives were weighted, nor was there any identifiable direct correlation between any one factor or objective and the bonus determination for any executive. Our Compensation committee evaluated the mix of individual and company information, together with other or additional information available to it or known to its members, and exercised its discretion in establishing annual bonus amounts.

The Compensation Committee believes Dr. Mills has managed Osiris well in a challenging business climate and has continued to move it towards its long-term objectives. Consistent with this assessment and the factors described above, Dr. Mills was awarded a bonus of \$120,000 for the year ending December 31, 2012. The range of bonuses paid to our named executive officers on the basis of 2012 performance was \$20,000 to \$120,000.

Exercise of Discretion in Executive Compensation Decisions

Subject to the terms of any binding agreements that provide otherwise, the Compensation Committee has complete discretion to withhold payment pursuant to any of our incentive compensation plans irrespective of whether we or our executive officers have successfully met any goals set under these plans. The Compensation Committee also typically has the authority to grant payment under any of the plans despite the non-attainment by us or our executive officers of any pre-established goals. For 2012, the Compensation Committee did not exercise such discretion in the payment of awards to our executive officers.

Long-term Incentive Compensation

Long-term incentive compensation, including stock options, allows the executive officers to share in any appreciation in the value of our common stock. The Compensation Committee believes that stock option participation aligns executive officers' interests with those of the stockholders. The amounts of the awards are designed to reward past performance and create incentives to meet long-term objectives. Awards are made at a level calculated to be competitive within the biotechnology industry, as well as a broader group of companies of comparable size and complexity. In determining the amount of each grant, the Compensation Committee takes into account the number of shares held by the executive prior to the grant.

- We granted stock options to Dr. Mills to purchase 25,000 shares at the exercise price of \$5.08 in 2012. Subsequently, Dr. Mills declined acceptance of the award, electing instead to allocate these options for the purpose of increasing the option pool available for disbursement to the general employees of the Company. This arrangement was approved by the Compensation Committee and the 25,000 options have been reallocated to employees. We also granted stock options to Dr. Mills to purchase 40,000 shares at the exercise price of \$7.13 in 2011, 40,000 shares at the exercise price of \$7.74 in 2010, 50,000 shares at the exercise price of \$18.60 per share in 2009, 100,000 shares at the exercise price of \$12.01 per share in 2008 and 100,000 shares at the exercise price of \$23.62 per share in 2007.
- We granted stock options to Mr. Jacoby to purchase 20,000 shares at the exercise price of \$5.08 in 2012, 20,000 shares at the exercise price of \$7.13 in 2011, 20,000 shares at the exercise price of \$7.74 and 7,500 shares at the exercise price of \$6.46 in 2010, 10,000 shares at the exercise price of \$18.60 per share in 2009 and 10,000 shares at the exercise price of \$17.10 per share in 2008 upon his appointment as an executive officer.
- We granted stock options to Dr. Debrabandere to purchase 25,000 shares at the exercise price of \$5.08 in 2012, 25,000 shares at the exercise price of \$7.13 in 2011, 25,000 shares at the exercise price of \$7.74 and 15,000 shares at the exercise price of \$6.46 in 2010, 35,000 shares at the exercise price of \$18.60 per share in 2009, 15,000 shares at the exercise price of \$12.01 in 2008 and 15,000 shares at the exercise price of \$23.62 in 2007.
- We granted stock options to Dr. Williams to purchase 25,000 shares at the exercise price of \$5.08 in 2012, 25,000 shares at the exercise price of \$7.13 in 2011, 25,000 shares at the exercise price of \$7.74 and 15,000 shares at the exercise price of \$6.46 in 2010, 25,000 shares at the exercise price of \$18.60 per share in 2009, 20,000 shares at the exercise price of \$12.01 in 2008 and 20,000 shares at the exercise price of \$14.19 in 2007 upon her appointment as an executive officer.

These option awards are designed to align the interests of the named executive officers with those of Osiris' stockholders with respect to short-term operating results and long-term increases in the price of Osiris' stock, and are consistent with the goals of our long-term incentive compensation program as a whole.

Executive Benefits and Perquisites

Our executive compensation program remains relatively free of executive benefits and perquisites. Generally, benefits and perquisites available to executive officers are available to all employees on similar terms and include health and welfare benefits, paid time-off, etc.

We do not provide our executive officers separate dining or other facilities, company cars, club dues, or other similar perquisites. We provide air travel for executive officers for business purposes only. Our health care, insurance, 401(k) plan, and other welfare and employee-benefit programs are the same for all eligible employees, including the named executive officers. In certain situations, we have provided named executive officers with expense reimbursement relating to relocation.

We provide the above-described executive benefits and perquisites in order to attract and retain our named executive officers by offering compensation opportunities that are competitive with those offered by similarly situated public companies. However, such executive benefits and perquisites represent a relatively small portion of their total compensation. The value of benefits and perquisites provided are presented in the "All Other Compensation" column (and described in the related footnotes) of the Summary Compensation Table.

Retirement/Post-Employment Benefits

The Company does not provide any retirement programs, pension benefits or deferred compensation plans to its named executive officers other than its 401(k) plan, which is available to all employees. The Company has not made any contributions to the 401(k) plan since its inception.

Compensation Committee Report

The Compensation Committee has reviewed and discussed the foregoing Compensation Discussion and Analysis required by Item 402(b) of Regulation S-K with management and, based on such review and discussions, the Compensation Committee recommended to our Board that the Compensation Discussion and Analysis be included in this proxy statement.

Compensation Committee Members:

Felix Gutzwiller, M.D., Dr.P.H., Chairman Hans Klingemann, M.D., Ph.D.

This Compensation Committee Report shall not be deemed incorporated by reference by any general statement incorporating by reference this proxy statement into any filing under the Securities Act of 1933 or under the Securities Exchange Act of 1934, except to the extent that Osiris specifically incorporates this information by reference, and shall not otherwise be deemed filed under the Securities Act of 1933 and the Securities Exchange Act of 1934, and shall not be deemed soliciting material.

Summary Compensation Table

The following table shows the total compensation paid or accrued during 2012, 2011 and 2010 to our Chief Executive Officer, our Chief Financial Officer, and our three next most highly compensated executive officers who earned more than \$100,000 during 2012.

Name and Principal Position	Year	Salary (\$)	Bonus (\$)(1)	Option Awards (\$)(2)	All Other Compensation (\$)	Total (\$)
C. Randal Mills, Ph.D.	2012	470,000	120,000	<u>—</u> (3)		590,000
President and Chief	2011	470,000	120,000	146,400	_	736,400
Executive Officer	2010	468,333	130,000	158,400	_	756,733
Philip R. Jacoby, Jr.	2012	193,000	18,000	52,000	_	263,000
Chief Financial Officer,	2011	189,167	18,000	73,200	_	280,367
Treasurer and Secretary	2010	179,167	18,000	103,950	_	301,117
Lode Debrabandere, Ph.D.	2012	292,250	35,000	65,000	_	392,250
Chief Operating Officer	2011	286,000	35,000	91,500	_	412,500
	2010	273,917	45,000	148,500	_	467,417
Michelle LeRoux						
Williams, Ph.D.	2012	271,500	35,000	65,000	_	371,500
Chief Scientific Officer	2011	266,000	35,000	91,500	_	392,500
	2010	253,750	45,000	148,500	_	447,250
Stephen W. Potter(4) Former Senior Vice	2012	279,500	_	52,000	_	330,500
President	2011	240,625	35,000	333,000	_	608,625

- (1) Represents bonus payments that were paid in February 2013 on account of named executive officer performance in fiscal 2012, bonus payments made in 2012 on account of named executive officer performance in fiscal 2011, and bonus payments made in 2011 on account of named executive officer performance in fiscal 2010, as applicable.
- (2) These amounts reflect the non-cash aggregate grant date fair value of these awards computed in accordance with FASB ASC Topic 718 "Stock Compensation," which includes the effect of estimated forfeitures. The assumptions and methodologies used to calculate the amounts reported are discussed in Note 7 (Share-Based Compensation) to the Company's Financial Statements in its 2012 Annual Report filed on Form 10-K with the SEC (or, in the case of grants made prior to 2012, the corresponding footnote in the Company's Form 10-K for the applicable year). Under accounting principles generally accepted in the United States, compensation expense with respect to stock awards and option awards granted to our employees is generally recognized over the vesting periods applicable to the awards.
- (3) Dr. Mills was originally awarded options with a grant date fair value of \$65,000 in 2012, but he subsequently declined acceptance of the award and elected instead to allocate these options for the purpose of increasing the option pool available for disbursement to the general employees of the Company. This arrangement was approved by the Compensation Committee.
- (4) Mr. Potter served as our Senior Vice President of Operations and Corporate Development from February 2011 through November 2012.

Grants of Plan-Based Awards

The following table provides information on equity awards granted in 2012 to each of our named executive officers:

Name	Grant Date	All Other Option Awards: Number of Securities Underlying Options (#)(1)	Exercise or Base Price of Option Awards (\$/Sh)	Grant Date Fair Value of Stock and Option Awards
C. Randal Mills, Ph.D.	3/23/2012	25,000(2)	\$ 5.08	\$ 65,000(2)
Philip R. Jacoby, Jr.	3/23/2012	20,000	5.08	52,000
Lode Debrabandere, Ph.D.	3/23/2012	25,000	5.08	65,000
Michelle LeRoux Williams, Ph.D.	3/23/2012	25,000	5.08	65,000
Stephen W. Potter	3/23/2012	20,000	5.08	52,000

- (1) Represents stock options awarded by the Board of Directors, which vest in equal installments on the first, second, third and fourth anniversary of the award date, assuming the named executive officer is still employed by us on that date.
- (2) Dr. Mills subsequently surrendered his 2012 stock option award to increase the pool of options that were granted to non-officer employees. The arrangement was approved by our Compensation Committee.

Equity Compensation Plan Information

We have two equity compensation plans: (1) the Amended and Restated 1994 Stock Option and Incentive Plan, and (2) the Amended and Restated 2006 Stock Option and Incentive Plan. A total of 2,369,312 shares of common stock are currently reserved for issuance pursuant to the plans. Currently, awards under the stock option and incentive plans consist of qualified and non-qualified stock options. Our stockholders have approved both plans. As of December 31, 2012:

Plan Category	Number of Securities	Weighted-Average	Number of Securities
	to be Issued Upon	Exercise Price of	Remaining Available
	Exercise of	Outstanding Options,	for Future Issuance
	Outstanding Options,	Warrants and Rights	Under Equity
	Warrants and Rights	(\$/Sh)	Compensation Plans
Equity compensation plans approved by security holders(1) Equity compensation plans not approved by security holders	2,826,114	9.53	543,198

⁽¹⁾ Includes a Warrant for 1,000,000 shares of common stock at the exercise price of \$11.00, which expires in May 2015, as approved by our stockholders at the 2011 Annual Meeting.

Outstanding Equity Awards at Fiscal Year-End

	Option Awards				
	Underlying Option	of Securities Unexercised ons (#)	Option Exercise	Option Expiration	
	Exercisable	Unexercisable	Price (\$)	Date(1)	
C. Randal Mills, Ph.D.	150,000	_	\$ 0.40	5/14/2014	
	100,000	_	0.40	1/10/2016	
	100,000	_	23.62	2/4/2017	
	100,000	_	12.01	2/5/2018	
	37,500	12,500	18.60	2/23/2019	
	20,000	20,000	7.74	3/12/2020	
	10,000	30,000	7.13	2/14/2021	
Philip R. Jacoby, Jr.	3,000		23.62	2/4/2017	
1 mmp R. Jacoby, 31.	3,000		12.50	7/25/2017	
	10,000		17.10	10/2/2018	
	7,500	2,500	18.60	2/23/2019	
	10,000	10,000	7.74	3/12/2020	
	3,750	3,750	6.46	5/27/2020	
	5,000	15,000	7.13	2/14/2021	
		20,000	5.08	3/23/2022	
Lada Dahashaa daar Dh.D	27.500		C 9.4	7/21/2016	
Lode Debrabandere, Ph.D.	37,500	_	6.84	7/31/2016	
	15,000	_	23.62	2/4/22017	
	15,000	9.750	12.01	2/4/2018	
	26,250	8,750	18.60	2/23/2019	
	12,500	12,500	7.74	3/12/2020	
	7,500	7,500	6.46	5/27/2020	
	6.250	18,750 25,000	7.13 5.08	2/14/2021 3/23/2022	
		23,000	2.00	3/23/2022	
Michelle LeRoux Williams, Ph.D.	5,750	_	0.40	11/21/2014	
	7,500	_	0.40	12/1/2015	
	20,000	_	14.19	6/30/2017	
	20,000	_	12.01	2/5/2018	
	18,750	6,250	18.60	2/23/2019	
	12,500	12,500	7.74	3/12/2020	
	7,500	7,500	6.46	5/27/2020	
	6,250	18,750	7.13	2/14/2021	
	_	25,000	5.08	3/23/2022	
Stephen W. Potter	20,000	_	6.49	2/16/2013	
Stephen I otter	20,000		0.17	2/10/2013	

⁽¹⁾ Options expire on the tenth anniversary of the award date and vest in equal installments on the first, second, third and fourth anniversary of the award date. Upon termination of employment, vested options remain exercisable for up to 90-days if the former employee left in good standing.

Option Exercises and Stock Vested

	Option Aw	ards	Stock Awa	ards
Name	Number of Shares Acquired on Exercise (#)	Value Realized on Exercise (\$)	Number of Shares Acquired on Vesting (#)	Value Realized on Vesting (\$)
C. Randal Mills, Ph.D.				
Philip R. Jacoby, Jr.	_	_	_	_
Lode Debrabandere, Ph.D.	_	_	_	_
Michelle LeRoux Williams, Ph.D.	520	4,632	_	_
Stephen W. Potter	5,000	16,514	_	_

Employment Contracts, Termination of Employment and Change in Control Arrangements

Except in the case of Dr. Mills and Dr. Debrabandere, as described below, none of our employees is employed for a specified term, and each employee's employment with us is subject to termination at any time by either party for any reason, with or without cause. We have entered into employment agreements with Dr. Mills and Dr. Debrabandere.

Under Dr. Mills' employment agreement, dated as of May 15, 2004, he served as our Chief Executive Officer for an initial three-year term. Thereafter, the agreement provides for automatic renewal for successive one-year renewal terms, unless either party provides notice of termination at least ninety days prior to the commencement of a renewal term. We may otherwise terminate Dr. Mills' employment (i) if he is unable to perform his duties due to some incapacity for three or more consecutive months or for four or more non-consecutive months, (ii) if he fails to perform his duties and such failure is not cured within thirty days after specific written notice by the Board, or (iii) for cause. Dr. Mills may terminate his employment for good reason. If we terminate Dr. Mills for failure to perform his duties, in addition to paying any amount otherwise owed, we must pay him a lump sum in an amount equal to one half of his annual base salary (based on his 2013 annual base salary of \$470,000, this amount equals \$235,000) and provide six months of medical, life and disability benefits (having an extended value of approximately \$10,000). If we terminate Dr. Mills without cause or if he terminates his employment for good reason, in addition to paying any amount otherwise owed, we must pay him a lump sum in an amount equal to one full year of base salary (based on his 2013 annual base salary of \$470,000, this amount equals \$470,000) and provide one full year of medical, life, and disability benefits (having an estimated value of approximately \$20,000).

Under Dr. Debrabandere's employment agreement, dated as of July 31, 2006, he served as our Senior Vice President, Therapeutics for an initial three-year term. During 2012, he was promoted to serve as our Chief Operating Officer. Following the initial three year term expiring in 2009 the agreement provides for automatic renewal for successive one-year renewal terms, unless either party provides notice of termination at least ninety days prior to the commencement of a renewal term. We may otherwise terminate Dr. Debrabandere's employment (i) if he is unable to perform his duties due to some incapacity for three or more consecutive months or four or more non-consecutive months, (ii) if he fails to perform his duties and such failure is not cured within thirty days after specific written notice by the Board or (iii) for cause. Dr. Debrabandere may terminate his employment for good reason. If we terminate Dr. Debrabandere for inability to perform his duties or for cause, or if Dr. Debrabandere terminates his employment for other than good reason, we have no obligations to Dr. Debrabandere other than the payment of amounts otherwise owed at the time of termination. If we terminate Dr. Debrabandere for failure to perform his duties, in addition to paying any amount otherwise owed, we must pay him a lump sum in an amount equal to three months of his annual base salary (based on his 2013 annual base salary of \$320,000, this amount equals \$80,000) and provide six months of medical, life and disability benefits (having an estimated value of approximately \$10,000). If

we terminate Dr. Debrabandere without cause or if he terminates his employment for good reason, in addition to paying any amount otherwise owed, we must pay him a lump sum in an amount equal to six months of base salary (based on his 2013 annual base salary of \$320,000, this amount equals \$160,000) and provide six months of medical, life, and disability benefits (having an estimated value of approximately \$10,000).

For purposes of the employment agreements with Dr. Mills and Dr. Debrabandere, "cause" is defined to include (i) the commission of a felony or a crime of moral turpitude or any other act or omission involving dishonesty or fraud with respect to us or any of our subsidiaries, customers, or suppliers, (ii) conduct tending to bring Osiris or any subsidiary into substantial public disgrace or disrepute, (iii) gross negligence or willful misconduct with respect to us or any subsidiary, or (iv) any breach of a material section of the agreement.

For purposes of the employment agreements with Dr. Mills and Dr. Debrabandere, "good reason" means (i) our failure to perform or observe any material term or provision of the agreement and our continued failure to cure such default within thirty days after written demand for performance from the executive specifically describing the alleged default, (ii) a material reduction in the scope of the executive's responsibilities and duties, or (iii) absent a written agreement between us and the executive, a material reduction in the executive's base pay or incentive compensation.

AUDIT COMMITTEE OF THE BOARD OF DIRECTORS

The Members of the Audit Committee are Jay M. Moyes (Chairman), Hans Klingemann, M.D., Ph.D. and Felix Gutzwiller, M.D., Dr.P.H. Pursuant to its charter, the Audit Committee's general responsibilities include:

- Overseeing financial and compliance functions as assigned by the Board;
- Reviewing areas of potential significant financial risk to the Company;
- Monitoring the independence and performance of the independent registered public accounting firm;
- Providing an avenue of communication among the independent auditors, management, our internal audit function and the Board of Directors.

AUDIT COMMITTEE REPORT

Among its duties, the Audit Committee is responsible for appointing, setting compensation and overseeing the work of the independent registered public accounting firm. The Committee has established a policy wherein it pre-approves all of the audit and permissible non-audit services provided to the Company by the independent registered public accounting firm and actively monitors these services (both spending level and work content) to maintain the appropriate objectivity and independence in Grant Thornton LLP's core work, which is the audit of the Company's financial statements and internal control over financial reporting. All services and fees are pre-approved for up to one year, which approval includes the appropriate detail with regard to each particular service and its related fees.

During the fiscal year ended December 31, 2012, all of the fees and services described as "audit fees," "audit-related fees," "tax fees," and "all other fees" under "Audit Fees, Audit Related Fees, Tax Fees, and Other Fees" below were approved under such pre-approval policy and pursuant to Section 202 of the Sarbanes-Oxley Act of 2002.

The Audit Committee of the Board of Directors is responsible for assisting the Board of Directors with its oversight of the integrity of the Company's financial statements, the Company's compliance with legal and regulatory requirements, the independent auditors' qualifications and independence and the performance of the independent auditors and the Company's internal audit function, and the corporate finance matters of the Company. The Audit Committee operates under a written charter approved by the Board of Directors. A copy of the charter is available on our website at http://investor.osiris.com/documents.cfm under "Investor Relations," "Corporate Governance."

Management is responsible for the preparation, presentation and integrity of our financial statements; accounting and financial reporting principles; establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rule 13a-15(e)); establishing and maintaining internal control over financial reporting (as defined in Exchange Act Rule 13a-15(f)); evaluating the effectiveness of disclosure controls and procedures; evaluating the effectiveness of internal control over financial reporting; and evaluating any change in internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, internal control over financial reporting. The independent registered public accounting firm, Grant Thornton LLP, is responsible for performing an independent audit of our financial statements in accordance with the standards of the Public Company Accounting Oversight Board (PCAOB) of the United States and to issue a report thereon, as well as expressing an opinion on the effectiveness of our internal control over financial reporting. The Audit Committee's responsibility is to monitor and oversee these processes.

In this context, the Audit Committee met with management and Grant Thornton LLP to review and discuss the financial statements, the effectiveness of our internal control over financial reporting and Grant Thornton LLP's audit of the financial statements and our internal control over financial reporting.

The Audit Committee also discussed with Grant Thornton LLP the matters required by Statement on Auditing Standards No. 61 (Communication with Audit Committees) and received a letter covering these matters. The Audit Committee also received written disclosures and the letter from Grant Thornton LLP required by PCAOB Rule 3526 (Communications with Audit Committees Concerning Independence) and has discussed with Grant Thornton LLP such firm's independence from the Company and its management.

Based upon the discussions and reviews referred to above, and subject to the limitations on the role and responsibilities of the Committee and in the Audit Committee Charter, the Audit Committee recommended to the Board of Directors that the Company's audited financial statements be included in the Annual Report on Form 10-K for the year ended December 31, 2012 filed with the Securities and Exchange Commission.

AUDIT COMMITTEE

Jay M. Moyes, Chairman Hans Klingemann, M.D., Ph.D. Felix Gutzwiller, M.D., Dr.P.H.

Audit Fees, Audit Related Fees, Tax Fees, and Other Fees

Pursuant to the rules of the Securities and Exchange Commission, the fees paid for professional services rendered by Grant Thornton LLP for the audit of the Company's annual financial statements and the effectiveness of internal control over financial reporting for the years ended December 31.

2012 and 2011 and fees billed for other services rendered by Grant Thornton LLP during this period are described below.

	2012 (\$)	2011 (\$)
Audit Fees(1)	\$ 172,658	\$ 175,350
Audit-Related Fees(2)	-	_
Tax Fees(3)	20,745	18,100
All Other Fees(4)	_	
Total	\$ 193,403	\$ 193,450

- (1) Audit fees consisted principally of fees billed to the Company for professional services performed for the audit of financial statements included in the Form 10-K, for review of financial statements included in the Forms 10-Q, for the audit of the Company's internal control over financial reporting and for services generally only the independent registered public accounting firm can reasonably be expected to provide, such as statutory and regulatory filings or engagements.
- (2) Audit-related fees consisted principally of fees billed to the Company for assurance and related services performed that are reasonably related to the performance of the audit or review of the Company's financial statements, including due diligence related to mergers and acquisitions, audits of employee benefit and compensation plans, audits of carve-out entities, and other agreed upon procedures to meet various statutory and regulatory requirements.
- (3) Tax fees consisted principally of fees billed to the Company for professional services performed with respect to U.S. federal, state and local tax planning, advice and compliance, assistance with tax audits and appeals and the preparation of original and amended tax returns for the Company.
- (4) All other fees are fees for any permissible services performed that do not meet the above category descriptions, however, the Company generally does not engage its independent registered public accountants for "other" services.

Under its pre-approval policy, concurrent with the appointment of the independent registered public accounting firm, the Audit Committee specifically pre-approves the recurring audit and audit-related services and estimated fees. All the work performed for the Company by Grant Thornton LLP pertaining to 2012 and the related fees were pre-approved by the Audit Committee.

The Audit Committee has considered whether the provision of audit and non-audit services by Grant Thornton LLP to the Company in fiscal 2012 is compatible with maintaining the auditor's independence. The Company has been advised by Grant Thornton LLP that neither the firm, nor any member of the firm, has any financial interest, direct or indirect, in any capacity in the Company.

SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Our records reflect that all reports which were required to be filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, as amended, were filed on a timely basis. An Annual Statement of Beneficial Ownership on Form 5 is not required to be filed if there are no previously unreported transactions or holdings to report. Nevertheless, we are required to disclose the names of directors, officers and 10% stockholders who did not file a Form 5 unless we have obtained a written statement that no filing is required or if we otherwise know that no Form 5 is required. For 2012, we received either a written statement from our directors, officers and 10% stockholders or know from other means that no Form 5s were required to be filed.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

As required by our Corporate Governance Principles, our Audit Committee reviews and approves in advance all related-party transactions. Our policy with respect to related party transactions is incorporated within our Audit Committee Charter, a copy of which is available on our website at http://investor.osiris.com/documents.cfm. This policy sets forth the review and approval requirements for transactions in which we will be a participant and in which any of our directors, director nominees, executive officers, other employees or greater than 5% beneficial owners of our common stock, or any immediate family member or any affiliated entity of such persons, has a direct or indirect interest. Pursuant to this policy, any proposed transaction that would require disclosure under the related party transaction disclosure requirements of the United States Securities and Exchange Commission must be submitted to the Audit Committee for consideration. No member of the Audit Committee may participate in any consideration or approval of any related person transaction with respect to which such member or any of such member's immediate family members is the related person.

The Audit Committee may approve only those related party transactions that are in, or are not inconsistent with, the best interests of Osiris and its stockholders, as the Audit Committee determines in good faith. In making such a determination, the Audit Committee is required to consider all of the relevant facts and circumstances relating to the transaction including, but not limited to, the following:

- the benefits to us:
- if the transaction involves a director, a member of the director's immediate family or entity affiliated with the director, the impact on the director's independence;
- the availability of other sources for comparable products or services;
- the terms of the transaction; and
- the terms available to unrelated third parties.

Peter Friedli. Peter Friedli, the Chairman of our Board of Directors, or entities with which he is affiliated, have been responsible for procuring since 1993, an aggregate of approximately \$270 million in debt and equity financing for us and our predecessor company. Mr. Friedli is the beneficial owner of approximately 43% of our common stock as of December 31, 2012. Of the shares beneficially owned by Mr. Friedli at December 31, 2012, 65,000 shares were received by him as Board compensation since 1996, 12,500 shares and warrants for 1,000,000 shares were granted in recognition of his fundraising efforts, as discussed below, and the remaining shares were acquired through investment or through purchase from third parties.

In 2012, we issued 10,000 shares of our common stock, valued at approximately \$51,000 to Mr. Friedli for his service on our Board of Directors and in 2011, we issued 10,000 shares of our common stock, valued at \$71,000 to Mr. Friedli for his service on our Board of Directors. During 2010, we paid Mr. Friedli \$64,600 for his service on our Board of Directors.

In response to Mr. Friedli's successful efforts in procuring for us accommodations relative to financing transactions that had occurred prior to our initial public offering, we issued to Mr. Friedli in 2006, in connection with and just prior to our initial public offering, a warrant exercisable for up to 1,000,000 shares of our common stock at \$11.00 per share, the price for which shares were sold in the initial public offering. This warrant was scheduled to expire in May 2011.

In light of Mr. Friedli's unwavering support of the Company over a period of many years, and in recognition of his invaluable contributions to us, as founder, as a director and as Chairman of our Board, and to encourage his continued support, our Board of Directors and Compensation Committee, by the unanimous vote of all independent and disinterested members of each, approved the extension of the expiration date of the warrant until May 24, 2015, subject to the approval of our stockholders.

Our stockholders approved the extension of the warrant at our 2011 Annual Meeting of Stockholders, on May 26, 2011.

We incurred a noncash charge against earnings on account of the extension of the warrant expiration date, based on its increase in fair value of approximately \$1.7 million. This amount was recorded within general and administrative expenses. The increase in value was computed using the Black-Scholes option pricing model with a risk free interest rate of 1.50%, a 4 year increase in the expected life of the warrant, and a historical volatility of approximately 51%.

Prolexys Pharmaceuticals, Inc. During the third quarter of fiscal 2011 we entered into a contract research agreement with Prolexys Pharmaceuticals, Inc. under which we are conducting for Prolexys an early stage clinical trial investigating a novel compound as a product candidate for cancer therapeutics. This contract, which remains in effect, was filed as an exhibit to and discussed in a Current Report on Form 8-K filed by us with the SEC primarily because of the related nature of the management and ownership of Prolexys with us and our management and with certain of our significant stockholders, and not because our rights or obligations under the contract research agreement with Prolexys are otherwise material to us. We are not incurring any third party costs related to our work with Prolexys and are primarily contributing only the efforts of employees. All third party costs associated with the Prolexys study are paid directly by Prolexys. As of December 31, 2012, the amount of internal resources we have devoted to Prolexys is not material to our operations as a whole.

Prolexys is 35.7% owned by BIH SA, which owns 8.2% of our outstanding common stock; 24.3% owned by Peter Friedli who is the Chairman of our Board of Directors and direct owner of 29.3% of our common stock; and 13.8% owned by Venturetec, Inc., which holds 12.5% of our common stock. Peter Friedli is the President and a 3% owner of Venturetec, Inc. Lode Debrabandere, our Chief Operating Officer, serves on the Board of Directors of Prolexys, but has no other interest therein.

This arrangement is part of our ongoing efforts to expand our portfolio of product candidates, but we do not consider this arrangement to be material to us at this time.(1)

Our Board of Directors and Audit Committee, including all of our independent directors, but with Mr. Friedli abstaining, unanimously approved this transaction.

AVAILABLE INFORMATION

We are subject to the informational requirements of the Securities Exchange Act of 1934, as amended, and, in accordance therewith, file reports, proxy statements and other information with the U.S. Securities and Exchange Commission. Reports, proxy statements and other information filed by us may be inspected without charge and copies obtained upon payment of prescribed fees from the Public Reference Section of the U.S. Securities and Exchange Commission at 100 F Street, NE, Washington, D.C. 20549, or by way of the U.S. Securities and Exchange Commission's website, http://www.sec.gov.

We will provide without charge to each person to whom a copy of the proxy statement is delivered, upon the written or oral request of any such persons, additional copies of our Annual Report on Form 10-K for the period ended December 31, 2012. Requests for such copies should be addressed to:

Osiris Therapeutics, Inc., 7015 Albert Einstein Drive, Columbia, Maryland 21046, Attn: Investor Relations, Telephone (443) 545-1800.

OTHER MATTERS

The Board knows of no other business which will be presented at the Annual Meeting. However, if any other business is properly brought before the 2013 Annual Meeting or any postponement or adjournment thereof, which may properly be acted upon, the proxies solicited hereby will be voted on such matter in accordance with the discretion of the proxy holders named therein.

WHETHER OR NOT YOU INTEND TO BE PRESENT AT THE MEETING, YOU ARE URGED TO FILL OUT, SIGN, DATE AND RETURN THE ACCOMPANYING PROXY AT YOUR EARLIEST CONVENIENCE.

By order of the Board of Directors:

(hufmo)

Philip R. Jacoby, Jr. Corporate Secretary

Columbia, Maryland April 8, 2013

OSIRIS THERAPEUTICS, INC.

THIS PROXY IS BEING SOLICITED BY THE BOARD OF DIRECTORS OF OSIRIS THERAPEUTICS, INC.

The undersigned, revoking any previous proxies relating to these shares, hereby acknowledges receipt of the Notice of 2013 Annual Meeting of Stockholders and Proxy Statement dated April 8, 2013, in connection with the 2013 Annual Meeting of Stockholders of Osiris Therapeutics, Inc. to be held at 2:00 p.m., EDT, on Thursday, May 30, 2013 at the offices of Osiris Therapeutics, Inc., 7015 Albert Einstein Drive, Columbia, Maryland 21046, and hereby appoints C. Randal Mills and Philip R. Jacoby, Jr., and each of them (with full power to act alone), the attorneys and proxies of the undersigned, with power of substitution in each, to appear for and vote all shares of the Common Stock of OSIRIS THERAPEUTICS, INC. registered in the name provided herein which the undersigned is entitled to vote, at the 2013 Annual Meeting of Stockholders, and at any postponements or adjournments thereof, with all the powers the undersigned would have if personally present. Without limiting the general authorization hereby given, said proxies are, and each of them is, instructed to vote or act as indicated below hereof on the proposals set forth in said Proxy.

SEE BELOW FOR ALL PROPOSALS. If you wish to vote in accordance with the Board of Directors' recommendations, just sign

below. You need not mark any boxes. Please mailed in the United States.	e mark, date and r	eturn this card prom	ptly, using the enclosed envelope. No postage is require	red if
	ENVELOPE OR		Y CARD PROMPTLY IN THE ENCLOSED INSTRUCTIONS TO VOTE VIA	
Please mark votes as in this	example.			
The Board of Directors recommends a vote	FOR Proposals 1	and 2.		
1. Election of two Class I Directors (designate) each for a three-year term and u			election, such substitute as the Board of Directors may and qualified.	r
	Nominees:	Jay M. Mo	yes and Hans-Georg Klingemann, M.D., Ph.D.	
FOR THE NOMINEES				
WITHHOLD AUTHORITY FOR ALL NO	MINEES			
FOR ALL THE NOMINEES EXCEPT AS	NOTED			
BOX ABOVE. TO WITHHOLD AUTHOR	ITY ONLY FOR	A SPECIFIC NOM	OTE FOR ALL NOMINEES MARK THE APPROPRINEE, PRINT THE NAME OF THE NOMINEE IN BOVE APPEARING BESIDE "FOR ALL NOMINEE	
2. Proposal to ratify the appointment ending December 31, 2013.	of Grant Thornton	n LLP as our indepe	ndent registered public accounting firm for the fiscal y	⁄ear
FOR		AGAINST	ABSTAIN	
In their discretion, the proxies are authorized postponements thereof.	l to vote upon suc	h other matters as m	ay properly come before the meeting or any adjournm	ients oi
This Proxy when executed will be voted in t in Proposal No. 1 and FOR Proposal No. 2.	he manner directe	ed herein. If no direc	tion is made this proxy will be voted FOR THE NOM	INEES
PLEASE MARK, SIGN, DATE AND RETU	URN PROMPTLY	Y IN THE ENCLOS	ED ENVELOPE.	
Signature:		Date:		
Signature:		Date:		

NOTE: Please insert date and sign exactly as name(s) appears hereon. Joint owners should each sign. When signing as attorney, executor, administrator, trustee, guardian, or officer or other authorized person on behalf of a corporation or other entity, or in another representative capacity, please give full title as such under signature(s).