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OSIRIS THERAPEUTICS, INC.

FORM DEF 14A
(Proxy Statement (definitive))

Filed 04/27/12 for the Period Ending 06/11/12

Address	7015 ALBERT EINSTEIN DRIVE COLUMBIA, MD 21046
Telephone	443-545-1819
CIK	0001360886
Symbol	OSIR
SIC Code	2836 - Biological Products, Except Diagnostic Substances
Industry	Biotechnology & Drugs
Sector	Healthcare
Fiscal Year	12/31

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

SCHEDULE 14A

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

Filed by the Registrant ý

Filed by a Party other than the Registrant o

Check the appropriate box:

o Preliminary Proxy Statement

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

ý Definitive Proxy Statement

o Definitive Additional Materials

o Soliciting Material under §240.14a-12

OSIRIS THERAPEUTICS, INC.

(Name of Registrant as Specified In Its Charter)

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

Payment of Filing Fee (Check the appropriate box):

ý No fee required.

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

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

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

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

(4) Proposed maximum aggregate value of transaction:

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(1) Amount Previously Paid:

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

(3) Filing Party:

(4) Date Filed:

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

www.Osiris.com

April 27, 2012

Dear Stockholders,

You are cordially invited to attend the 2012 Annual Meeting of Stockholders of Osiris Therapeutics, Inc. to be held at 1:00 p.m. Eastern Daylight Time ("EDT"), on Monday, June 11, 2012, 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 one director for a term of three years and until his successor is duly elected and qualified;

2. The approval of an amendment to our Amended and Restated 2006 Omnibus Plan to increase the aggregate number of shares of common stock that may be issued at any time pursuant to awards granted thereunder from 1,950,000 to 2,250,000 shares, and to extend the termination date, after which awards may no longer be granted thereunder, from May 27, 2020 to June 11, 2022, and re-approval of the Amended and restated 2006 Omnibus Plan, including for purposes of Section 162(m) of the Internal Revenue Code;

3. The ratification of the appointment of Grant Thornton LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2012; and

4. 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 23, 2012, 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

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OSIRIS THERAPEUTICS, INC.

NOTICE OF 2012 ANNUAL MEETING OF STOCKHOLDERS

TIME: 1:00 P.M. Eastern Daylight Time on Monday, June 11, 2012

PLACE: Osiris Therapeutics, Inc.
7015 Albert Einstein Drive
Columbia, Maryland 21046

ITEMS OF BUSINESS:

1. To elect one member of the Board of Directors for a three-year term and until his successor is duly elected and qualified.

2. To approve an amendment to our Amended and Restated 2006 Omnibus Plan to increase the aggregate number of shares of common stock that may be issued at any time pursuant to awards granted thereunder from 1,950,000 to 2,250,000 shares, and to extend the termination date, after which awards may no longer be granted thereunder, from May 27, 2020 to June 11, 2022, and re-approval of the Amended and restated 2006 Omnibus Plan, including for purposes of Section 162(m) of the Internal Revenue Code.

3. To ratify the appointment of Grant Thornton LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2012.

4. To consider such other business as may properly be brought before the 2012 Annual Meeting and any adjournment or postponement thereof.

RECORD DATE: You are entitled to vote at the 2012 Annual Meeting if you were a stockholder of record at the close of business on April 23, 2012.

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?"

INSPECTION OF LIST OF STOCKHOLDERS OF RECORD: A list of the stockholders of record as of April 23, 2012 will be available for inspection at the 2012 Annual Meeting.

BY ORDER OF THE BOARD OF DIRECTORS

Philip R. Jacoby, Jr.
Corporate Secretary

April 27, 2012

Important Notice Regarding the Availability of Proxy Materials for the Stockholder Meeting To Be Held on June 11, 2012:

The proxy statement and annual report to security holders are available at *http://www.pstvote.com/osiris2012*

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7015 Albert Einstein Drive
Columbia, MD 21046
Tel: 443.545.1800
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www.Osiris.com

April 27, 2012

PROXY STATEMENT FOR 2012 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 2012 Annual Meeting of Stockholders of Osiris Therapeutics, Inc. The 2012 Annual Meeting is scheduled to be held on Monday, June 11, 2012, at 1:00 p.m., EDT, at Osiris Therapeutics, Inc.'s principal executive office, located at 7015 Albert Einstein Drive, Columbia, Maryland 21046.

On or about April 30, 2012, 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 2012 Annual Meeting of Stockholders, this proxy statement, the accompanying proxy card, the Annual Report on Form 10-K for the year ending December 31, 2011 and Osiris Therapeutics, Inc.'s 2011 Annual Report to Stockholders, to stockholders who according to our records owned shares of our common stock at the close of business on April 23, 2012. For those beneficial stockholders 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 2012 Annual Meeting of Stockholders and at any adjournment or postponement thereof. Stockholders are invited to attend the 2012 Annual Meeting, which is scheduled to be held at 1:00 p.m. on Monday, June 11, 2012, and are requested to vote on the proposals described in this Proxy Statement.

A full set of printed proxy materials will be send to stockholders of record and a full set of printed proxy material or a Notice of Internet Availability of Proxy Materials ("Notice of Internet Availability") will be sent to beneficial stockholders starting on or around April 30, 2012, and the proxy materials, including the Notice of Annual Meeting, Proxy Statement, Proxy Card, 2011 Annual Report on Form 10-K and our 2011 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 to all beneficial stockholders. 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 beneficial stockholders (or e-mailed, in the case of stockholders that have previously requested to receive proxy materials electronically) starting on or around April 30, 2012. 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, 2011 Annual Report on Form 10-K and our 2011 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 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 2011 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 record stockholders and certain of our beneficial stockholders 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 2012 Annual Meeting, the voting process, the compensation of directors and our most highly paid executive officers in 2011 and certain other information.

How may I obtain directions to attend the 2012 Annual Meeting of Stockholders and vote in person?

Beneficial stockholders 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/osiris2012*** .

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 stockholder" of those shares. In such case, your set of printed proxy materials has been sent to you directly by Osiris.

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 2012 Annual Meeting?

Osiris's Board of Directors has established April 23, 2012 as the record date for the 2012 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 2012 Annual Meeting. At the close of business on April 23, 2012, there were 32,852,521 outstanding shares of Osiris's common stock. Each share of common stock is entitled to one vote on each matter properly brought before the 2012 Annual Meeting.

What will I vote on?

There are three proposals scheduled to be voted on at the 2012 Annual Meeting:

- the election of one member of our Board of Directors, to serve for a three-year term expiring at the annual meeting of stockholders to be held in 2015 and until his successor shall be duly elected and qualified;

- a proposal to amend our Amended and Restated 2006 Omnibus Plan to increase the aggregate number of shares of common stock that may be issued at any time pursuant to awards granted thereunder from 1,950,000 to 2,250,000 shares, and to extend the termination date, after which awards may no longer be granted thereunder, from May 27, 2020 to June 11, 2022, and to re-approve the Amended and Restated 2006 Omnibus Plan, including for purposes of Section 162(m) of the Internal Revenue Code; and

- the ratification of the appointment of Grant Thornton LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2012.

How many votes must be present to hold the 2012 Annual Meeting?

A "quorum" is necessary to call the 2012 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 non-votes 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 the nominee to the Board;

- " **FOR** " the proposal to amend our Amended and Restated 2006 Omnibus Plan and to re-approve such plan, including for purposes of Section 162(m) of the Internal Revenue Code; 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, 2012.

How do I vote?

You may vote in several different ways:

In person at the 2012 Annual Meeting

You may vote in person at the 2012 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 vote 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 stockholders 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/osiris2012 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 June 7, 2012, and mailed proxy cards must be received by June 7, 2012 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 2012 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 2012 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 2012 Annual Meeting;
- Voting by telephone or using the Internet after the date of your proxy card and before the 2012 Annual Meeting; or
- Attending the 2012 Annual Meeting and voting in person by ballot. Your attendance at the 2012 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 2012 Annual Meeting to serve as the Company's inspector of election at the 2012 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 holders 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 2012 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 Nominee	A plurality of the votes cast is required to elect a director, assuming the presence of a quorum. The individual receiving the most votes will be elected. Abstentions are not counted for purposes of electing directors. You may vote FOR the nominee or WITHHOLD your vote from the nominee. Votes that are withheld will not be included in the vote tally for the election of directors. Assuming that only the nominee is proposed for election and at least one vote is cast for the nominee, broker non-votes will have no effect on the result of the vote.
Proposal 2: Amendment to our Amended and Restated 2006 Omnibus Plan, and Re-approval of Such Plan, Including for Purposes of Section 162(m) of the Internal Revenue Code	Approval of the amendment to our Amended and Restated 2006 Omnibus Plan to increase the aggregate number of shares of common stock that may be issued at any time pursuant to awards granted thereunder, and to extend the termination date, after which awards may no longer be granted thereunder, and re-approval of the Amended and Restated 2006 Omnibus Plan, requires that the affirmative vote of the holders of a majority of the votes cast on the matter at the Annual Meeting, assuming the presence of a quorum. A properly executed proxy marked "ABSTAIN" with respect to this proposal will have no effect on the result of the vote. Broker non-votes are not considered as votes entitled to be cast on the matter, and thus will have no effect on the result of the vote.

Proposal 3: 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, 2012 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, 2012, 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 2012 Annual Meeting?

We will announce preliminary voting results at the 2012 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 2012 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, including a beneficial owner of shares held in "street name," 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, 2011?

Osiris will upon receipt of a request in writing provide without charge to each person from whom proxies are being solicited for the 2012 Annual Meeting a copy of our Annual Report on Form 10-K for the year ended December 31, 2011, 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 NOMINEE

The Board currently consists of five members, classified into three classes as follows: Jay M. Moyes and Gregory H. Barnhill constitute the Class I directors, with a term ending at the Annual Meeting to be held in 2013; 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 this Annual Meeting. 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 March 23, 2012, our Board accepted the recommendation of its Nominating Committee comprised of independent directors to nominate Peter Friedli for re-election at the Annual Meeting for a term of three years to serve until the 2015 Annual Meeting of Stockholders, and until his successor has been elected and qualified, or until his earlier death, resignation, retirement or removal.

Unless authority to vote for this nominee is withheld, the shares represented by a validly executed proxy will be voted **FOR** the election as director of nominee Peter Friedli. In the event that the 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 the nominee will be unable or unwilling to serve as a director.

OUR BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THE ELECTION OF PETER FRIEDLI AS DIRECTOR.

PROPOSAL NO 2—AMENDMENT TO OUR AMENDED AND RESTATED 2006 OMNIBUS PLAN TO INCREASE THE AGGREGATE NUMBER OF SHARES OF COMMON STOCK THAT MAY BE ISSUED AT ANY TIME PURSUANT TO AWARDS GRANTED THEREUNDER FROM 1,950,000 TO 2,250,000 SHARES, AND TO EXTEND THE TERMINATION DATE AFTER WHICH AWARDS MAY NO LONGER BE GRANTED THEREUNDER, FROM MAY 27, 2020 TO JUNE 11, 2022, AND TO RE-APPROVE THE AMENDED AND RESTATED 2006 OMNIBUS PLAN, INCLUDING FOR PURPOSES OF SECTION 162 (m) OF THE INTERNAL REVENUE CODE.

Proposal Description

At the Annual Meeting, we will present a proposal to the stockholders to approve an amendment (the "Amendment") to our Amended and Restated 2006 Omnibus Plan (the "Omnibus Plan") to increase the aggregate number of shares of common stock that may be granted at any time pursuant to awards granted thereunder from 1,950,000 to 2,250,000 shares, and to extend the termination date, after which awards may no longer be issued under the Omnibus Plan, from May 27, 2020 to June 11, 2022, and to re-approve the terms of the Omnibus Plan, including for purposes of Section 162(m) of the Internal Revenue Code, or the "Code."

The Board approved the Amended and Restated Omnibus Plan in March 2010, and our stockholders approved the Omnibus Plan in May 2010. In order to continue to use the Omnibus Plan to attract, motivate and retain quality employees, officers and directors, the Board recommends an increase in the aggregate number of shares that may be used pursuant to awards under the Omnibus Plan to 2,250,000, and an extension of the Omnibus Plan's termination date, after which awards may no longer be granted, to June 11, 2022, and re-approval of the Omnibus Plan, including for Section 162(m) purposes. The Omnibus Plan is described in further detail below. Such description is, however, qualified in its entirety by reference to the Omnibus Plan.

Recently, the Board approved the Amendment, subject to approval by our stockholders. The resolutions to be presented for stockholder approval of the Amendment and re-approval of the Omnibus Plan, as contemplated by this Proposal No. 2, are attached to this Proxy Statement as *Appendix A* , and are incorporated herein by reference.

Increase in the Number of Shares Available for Equity Awards. The Omnibus Plan is the sole equity compensation plan under which we make grants and awards to employees and directors. We formerly made grants under the Amended and Restated 1994 Stock Incentive Plan, but the ability to make awards thereunder has expired. As of April 9, 2012, 184,573 shares remained available for future grants and awards under the Omnibus Plan. Since the prior amendment and restatement of the Omnibus Plan, effective as of May 27, 2010, we have granted equity-based awards thereunder covering an aggregate of 773,000 shares of our common stock. Of this amount, awards for an aggregate of 423,000 shares have been granted to employees (not including executive officers). Information regarding the number of shares covered by grants made to our directors and 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 2011 is included elsewhere in this Proxy Statement, including in the table entitled "Director Compensation" and under the heading "EXECUTIVE COMPENSATION." We believe it is important to have sufficient shares available for equity awards, and therefore our Board of Directors has proposed that the aggregate number of shares of common stock that may be issued at any time pursuant to awards granted under the Omnibus Plan be increased by 300,000, from 1,950,000 to 2,250,000 shares.

Extension of Termination Date. The Omnibus Plan is currently the sole equity compensation plan under which we make grants and awards. We are now able to make grants and awards under the Omnibus Plan only until April 16, 2016. Unless our stockholders approve an extension of its term, our ability to grant awards under the Omnibus Plan as a means to help meet our business objectives will then terminate.

To avoid the prospect of compromising our ability to attract, retain and motivate key personnel through awards under the Omnibus Plan, we are now seeking stockholder approval to extend the term of the Omnibus Plan and the date after which awards may no longer be granted under the Omnibus Plan, until the date which is ten years after the scheduled date of the Annual Meeting, or until June 11, 2022. We believe it is vital to our recruitment and retention efforts to have an equity incentive plan in place. We believe that extending the term to June 11, 2022 will allow us to more effectively manage the Omnibus Plan to accomplish its purpose of attracting, retaining and motivating key personnel through the grant of equity-based awards. We intend, consistent with our past practice, to seek stockholder approval, as needed, for future changes and amendments to the Omnibus Plan.

Re-Approval of Terms of Omnibus Plan. We are asking stockholders to re-approve the terms of the Omnibus Plan, including for purposes of Section 162(m) of the Code. Our Board of Directors believes that the ability to offer equity compensation incentives to eligible participants in the Omnibus Plan, and particularly to our current and prospective senior management, is of paramount importance to our long term success. We believe that the Omnibus Plan is working to align the efforts of recipients toward maximizing stockholder value, and that grants and awards under the Omnibus Plan properly encourage the achievement of superior results. Section 162(m) generally does not permit publicly held companies like Osiris to deduct compensation paid to certain executive officers to the extent such compensation exceeds $1 million per officer in any year. However, compensation that is paid subject to the achievement of designated performance goals, which goals are approved by stockholders at least once every five years, may not be subject to this deduction limit. Insofar as Osiris complies with these and other requirements set forth in Section 162(m), amounts paid to executive officers under the Omnibus Plan will qualify for a federal tax deduction by Osiris. Hence, we are asking our stockholders to re-approve the terms of the Omnibus Plan, including for purposes of Section 162 (m). Under the terms of the Omnibus Plan, however, the Compensation Committee retains the authority to issue awards that may not qualify under Section 162(m).

Plan Description

The following is a description of the purpose and a summary of the provisions of the Omnibus Plan. A copy of the Omnibus Plan can be found at *Appendix B* to this Proxy.

We compete with other companies in our peer group and industry for highly qualified employees (including officers) and directors. We believe that our ability to grant stock options and make other equity-based awards is a valuable and necessary compensation tool that helps us to attract, retain and motivate employees and directors and encourages these individuals to devote their best efforts to our business and financial success. In addition, we believe that equity-based awards align the long-term financial interests of employees and directors with the financial interests of our stockholders.

The Compensation Committee of the Board of Directors administers the Omnibus Plan. The Compensation Committee has the authority, subject to the terms of the Omnibus Plan to determine and designate the employees and directors to whom awards will be made and the terms, conditions and restrictions applicable to each award (including, but not limited to, the option price, any restriction or limitation, any vesting schedule or acceleration thereof, any forfeiture restrictions and performance goals and criteria). The Omnibus Plan contains provisions for making various stock-based awards to officers, employees and non-employee members of the Board of Directors ("Non-Employee Directors") designated by the Compensation Committee. The Omnibus Plan permits the grant of incentive stock options as defined in Section 422 of the Code to employees (including officers) and non-qualified stock options, stock appreciation rights, restricted stock awards, performance shares and performance units to officers, employees and Non-Employee Directors. No individual may receive in a single calendar year awards involving more than 125,000 shares of common stock. As of April 9, 2012, there were 54 full-time employees of Osiris (including 5 executive officers), and 4 non-employee directors, all of whom would be eligible for awards under the Omnibus Plan.

Stock options provide the participant with the right to purchase shares of our common stock over a specified term and subject to any specified vesting period, at an exercise price established at the time of grant. Stock appreciation rights ("SARs"), entitle the holder to payment in the form of shares or cash, with the amount of the payment being equal to the difference between the exercise price established as of the date of grant and the fair market value of our common stock on the date of exercise, multiplied by the number of shares with respect to which the SAR is exercised. Like stock options, SARs typically have a vesting period and specified term. The exercise price for stock options and SARs is determined by the Compensation Committee at the time of grant and must be at least 100% of the then fair market value of our common stock. Restricted Stock awards are awards of shares of common stock made subject to any restrictions that the Committee may determine, and may be made without restriction in the discretion of the Committee. On April 13, 2012, the closing price of our common stock was $4.57.

Performance share awards give the holder the right to receive a designated number of shares of our common stock at the end of a specified performance period, if specified performance goals are met. Performance units give the holder the right to receive a fixed dollar amount, or equivalent, at the end of a specified performance period if specified performance goals are met. Depending on decisions made by the Compensation Committee, the method of payment of a performance unit can be in common stock, cash, or a combination of both. In order for performance share awards and performance units to qualify as performance-based compensation for purposes of Section 162(m), they must be paid based on the achievement of designated performance goals that are established by the Committee not later than ninety days after the commencement of the applicable performance period. The payment of performance-based share awards and performance units may be based on any of the following performance criteria: stock price, return on assets, return on capital employed, return on stockholders equity, earnings, earnings per share, total stockholder return, sales, costs, satisfaction of product development or other milestones or other goals related to the performance of Osiris, a particular business unit, or in some cases individual performance. Except as provided in any applicable award agreement, when circumstances occur that cause predetermined performance objectives to be an inappropriate measure of performance, the Compensation Committee, in its discretion, may adjust the performance goals. The Compensation Committee will determine whether performance share and performance unit awards are earned, i.e., whether the designated performance goals are achieved during the specified performance period.

The term of the Omnibus Plan currently expires on May 27, 2020, unless extended prior to expiration with the approval of the stockholders. Unless so extended, no stock options may be granted or other awards made under the Omnibus Plan on or after May 27, 2020. Awards made prior to expiration remain outstanding in accordance with their terms, notwithstanding expiration of the Omnibus Plan. If the extension of the date through which awards may be granted under the Omnibus Plan is not approved by the stockholders at the Annual Meeting, our Board of Directors believes that our ability to attract, retain and motivate key personnel will be significantly compromised.

The aggregate number of shares issuable under the Omnibus Plan and the number of shares subject to options and awards made thereunder, and the applicable exercise price, are subject to adjustment in the event of a merger, reorganization, consolidation, recapitalization, dividend (other than a regular cash dividend), stock split, or other change in corporate structure affecting our common stock. Shares subject to stock options or SARs that expire, terminate or are canceled unexercised, shares of restricted stock that have been forfeited to Osiris, and shares that are not issued as a result of forfeiture, expiration or termination of an award, including shares that are not earned or that are forfeited under a performance share award, may be reissued under the Omnibus Plan. The shares subject to Stock Appreciation Rights exercised but settled for cash may not, however, be reissued.

If the employment or service with us of a participant is terminated other than as a result of death or disability, then, at any time during the ninety days following, the participant may exercise any

options or SARs that were exercisable by him or her on the date of termination, subject to two events that may lead to an extension of such exercise term. If the participant serves as a director of Osiris when his or her employment terminates, then his or her stock options or SARs will not terminate and will continue to vest until he or she ceases to be a director and the holder will then have three months to exercise any stock options or SARs that were exercisable on the date he or she ceased to be a director. Second, the Compensation Committee may, in its sole discretion, permit a non-qualified stock option holder whose employment with Osiris is terminated to exercise any stock options that were exercisable on the date of termination for up to twelve months after termination, provided that such exercise period does not extend beyond the expiration date of the option as determined on the date of grant. However, if the Compensation Committee determines that the participant's employment or service was terminated as a result of dishonesty or conduct detrimental to our best interest, all outstanding options and SARs will be forfeited on the date of termination. If a participant's employment or service with us is terminated as a result of death or disability, then the participant or his or her estate may generally exercise any option or SAR at any time within one year, but only to the extent exercisable on the date of termination of employment or service.

If a participant's employment or service is terminated for any reason following a performance period, any performance share or performance unit awards that are earned but not yet paid as of the date of termination will be paid to the participant. Unless otherwise determined by the Committee at the time of grant, outstanding performance share and performance unit awards shall be terminated and forfeited upon the participant's termination of employment or service prior to the end of the performance period. If the participant ceases to be employed by us but continues to serve as a director, the foregoing rules shall apply only to the end of the participant's service as a director.

If a participant's employment or service with us is terminated other than as a result of death or disability, any restricted stock awards that are subject to forfeiture restrictions are terminated. If the participant ceases to be employed by us but continues to serve as a director, the foregoing rules shall apply only to the end of the participant's service as a director.

The Committee may, in its discretion but subject to the compliance requirements set forth in Section 409A of the Code, provide in any award agreement or determine at any time following the grant that exercisability shall be accelerated, in whole or in part, in the event of a participant's retirement, death, disability or termination of service on the Board. Subject to certain limitations, the Compensation Committee may at any time amend, discontinue, or terminate all or any part of the Omnibus Plan. However, unless otherwise required by law, the rights of a participant with respect to any grant or award prior to the amendment, discontinuance or termination may not be impaired without the consent of such participant. Osiris will seek the approval of our stockholders for any amendment if such approval is necessary to comply with applicable law or the Rules of the NASDAQ Global Market or other relevant regulatory requirement.

Federal Tax Consequences

The Federal income tax discussion set forth below is intended for general information only. State and local income tax consequences are not discussed, and may vary from locality to locality.

Non-Qualified Options. Under present United States Treasury regulations, a participant who is granted a non-qualified stock option will not realize taxable income at the time the stock option is granted. In general, an optionee will be subject to tax for the year of exercise on an amount of ordinary income equal to the excess of the fair market value of the shares on the date of exercise over the option exercise price, and Osiris will receive a corresponding deduction. Income tax withholding requirements apply upon exercise. The optionee's basis in the shares so acquired will be equal to the option exercise price plus the amount of ordinary income upon which he or she is taxed. Upon

subsequent disposition of the shares, the optionee will realize capital gain or loss, long-term or short-term, depending upon the length of time the shares are held after the stock option is exercised.

Incentive Options. An employee is not taxed at the time an incentive option is granted. The tax consequences upon exercise and later disposition generally depend upon whether the optionee was an employee of Osiris or a subsidiary at all times from the date of grant until three months preceding exercise (one year in the case of disability) and on whether the optionee holds the shares for more than one year after exercise and two years after the date of grant of the stock option.

If the optionee satisfies both the employment rule and the holding rule, for regular tax purposes the optionee will not realize income upon exercise of the stock option and Osiris will not be allowed an income tax deduction at any time. The difference between the option exercise price and the amount realized upon disposition of the shares by the optionee will constitute a long-term capital gain or a long-term capital loss, as the case may be.

If the optionee meets the employment rule but fails to observe the holding rule (a "disqualifying disposition"), the optionee generally recognizes as ordinary income, in the year of the disqualifying disposition, the excess of the fair market value of the shares at the date of exercise over the option exercise price. Any excess of the sales price over the fair market value at the date of exercise will be recognized by the optionee as capital gain (long-term or short-term depending on the length of time the stock was held after the stock option was exercised). If, however, the sales price is less than the fair market value at the date of exercise, then the ordinary income recognized by the optionee is generally limited to the excess of the sales price over the option exercise price. In both situations, the tax deduction allowable to Osiris is limited to the amount of ordinary income recognized by the optionee. Under current Internal Revenue Service guidelines, Osiris is not required to withhold any Federal income tax in the event of a disqualifying disposition.

Different consequences will apply for an optionee subject to the alternative minimum tax.

Restricted Stock, Performance Share Awards and Performance Units. A participant normally will not realize taxable income upon the award of restricted stock issued subject to restrictions or the grant of performance share or performance unit awards. When any restrictions, conditions and requirements established with respect to such an award have been satisfied and, in the case of performance share or performance unit awards, the payment amount determined, any cash and the fair market value of any shares of our common stock received, or not subject to a substantial risk of forfeiture, whichever occurs earlier, will constitute ordinary income to the participant in the year in which paid or when no longer subject to a substantial risk of forfeiture, and Osiris will be entitled to a deduction in the same amount. A participant will, however, generally realize ordinary income in an amount equal to the fair market value of any award made without restriction at the time of grant, such as an award of restricted stock without restriction. Osiris will generally be entitled to a deduction in the same amount.

Stock Appreciation Rights. A participant normally will not realize any income at the time of grant of a SAR. Upon the exercise of a SAR, any cash received and the fair market value on the exercise date of any shares of common stock received would constitute ordinary income to the participant, and Osiris would be entitled to a deduction in the amount of such income at the time of exercise.

Deductibility of Executive Compensation. Section 162(m) of the Code disallows a tax deduction to publicly held companies for compensation paid to the Chief Executive Officer and the three most highly compensated executive officers, other than the Chief Executive Officer, to the extent that total compensation exceeds $1 million per covered officer in any taxable year. The limitation applies only to compensation which is not considered to be performance-based. Compensation is considered to be performance-based if it is paid pursuant to performance goals that are approved by stockholders at least once every five years and it satisfies certain other requirements.

By voting for this proposal, stockholders will also be approving the eligibility of officers, employees and Non-Employee Directors to participate in the Omnibus Plan, the per-person limitations on awards that may be granted under the Omnibus Plan, and the general business criteria on which performance objectives for performance-based awards may be based.

Compensation paid by Osiris in connection with restricted stock, performance share and performance unit awards granted to an employee covered by Section 162(m) may be taken into account for purposes of the $1 million limitation unless the individual award is specifically designed to comply with Section 162(m)'s performance-based exemption. In order to satisfy Section 162(m)'s performance-based exemption, payment of the award must be contingent on the satisfaction of objective performance goals established no later than 90 days after the beginning of the applicable performance period and not later than 25% of the performance period has elapsed. Within a reasonable time after the close of a performance period, the Compensation Committee must determine whether the performance goals for that performance period have been met.

Compensation deemed paid by Osiris in connection with disqualifying dispositions of incentive stock option shares or exercises of non-qualified stock options granted under the Omnibus Plan qualifies as performance-based compensation for purposes of Section 162(m) if the grants were made by a committee of "outside directors" as defined under Section 162(m). We anticipate that any compensation deemed paid by us in connection with disqualifying dispositions of incentive stock option shares or exercises of non-qualified stock options will qualify as performance-based compensation for purposes of Section 162(m) and will not have to be taken into account for purposes of the $1 million limitation. Accordingly, all compensation deemed paid with respect to those stock options should be deductible by us without limitation under Section 162(m).

Under the terms of the Omnibus Plan, the Compensation Committee retains the authority to issue awards that may not qualify under Section 162(m).

Impact of Section 409A. Section 409A of the Code applies to deferred compensation, unless the compensation was both deferred and vested prior to January 1, 2005. Generally speaking, "deferred compensation" is compensation earned currently, the payment of which is deferred to a later taxable year and an amount is "vested" on the date that the participant's right to receive the amount is no longer conditioned on the participant's performance of substantial future services or upon the achievement of performance goals that are substantially related to the purpose of the compensation.

Awards granted under the Omnibus Plan are designed to be exempt from the requirements of Section 409A. An award that is subject to Section 409A and fails to satisfy its requirements will subject the holder of the award to immediate taxation, an interest penalty and an additional 20% tax on the amount underlying the award.

THE BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THE AMENDMENT TO OUR AMENDED AND RESTATED 2006 OMNIBUS PLAN AND THE RE-APPROVAL OF THE TERMS OF THE AMENDED AND RESTATED 2006 OMNIBUS PLAN, AS DESCRIBED ABOVE. SUBMITTED PROXIES WILL BE VOTED IN FAVOR OF PROPOSAL NO. 2 UNLESS A STOCKHOLDER INDICATES OTHERWISE WHEN SUBMITTING ITS PROXY.

PROPOSAL NO. 3—RATIFICATION OF THE APPOINTMENT OF GRANT THORNTON LLP AS OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE FISCAL YEAR ENDING DECEMBER 31, 2012

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, 2012. 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, 2012, although such ratification is not required under Maryland law or our Articles of Restatement 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 three years ended December 31, 2011. The audit report of Grant Thornton LLP on the Company's financial statements as of and for the three fiscal years ended December 31, 2011, 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, 2011, 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, 2011, December 31, 2010 and December 31, 2009: (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, 2012, 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 January 1, 2012. 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 23, 2012 for (a) the executive officers named in the Summary Compensation Table on page 32 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 15, 2012 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 32,852,521 shares of common stock outstanding on April 23, 2012.

Name and Address of Beneficial Owners	Amount and Nature of Beneficial Ownership	Percent of Class(9)
Executive Officers and Directors(1)		
Gregory H. Barnhill	82,241	—
Lode Debrabandere, Ph.D.	120,000(2)	—
Peter Friedli	15,273,470(3)	45.1%
Felix Gutzwiller, M.D., Dr.P.H.	70,500	—
Philip R. Jacoby, Jr.	52,250(4)	—
C. Randal Mills, Ph.D.	642,500(5)	1.9%
Jay M. Moyes	16,500	—
Stephen W. Potter	25,000(6)	
Michelle LeRoux Williams, Ph.D.	98,770(7)	—
All directors and executive officers as a group (9 persons)	16,381,231	48.4%
Other 5% Stockholders		
Venturetec, Inc. c/o Osiris Therapeutics, Inc. 7015 Albert Einstein Drive Columbia, Maryland 21046	4,153,301	12.7%
Thomas Schmidheiny Zurcherstrasse 156 8645 Jona Switzerland	3,053,267(8)	9.3%
BIH SA 3 Faubourg de'Hopital 2000 Neuchatel, Switzerland	2,658,113	8.2%

(1) Mailing address for all directors and officers is c/o Osiris Therapeutics, Inc., 7015 Albert Einstein Drive, Columbia, Maryland 21046.

(2) Represents 120,000 shares issuable upon exercise of options.

(3) Consists of 9,616,794 shares owned by Peter Friedli & Co.; 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;

625 shares owned by Mr. Friedli's mother; and 4,153,301 shares owned by Venturetec, Inc. Mr. Friedli is President of Venturetec, Inc. and the 100% beneficial owner and President of Peter Friedli & Co.

(4) Consists of 12,500 shares owned directly by Mr. Jacoby and 39,750 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 517,500 shares issuable upon the exercise of options.

(6) Represents 25,000 shares issuable upon exercise of options.

(7) Represents 98,770 shares issuable upon exercise of options.

(8) 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.

(9) 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		
Name	Age	Positions	Audit	Compensation	Nominating
Peter Friedli	58	Chairman of the Board of Directors			
C. Randal Mills, Ph.D.	40	President & Chief Executive Officer			
Felix Gutzwiller, M.D., Dr.P.H.	64	Chairman, Compensation and Nominating Committees	X	X	X
Jay M. Moyes	58	Chairman, Audit Committee	X		X
Gregory H. Barnhill	58	Director	X	X	X

Our Board currently consists of five members, classified into three classes as follows: Gregory H. Barnhill and Jay M. Moyes constitute a class with a term ending at the Annual Meeting to be held in 2013 (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 this Annual Meeting (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 March 23, 2012, our Nominating Committee and Board, upon the recommendation and with the approval of our independent directors determined to nominate Peter Friedli for re-election at the Annual Meeting for a term of three years to serve until the 2015 Annual Meeting of Stockholders, and until his successor has 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 58, 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 40, is our President and Chief Executive Officer and joined us in this capacity in July 2004. Dr. Mills has also been a member of our Board since July 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 64, 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 58, 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. Mr. Moyes' extensive background in finance and accounting in the context of life sciences industry enables him to make significant contributions to the Board in general, and particularly to the Audit Committee.

Gregory H. Barnhill, age 58, has been a member of our Board since the completion of our initial public offering in August 2006. Mr. Barnhill has served as a Partner and Member of the board of directors of Brown Advisory Securities, LLC since 2003. Mr. Barnhill has been a member of the board of PURE Biosciences since 2001 and is a member of both its audit and compensation committees. He is also a member of numerous philanthropic boards. From 1975 to 2003, Mr. Barnhill held various positions with Deutsche Bank Securities, Inc., most recently as Managing Director and Regional Manager, North American Equity Sales. He holds a B.A. degree in economics from Brown University. Mr. Barnhill holds NYSE/NASD licenses series 7, 63, 9 and 10 as well as life, health and variable annuities insurance licenses. Through his leadership as part of various philanthropic and corporate boards, as well as his business experience, Mr. Barnhill is a valued member of the Board, has extensive experience in the securities industry, and makes important contributions to the work of the Audit Committee, Nominating and Compensation 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: Messrs. Moyes and Barnhill, and Dr. Gutzwiller. 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, 2011, there were four meetings of the Board, and the various committees of the Board met a total of seven times. During 2011, 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 2011. This committee currently has three members, Mr. Moyes (Chairman), Dr. Gutzwiller and Mr. Barnhill. 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 37 of this proxy statement.

Compensation Committee. Our Compensation Committee met two times during 2011. This committee currently has two members, Dr. Gutzwiller (Chairman) and Mr. Barnhill. 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 31 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 one time during 2011. This committee currently has three members, Dr. Gutzwiller (Chairman), Mr. Moyes and Mr. Barnhill. 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 2011 (Dr. Gutzwiller (Chairman) and Mr. Barnhill) was an officer or employee of the Company during 2011, 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 be 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 2011, 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 2011.

Director Compensation

Name	Fees Earned or Paid in Cash($)	Stock Awards($)(1)	Option Awards($)	All Other Compensation($)	Total($)
Gregory H. Barnhill	—	35,650	—	—	35,650
Peter Friedli	—	71,300	—	—	71,300
Felix Gutzwiller	21,390	49,910	—	—	71,300
Jay M. Moyes	14,260	21,390	—	—	35,650

(1) Reflects the grant of awards in February 2011 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 ($21,390 of which was paid in cash) and 5,000 shares of common stock to each of Messrs. Barnhill and Moyes ($14,260 of which was paid in cash to Mr. Moyes) for their service on our Board in 2010. The fair value of these shares at the time of grant was $7.13 per share and the directors were provided the option of receiving their award in shares, cash or a combination of cash and shares.

Options granted during 2011 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, with the exception of C. Randal Mills, Ph.D., whose information is set forth above under "Management—Board of Directors."

Name	Age	Positions	Employment Date
C. Randal Mills, Ph.D.	40	President and Chief Executive Officer	July 2004
Philip R. Jacoby, Jr.	59	Chief Financial Officer, Treasurer and Secretary	October 2005
Stephen W. Potter	55	Senior Vice President of Operations and Corporate Development	February 2011
Lode Debrabandere, Ph.D.	47	Senior Vice President, Therapeutics	July 2006
Michelle LeRoux Williams, Ph.D.	37	Chief Scientific Officer	October 2001

Philip R. Jacoby, Jr. , age 59, 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.

Stephen W. Potter, age 55, is our Senior Vice President of Operations and Corporate Development (since February 2011). Prior to joining us, Mr. Potter was employed by Genzyme Corporation for over ten years, most recently as Senior Vice President of Corporate and Business Development. Prior to Genzyme, Mr. Potter was Senior Vice President of Business Development for DuPont's pharmaceutical subsidiary in Wilmington, Delaware. Before joining DuPont, Mr. Potter was a Principal at Booz, Allen & Hamilton based in Chicago. Mr. Potter graduated from the Harvard Business School in 1989 with an MBA in general management. He earned a BS in Economics from the University of Massachusetts in 1979.

Lode Debrabandere, Ph.D., age 47, is 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 37, 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 Mr. Gregory Barnhill, 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 last year provides shareholders with an opportunity to communicate their views on our executive compensation program annually.

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 annual 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 March 23, 2012, the Compensation Committee of the Board approved the 2012 annual base salaries for each of the named executive officers, effective April 1, 2012 as follows:

Name	Position(s)	2012 Base Salary	2011 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	194,000	190,000
Stephen W. Potter	Senior Vice President of Operations and Corporate Development	281,000	275,000
Lode Debrabandere, Ph.D.	Senior Vice President, Therapeutics	294,000	287,000
Michelle LeRoux Williams, Ph.D.	Chief Scientific Officer	273,000	267,000

We believe the 2012 base salaries for Dr. Mills, Messrs Jacoby and Potter, 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 2011 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, 2011, 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 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, 2011. The range of bonuses paid for our named executive officers on the basis of 2011 performance was $18,000 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 2011, 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 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 $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 Mr. Potter to purchase 100,000 shares at the exercise price of $6.49 on February 7, 2011, upon his employment as an executive officer.

- We granted stock options to Dr. Debrabandere to purchase 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 $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 provide our 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
Gregory H. Barnhill

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 2011, 2010 and 2009 to our Chief Executive Officer, our Chief Financial Officer, and our two next most highly compensated executive officers who earned more than $100,000 during 2010.

Name and Principal Position	Year	Salary ($)	Bonus ($)(1)	Option Awards ($)(2)	All Other Compensation ($)	Total ($)
C. Randal Mills, Ph.D.	2011	470,000	120,000	146,400	—	736,400
President and Chief	2010	468,333	130,000	158,400	—	756,733
Executive Officer	2009	445,441	160,000	368,550	—	973,991
Philip R. Jacoby, Jr.	2011	189,167	18,000	73,200	—	280,367
Chief Financial Officer,	2010	179,167	18,000	103,950	—	301,117
Treasurer and Secretary	2009	165,462	18,000	73,710	—	257,172
Stephen W. Potter Senior Vice President, of Operations and Corporate Development	2011	240,625	35,000	333,000		608,625
Lode Debrabandere, Ph.D.	2011	286,000	35,000	91,500	—	412,500
Senior Vice President,	2010	273,917	45,000	148,500	—	467,417
Therapeutics	2009	259,272	45,000	257,985	—	562,257
Michelle LeRoux Williams, Ph.D.	2011	266,000	35,000	91,500	—	392,500
Chief Scientific Officer	2010	253,750	45,000	148,500	—	447,250
	2009	234,139	45,000	184,275	—	463,414

(1) Represents bonus payments that were paid in April 2012 on account of named executive officer performance in 2011, and bonus payments made in 2011 on account of named executive officer performance in 2010, and bonus payments made in 2010 on account of named executive officer performance in 2009, 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 6 (Share-Based Compensations) to the Company's Financial Statements in its 2011 Annual Report filed on Form 10-K with the SEC (or, in the case of grants made prior to 2010, the corresponding footnote in the Company's Form 10-K for the applicable year). Under generally accepted accounting principles, 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) Mr. Potter joined our management team on February 7, 2011.

Grants of Plan-Based Awards

The following table provides information on equity awards granted in 2011 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.	2/14/2011	40,000	$ 7.13	$ 146,400
Philip R. Jacoby, Jr.	2/14/2011	20,000	7.13	73,200
Stephen W. Potter	2/07/2011	100,000	6.49	333,000
Lode Debrabandere, Ph.D.	2/14/2011	25,000	7.13	91,500
Michelle LeRoux Williams, Ph.D.	3/12/2010	25,000	7.13	91,500

(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.

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 1,940,447 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, 2011:

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights ($/Sh)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans
Equity compensation plans approved by security holders (1)	2,702,072	9.78	420,948
Equity compensation plans not approved by security holders	—	—	—

(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			
	Number of Securities Underlying Unexercised Options (#)		Option Exercise Price ($)	Option Expiration Date(1)
	Exercisable	Unexercisable		
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
	75,000	25,000	12.01	2/5/2018
	25,000	25,000	18.60	2/23/2019
	10,000	30,000	7.74	3/12/2020
	—	40,000	7.13	2/14/2021
Philip R. Jacoby, Jr.	3,000	—	23.62	2/4/2017
	3,000	—	12.50	7/25/2017
	7,500	2,500	17.10	10/2/2018
	5,000	5,000	18.60	2/23/2019
	5,000	15,000	7.74	3/12/2020
	1,875	5,625	6.46	5/27/2020
	—	20,000	7.13	2/14/2021
Stephen W. Potter	—	100,000	6.49	2/7/2021
Lode Debrabandere, Ph.D.	37,500	—	6.84	7/31/2016
	15,000	—	23.62	2/4/22017
	11,250	3,750	12.01	2/4/2018
	17,500	17,500	18.60	2/23/2019
	6,250	18,750	7.74	3/12/2020
	3,750	11,250	6.46	5/27/2020
	—	25,000	7.13	2/14/2021
Michelle LeRoux Williams, Ph.D.	250	—	0.40	4/8/2013
	270	—	0.40	4/8/2013
	5,750	—	0.40	11/21/2014
	7,500	—	0.40	12/1/2015
	20,000	—	14.19	6/30/2017
	15,000	5,000	12.01	2/5/2018
	12,500	12,500	18.60	2/23/2019
	6,250	18,750	7.74	3/12/2020
	3,750	11,250	6.46	5/27/2020
	—	25,000	7.13	2/14/2021

(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.

Option Exercises and Stock Vested

	Option Awards		Stock Awards	
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.	2,500	11,250	—	—
Stephen W. Potter	—	—	—	—
Lode Debrabandere, Ph.D.	—	—	—	—
Michelle LeRoux Williams, Ph.D.	—	—	—	—

Employment Contracts, Termination of Employment and Change in Control Arrangements

Except in the case of Dr. Mills, Mr. Potter 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, Mr. Potter 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 2011 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 2011 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 Mr. Potter's employment agreement, dated as of February 7, 2011, he is serving as our Senior Vice President of Operations and Corporate Development 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 Mr. Potter'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. Mr. Potter may terminate his employment for good reason. If we terminate Mr. Potter for inability to perform his duties or for cause, or if Mr. Potter terminates his employment for other than good reason, we have no obligations to Mr. Potter other than the payment of amounts otherwise owed at the time of termination. If we terminate Mr. Potter 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 2011 annual base salary of $275,000, this amount equals $68,750) and provide six months of medical, life and disability benefits (having an estimated value of approximately $10,000). If we terminate Mr. Potter 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 2011 annual base salary of $275,000, this amount equals $137,500) and provide six months 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. 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. 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 2011 annual base salary of $287,000, this amount equals $71,750) 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 2011 annual base salary of $287,000, this amount equals $143,500) and provide six months of medical, life, and disability benefits (having an estimated value of approximately $20,000).

For purposes of the employment agreements with Dr. Mills, Mr. Potter 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, Mr. Potter 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), Gregory H. Barnhill 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, 2011, 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, 2011 filed with the Securities and Exchange Commission.

AUDIT COMMITTEE

Jay M. Moyes, Chairman
Gregory H. Barnhill
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, 2011 and 2010 and fees billed for other services rendered by Grant Thornton LLP during this period are described below.

	2011 ($)	2010 ($)
Audit Fees(1)	$ 175,350	$ 170,424
Audit-Related Fees(2)	—	—
Tax Fees(3)	13,650	11,594
All Other Fees(4)	—	—
Total	$ 189,000	$ 182,018

(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 2011 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 2011 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 2011, 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 47% of our common stock as of December 31, 2011. Of the shares beneficially owned by Mr. Friedli at December 31, 2011, 55,000 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.

During 2010, we paid Mr. Friedli $64,600 for his service on our Board of Directors. 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 and in 2009; we issued 10,000 shares of our common stock, valued at $120,000 to Mr. Friedli 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.

Upon approval by the stockholders, we incurred a non cash 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 fiscal quarter of 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 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.

Prolexys is 37.7% owned by BIH SA, which owns 8.2% of our outstanding common stock; 23.7% owned by Peter Friedli who is the Chairman of our Board of Directors and direct owner of 30.8% of our common stock; and 14.6% owned by Venturetec, Inc., which holds 12.7% of our common stock. Peter Friedli is the President and a 3% owner of Venturetec, Inc. Lode Debrabandere, our Senior Vice President of Therapeutics, 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.

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, 2011. 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 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:

Philip R. Jacoby, Jr.
Corporate Secretary

Columbia, Maryland
April 27, 2012

Appendix A

STOCKHOLDER RESOLUTIONS APPROVING THE AMENDMENT TO THE AMENDED AND RESTATED 2006 OMNIBUS PLAN AND RE-APPROVING THE TERMS OF SUCH PLAN, INCLUDING FOR PURPOSES OF SECTION 162(m) OF THE INTERNAL REVENUE CODE

RESOLVED , that the aggregate number of shares of common stock that may be issued at any time pursuant to awards granted under the Amended and Restated 2006 Omnibus Plan be, and hereby is, increased by 300,000, from 1,950,000 to 2,250,000, subject to further adjustment from time to time as provided under the terms of the aforesaid plan, and to that end, the first sentence of Section 3.3 of the Amended and Restated 2006 Omnibus Plan is hereby amended to read in full as follows: "Subject to the provisions of Section 4.1(e) (relating to adjustment for changes in Common Stock), the maximum number of shares that may be issued under this Plan shall not exceed in the aggregate 2,250,000 shares of Common Stock."

RESOLVED , that the termination date of the Amended and Restated 2006 Omnibus Plan be, and the same hereby is, extended from May 27, 2020 to June 11, 2022, and to that end, the last sentence of Section 10.2 of the Amended and Restated 2006 Omnibus Plan is hereby amended to read in full as follows: "Unless sooner terminated by the Committee, this Plan will terminate on June 11, 2022; it be acknowledged, however, for the avoidance of doubt, that any awards granted or made prior to any termination will not be affected thereby."

RESOLVED , that the terms of the Amended and Restated 2006 Omnibus Plan and the specific performance criteria described in the Proxy Statement for the 2012 Annual Meeting of Stockholders as qualifying for performance based compensation be, and the same hereby are, re-approved for purposes of Section 162(m) of the Internal Revenue Code.

Appendix B

OSIRIS THERAPEUTICS, INC.
AMENDED AND RESTATED 2006 OMNIBUS PLAN
(as amended and restated effective May 27, 2010)

ARTICLE I

PURPOSE; EFFECTIVE DATE; DEFINITIONS

1.1 Purpose. This Osiris Therapeutics, Inc. 2006 Omnibus Plan (the "Plan") is intended to secure for Osiris Therapeutics, Inc. (the "Company") and its stockholders the benefits of the incentive inherent in common stock ownership by the employees of the Company and its subsidiaries and directors of the Company who are largely responsible for the Company's future growth and continued financial success and to afford such persons the opportunity to obtain or increase their proprietary interest in the Company on a favorable basis and thereby have an opportunity to share in its success.

1.2 Effective Date. This Plan (as initially adopted by the Board and ratified by the stockholders) initially became effective on April 17, 2006, and was amended and restated in its entirety, effective June 4, 2008, to, among other things, be exempt from (or, where applicable, to comply with) the requirements of Section 409A of the Code and to incorporate certain other amendments and clarifications. This Plan has been amended and restated in its entirety, effective May 27, 2010, to increase the aggregate number of shares of common stock that may be issued at any time pursuant to awards granted hereunder and to extend the termination date, after which awards may no longer be granted hereunder.

1.3 Definitions. Throughout this Plan, the following terms shall have the meanings indicated:

(a) " **Agreement** " shall mean an Option Agreement, Restricted Stock Agreement, Performance Share Agreement, Performance Unit Agreement or SAR Agreement.

(b) " **Benefits** " shall mean any one or more of the following awards that may be granted under this Plan:

(i) Options (including ISOs and NQSOs);

(ii) Stock Appreciation Rights;

(iii) Performance Shares;

(iv) Performance Units; or

(v) Restricted Stock.

(c) " **Board** " shall mean the Board of Directors of the Company.

(d) " **Change of Control** " shall mean (a) the reorganization, consolidation or merger of the Company or any of its subsidiaries holding or controlling a majority of the assets relating to the business of the Company, with or into any third party (other than a subsidiary); (b) the assignment, sale, transfer, lease or other disposition of all or substantially all of the assets of the Company and its subsidiaries taken as a whole; or (c) the acquisition by any third party or group of third parties acting in concert, of beneficial ownership (within the meaning of Rule 13d-3 of the Securities and Exchange Commission ("SEC") under the Securities Exchange Act of 1934, as amended) of shares of voting stock of the Company, the result of which in the case of any transaction described in clauses (a), (b) and (c) above is that immediately after the transaction the stockholders of the Company immediately before the transaction, other than the acquiror, own less than fifty percent (50%) of the combined voting power of the outstanding voting securities entitled to vote generally in the election of directors of the surviving or resulting corporation in a

transaction specified in clause (a) above, the acquiror in a transaction specified in clause (b) above, or the Company or the acquiror in a transaction specified in clause (c) above. Notwithstanding the foregoing, the sale of Company securities beneficially owned by Peter Friedli ("Friedli Shares") shall not, by itself or when combined with any other transactions, constitute a Change in Control, unless such other transactions would constitute a Change in Control without regard to the sale of Friedli Shares.

(e) " **Code** " shall mean the Internal Revenue Code of 1986, as amended, any successor revenue laws of the United States, and the rules and regulations promulgated thereunder.

(f) " **Committee** " shall mean any committee of the Board designated by the Board to administer this Plan.

(g) " **Common Stock** " shall mean the common stock, par value $.001 per share, of the Company.

(h) " **Company** " shall mean Osiris Therapeutics, Inc., a Delaware corporation.

(i) " **Eligible Person** " shall mean an Employee or a Non-Employee Director who has been designated by the Committee as eligible to receive a Benefit under this Plan in accordance with Section 3.1.

(j) " **Employee** " shall mean any person engaged or proposed to be engaged as an officer or employee of the Company or one of its subsidiaries.

(k) " **Exchange Act** " shall mean the Securities Exchange Act of 1934, as amended.

(l) " **Fair Market Value** " shall mean with respect to the Common Stock on any day, (i) the closing sales price on the immediately preceding business day of a share of Common Stock as reported on the principal securities exchange on which shares of Common Stock are then listed or admitted to trading, or (ii) if not so reported, the average of the closing bid and asked prices on the immediately preceding business day as reported by NASDAQ, or (iii) if not so reported, as furnished by any member of the National Association of Securities Dealers, Inc. selected by the Committee. In the event that the price of a share of Common Stock shall not be so reported or furnished, the Fair Market Value of a share of Common Stock shall be determined by the Committee in good faith. For purposes hereof, the fair market value on any day of an Option granted under the Plan shall be the value of the underlying Stock, determined as aforesaid, less the exercise price of the Option. A "business day" is any day, other than Saturday or Sunday, on which the relevant market is open for trading.

(m) " **ISO** " shall mean an Option that qualifies as an incentive stock option under Code Section 422. No Option that is intended to be an ISO shall be invalid under this Plan for failure to qualify as an ISO.

(n) " **NQSO** " shall mean a nonqualified stock option which is an Option that does not qualify as an incentive stock option under Code Section 422.

(o) " **Non-Employee Director** " shall mean a member of the Board who is not an Employee.

(p) " **Option** " shall mean an option to purchase shares of Common Stock granted by the Committee. An Option may be either an ISO or a NQSO, but only an Employee may be granted an ISO.

(q) " **Option Agreement** " shall mean the certificate evidencing an Option grant.

(r) " **Option Shares** " shall mean the shares of Common Stock purchased upon exercise of an Option.

(s) " **Performance Cycle** " shall have the meaning set forth in Section 7.1.

(t) " **Performance Period** " shall have the meaning set forth in Section 6.1.

(u) " **Performance Share** " shall mean an award made pursuant to Article VI of this Plan of the right to receive Common Stock at the end of a specified Performance Period if specified performance goals are met.

(v) " **Performance Unit** " shall mean an award made pursuant to Article VII of this Plan of the right to receive a fixed dollar amount, payable in cash or Common Stock or a combination of both, at the end of a specified Performance Cycle if specified performance goals are met.

(w) " **Plan** " shall mean this Osiris Therapeutics, Inc. 2006 Omnibus Plan, as the same may be amended from time to time.

(x) " **Restricted Stock** " shall mean Common Stock granted under Article VIII of this Plan, subject to such restrictions, if any, as the Committee may determine, as evidenced in a Restricted Stock Agreement. Shares of Common Stock shall cease to be Restricted Stock when, in accordance with the terms of the Restricted Stock Agreement, they become transferable and free of substantial risk of forfeiture.

(y) " **Restricted Stock Agreement** " shall mean any agreement evidencing the grant of Restricted Stock to an Eligible Person pursuant to this Plan.

(z) " **Restriction Period** " shall mean the time period, if any, during which Restricted Stock is subject to the restrictions set forth in a Restricted Stock Agreement.

(aa) " **SAR Agreement** " shall mean the certificate evidencing the grant of a Stock Appreciation Right to an Eligible Person pursuant to this Plan.

(bb) " **Stock Appreciation Right** " or " **SAR** " shall mean the right to receive cash or Common Stock, granted pursuant to Article V of this Plan and a SAR Agreement.

(cc) " **10% Stockholder** " shall mean an individual owning (directly or by attribution as provided in Code Section 424(d)) stock possessing more than 10% of the total combined voting power of all classes of stock of the Company.

ARTICLE II

ADMINISTRATION

2.1 Committee Administration. This Plan and the Benefits awarded hereunder shall be interpreted, construed and administered by the Committee in its sole discretion. An Eligible Person (or other person, such as a beneficiary) eligible for Benefits under the Plan may appeal to the Committee in writing any decision or action of the Committee with respect to the Plan that adversely affects the Eligible Person (or other person). Upon review of such appeal and in any other case where the Committee has acted with respect to the Plan, the interpretation and construction by the Committee of any provisions of this Plan or of any Benefit shall be conclusive and binding on all parties.

2.2 Committee Composition. The Committee shall consist of not less than two persons who shall be members of the Board and shall be subject to such terms and conditions as the Board may prescribe. Each Committee member shall be a "non employee director" within the meaning of Rule 16b-3 promulgated under the Exchange Act and shall qualify to make determinations as to executive compensation under the listing requirements of the NASDAQ Global Market (or whatever other exchange the Common Stock may be listed for trading from time to time). Once designated, the Committee shall continue to serve until otherwise directed by the Board. From time to time, the Board

may increase the size of the Committee and appoint additional members thereof, remove members (with or without cause) and appoint new members in substitution therefor, fill vacancies however caused and remove all members of the Committee.

A majority of the entire Committee shall constitute a quorum, and the action of a majority of the members present at any meeting at which a quorum is present shall be deemed the action of the Committee. In addition, any decision or determination reduced to writing and signed by all of the members of the Committee shall be fully as effective as if it had been made by a majority vote at a meeting duly called and held. Subject to the provisions of this Plan and the Company's bylaws, and to any terms and conditions prescribed by the Board, the Committee may make such additional rules and regulations for the conduct of its business as it shall deem advisable. The Committee shall hold meetings at such times and places as it may determine.

2.3 Committee Powers. The Committee shall have authority to award Restricted Stock and to grant Options, SARs, Performance Shares and Performance Units pursuant to or as evidenced by an Agreement providing for such terms (not inconsistent with the provisions of this Plan) as the Committee may consider appropriate. Such terms shall include, without limitation, as applicable, the number of shares, the exercise price, the medium and time of payment, the term of each award and any vesting requirements, if any, and may include conditions (in addition to those contained in this Plan) on the exercisability of all or any part of an Option or SAR, the terms and conditions applicable to Performance Shares and Performance Units or on the transferability or forfeitability of Restricted Stock. Notwithstanding any such conditions, the Committee may, in its discretion, accelerate the time at which any Option or SAR may be exercised or the time at which Restricted Stock may become transferable or nonforfeitable. In addition, the Committee shall have complete discretionary authority to prescribe the form of Agreements; to adopt, amend and rescind rules and regulations pertaining to the administration of the Plan; and to make all other determinations necessary or advisable for the administration of this Plan. The express grant in the Plan of any specific power to the Committee shall not be construed as limiting any power or authority of the Committee. All expenses of administering this Plan shall be borne by the Company. The Committee shall have the authority to delegate from time to time its powers hereunder, in whole or in part, in accordance with and subject to compliance with all applicable laws, rules and regulations.

2.4 Receipt of Benefits by Committee Members. Members of the Committee shall be eligible to receive Benefits under this Plan; provided, however, that the Committee may, but shall not be required to, seek ratification of the Board or members thereof, on such terms as the Committee shall determine, in respect of any such Benefits so awarded.

2.5 Good Faith Determinations. No member of the Committee or other member of the Board shall be liable for any action or determination made in good faith with respect to this Plan or any Benefit granted hereunder.

ARTICLE III

ELIGIBILITY; TYPES OF BENEFITS; SHARES SUBJECT TO PLAN

3.1 Eligibility. The Committee shall from time to time determine and designate Employees and Non-Employee Directors as Eligible Persons who shall receive Benefits under this Plan and the number of Options, Stock Appreciation Rights, Performance Shares, Performance Units and shares of Restricted Stock to be awarded to each such Eligible Person or the formula or other basis on which such Benefits shall be awarded to Eligible Persons. In making any such award, the Committee may take into account the nature of services rendered by an Eligible Person, commissions, fees or other compensation earned by the Eligible Person, the capacity of the Eligible Person to contribute to the success of the Company and other factors that the Committee may consider relevant.

3.2 Types of Benefits. Benefits under this Plan may be granted in any one or any combination of (a) Options, (b) Stock Appreciation Rights, (c) Performance Shares, (d) Performance Units, and (e) Restricted Stock, as described in this Plan. The Committee may (x) award Benefits in tandem so that acceptance of or exercise of one Benefit cancels the right of an Eligible Person to another and (y) award Benefits in any combination or combinations and subject to any condition or conditions consistent with the terms of this Plan that the Committee in its sole discretion may consider appropriate.

3.3 Shares Subject to this Plan. Subject to the provisions of Section 4.1(e) (relating to adjustment for changes in Common Stock), the maximum number of shares that may be issued under this Plan shall not exceed in the aggregate 1,950,000 shares of Common Stock. The maximum number of shares authorized under this Plan shall only be increased with approval of the stockholders of the Company (except as provided in Section 4.1(e)). Such shares may be authorized and unissued shares or authorized and issued shares that have been reacquired by the Company. If any Benefits awarded under this Plan shall for any reason terminate or expire, or be surrendered or forfeited, without having been exercised in full, or without shares otherwise issuable thereunder having been issued for any reason, then the shares not purchased or issued under such Benefits shall be available again for grant hereunder, provided, however, that insofar as an SAR is exercised and settled for cash, the number of shares in respect of which the SAR is so exercised and settled shall not again be available for grant hereunder. Anything in this Plan to the contrary notwithstanding, in no event shall any Eligible Person receive in any calendar year Benefits under this Plan involving more than 125,000 shares of Common Stock (subject to adjustment as provided in Section 4.1(e)).

3.4 $100,000 Limitation. Except as provided elsewhere in this Section, the Committee shall not grant an ISO to, or modify the exercise provisions of an outstanding ISO for, any person who, at the time of grant or modification, as applicable, would thereby hold ISOs issued by the Company if the aggregate Fair Market Value (determined as of the respective dates of grant and modification of each Option) of the Option Shares underlying such ISOs as are exercisable for the first time during any calendar year would exceed $100,000 (or such other limitation as may be prescribed by the Code from time to time). The foregoing restriction on modification of outstanding ISOs shall not preclude the Committee from modifying an outstanding ISO if, as a result of such modification and with the consent of the holder, such Option no longer constitutes an ISO. Furthermore, if the $100,000 limitation (or such other limitation prescribed by the Code) described in this Section is exceeded, then the ISO, the granting or modification of which resulted in exceeding such limitation, shall be treated as an ISO up to the limitation, and the excess shall be treated as a NQSO.

ARTICLE IV

STOCK OPTIONS

4.1 Grant; Terms and Conditions. The Committee, in its discretion, may from time to time grant ISOs or NQSOs, or both, to any Eligible Person; provided that ISOs shall only be granted to Employees. Each Eligible Person who is granted an Option shall receive an Option Agreement from the Company in a form specified by the Committee and containing such provisions, consistent with this Plan, as the Committee, in its sole discretion, shall determine at the time the Option is granted.

(a) **Number of Shares.** Each Option Agreement shall state the number of shares of Common Stock to which it pertains.

(b) **Option Price.** Each Option Agreement shall state the Option exercise price, which shall not be less than 100% of the Fair Market Value per share of Common Stock on the date of grant of the Option. In the case of an ISO granted to a 10% Stockholder, the Option exercise price shall not be less than 110% of the Fair Market Value per share of Common Stock on the date of grant of the Option. The date of the grant of an Option shall be the date specified by the Committee in

its grant of the Option. Subject to the foregoing, the price at which each share of Common Stock covered by an NQSO granted under the Plan may be purchased shall be the price determined by the Committee, in its absolute discretion, to be suitable to attain the purposes of this Plan.

(c) **Medium and Time of Payment.** Upon the exercise of an Option, the Option exercise price shall be payable in United States dollars, in cash (including by check) or (unless the Committee otherwise prescribes) in shares of Common Stock owned by the optionee (but not with Restricted Stock prior to the expiration of the Restriction Period), in NQSOs granted to the optionee under the Plan which are then exercisable (provided that the purchase price of Common Stock under an ISO may not be paid in NQSOs), or in a combination of cash, Common Stock and NQSOs. If all or any portion of the Option exercise price is paid in Common Stock owned by the optionee, then that stock shall be valued at its Fair Market Value as of the date the Option is exercised. If all or any portion of the Option exercise price is paid in NQSOs granted to the optionee under the Plan, then such NQSOs shall be valued at their Fair Market Value as of the date the Option is exercised.

(d) **Term and Exercise of Options.** The term of each Option shall be determined by the Committee at the time the Option is granted; provided that the term of an Option shall in no event be more than ten years from the date of grant or, in the case of an ISO granted to a 10% Stockholder, more than five years from the date of grant. During the lifetime of an optionee, the Option shall be exercisable only by him or her and shall not be assignable or transferable by him or her and no person shall acquire any rights therein. Following an optionee's death, the Option may be exercised (to the extent permitted under the Plan) by the person designated by the optionee as a beneficiary in a written notification delivered to the Committee prior to the optionee's death, or if there is no such written designation, by the executor or administrator of the optionee's estate or by the person or persons to whom such rights pass by will or by the laws of descent and distribution.

(e) **Recapitalization; Reorganization.** Subject to any otherwise required action by the stockholders of the Company, the Change of Control provisions set forth in Article IX of this Plan and any provision expressly to the contrary and contained in an Agreement, each of (i) the maximum number of shares of Common Stock that may be issued under this Plan pursuant to Section 3.3 above, (ii) the maximum number of shares of Common Stock that may be granted or be the subject of grants made to any Participant in any calendar year, (iii) the number of shares of Common Stock covered by each outstanding Option, (iv) the number of shares of Common Stock to which each Stock Appreciation Right or Performance Share relates, (v) the kind of shares subject to outstanding Benefits and (vi) the per share exercise price under each outstanding Option or SAR, shall be proportionately and equitably adjusted to account for any increase or decrease in the number of issued shares of Common Stock resulting from a reorganization, recapitalization, stock split, combination of shares, merger, consolidation, rights offering, subdivision or consolidation of shares or the payment of a stock dividend (but only on the Common Stock) or any other change in the capital structure or state of incorporation of the Company, in each case, in the manner the Committee deems appropriate. Such other substitutions or adjustments shall be made as may be determined by the Committee, in its sole discretion, to be necessary or appropriate under the circumstances. In connection with any event described in this paragraph, the Committee may provide, in its sole discretion, for the cancellation of any outstanding awards and payment in cash or other property therefor.

Subject to any action that may otherwise be required on the part of the stockholders of the Company, if the Company is the surviving corporation in any merger, consolidation, sale, transfer, acquisition, tender offer or exchange offer which does not result in a Change of Control, then each outstanding Option, Stock Appreciation Right, Restricted Stock and Performance Share award shall pertain to and apply to the securities or other consideration that a holder of the number of shares of

Common Stock subject to the Option or to which the Stock Appreciation Right or Restricted Stock or Performance Share relates would have been entitled to receive in such transaction.

Notwithstanding the foregoing, in no event shall any Option or be exercisable after the date of termination of the exercise period of such Option.

In the event of a change in the Common Stock as presently constituted, which change is limited to a change of all of the authorized shares with par value into the same number of shares with a different par value or without par value, the shares resulting from any such change shall be deemed to be the Common Stock within the meaning of this Plan.

The grant of an Option, Stock Appreciation Right or other Benefit pursuant to this Plan shall not affect in any way the right or power of the Company to make adjustments, reclassifications, reorganizations or changes of its capital or business structure or to merge or to consolidate or to dissolve, liquidate, sell or otherwise transfer all or any part of its business or assets.

The provisions of this Section 4.1(e) shall be limited in respect of ISOs to the extent necessary to comply with the applicable provisions of Code Section 424(a).

(f) **Rights as a Stockholder.** Subject to Section 10.10 of this Plan regarding uncertificated shares, an optionee or a transferee of an Option shall have no rights as a stockholder with respect to any shares covered by his or her Option until the date of the issuance of a stock certificate to him or her for those shares upon payment of the exercise price. No adjustments shall be made for dividends (ordinary or extraordinary, whether in cash, securities or other property) or distributions or other rights for which the record date is prior to the date such stock certificate is issued, except as provided in Section 4.1(e).

(g) **Modification, Extension and Renewal of Options.** Subject to the terms and conditions and within the limitations of this Plan, the Committee may modify, extend or renew outstanding Options granted under this Plan or accept the surrender of outstanding Options (to the extent not theretofore exercised) and authorize the granting of new Options in substitution therefor (to the extent not theretofore exercised). No modification of an Option shall, without the consent of the optionee, alter or impair any rights or obligations under any Option theretofore granted under this Plan. Notwithstanding the foregoing,

(i) no Option exercise period may be extended beyond the latest date at which the Option otherwise would have expired; and

(ii) the Committee shall not have authority to reprice to reduce the exercise price Options without first obtaining shareholder approval for such repricing.

(h) **Exercisability and Term of Options.** Unless earlier terminated, Options granted pursuant to this Plan shall be exercisable at any time on or after the dates of exercisability and before the expiration date. Notwithstanding the foregoing, an Option shall terminate and may not be exercised if the Eligible Person to whom it is granted ceases to be employed by, or provide services as a Non-Employee Director to, the Company, except that: (1) unless the Committee shall at any time determine that the Eligible Person's employment or service was terminated for conduct that in the judgment of the Committee involves dishonesty or action by the Eligible Person that is detrimental to the best interest of the Company, the Eligible Person may at any time within ninety (90) days after termination of his or her employment or service exercise his or her Option but only to the extent the Option was exercisable by him or her on the date of termination of employment or service; (2) if such Eligible Person's employment or service terminates on account of total and permanent disability, then the Eligible Person may at any time within one year after termination of his or her employment or service exercise his or her Option but only to the extent that the Option was exercisable on the date of termination of employment or service; and (3) if such Eligible

Person dies while in the employ of the Company or while serving as a Non-Employee Director, or within the ninety (90) day or twelve month period following termination of his or her employment or service as described in clause (1) or (2) above, then his or her Option may be exercised at any time within twelve months following his or her death by the person specified in Section 4.1(d), but only to the extent that such Option was exercisable by him or her on the date of termination of employment or service. The last sentence shall apply to any outstanding Options which are ISOs to the extent permitted by Code Section 422, and such outstanding ISOs in excess thereof shall, immediately upon the occurrence of the event described in such sentence, be treated for all purposes of the Plan as NQSOs and shall be immediately exercisable as such as provided in such sentence. The Committee may, in its discretion, provide in any Option Agreement or determine at any time after the date of grant that the exercisability of an Option will be accelerated, in whole or in part, in the event of an Eligible Person's retirement, death, disability or termination of service on the Board. Any cessation of employment, for purposes of ISOs only, shall include any leave of absence in excess of ninety (90) days unless the Employee's reemployment rights are guaranteed by law or by contract. Notwithstanding anything to the contrary in this subsection, an Option may not be exercised by anyone after the expiration of its term. Notwithstanding anything to the contrary in this subsection, an Option shall not terminate if the Employee to whom it is granted ceases to be employed by the Company but continues to serve as a Non-Employee Director of the Company or its successor, in which event the Option shall terminate if the Eligible Person ceases to be a Non-Employee Director of the Company or its successor and the Eligible Person may at any time within ninety (90) days (or other applicable period described above) after ceasing to be a Non-Employee Director exercise his or her Option, but only to the extent that the Option was exercisable by him or her on the date on which he or she ceased to be a Non-Employee Director.

4.2 Other Terms and Conditions. Through the Option Agreements authorized under this Plan, the Committee may impose such other terms and conditions, not inconsistent with the terms hereof, on the grant or exercise of Options, as it deems advisable.

ARTICLE V

STOCK APPRECIATION RIGHTS

5.1 Grant of Stock Appreciation Rights. The Committee, in its discretion, may from time to time grant Stock Appreciation Rights to Eligible Persons under this Plan. Such Stock Appreciation Rights may, but need not, be granted in conjunction with an Option grant.

5.2 Exercise. Stock Appreciation Rights shall entitle the holder, upon exercise thereof in whole or in part, to receive payment in the amount and form determined pursuant to Section 5.3(b). The exercise of Stock Appreciation Rights shall result in a termination of the Stock Appreciation Rights with respect to the number of shares covered by the exercise and, if granted in conjunction with an Option, shall also result in a termination of the related Option with respect to the number of shares covered by the exercise. The exercise period of a Stock Appreciation Right may be extended in accordance with Section 4.1(g) (as applied to Stock Appreciation Rights instead of Options as otherwise therein provided), provided that such extension is not beyond the latest date at which the Stock Appreciation Right would have otherwise expired.

5.3 Terms and Conditions. Stock Appreciation Rights granted under this Plan to Eligible Persons shall be evidenced by SAR Agreements, which shall be in such form and contain such provisions, consistent with this Plan, as the Committee, in its sole discretion, shall determine at the time the Stock Appreciation Right is granted.

(a) Stock Appreciation Rights shall not be exercisable during the first six months after their date of grant. Such rights shall be exercisable during the holder's lifetime only by the holder. Following the death of the Participant, the SAR may be exercised (to the extent permitted under

the Plan) by the person designated as a beneficiary in a written notification delivered to the Committee prior to the death, or if there is no such written designation, by the executor or administrator of the Participant's estate or by the person or persons to whom such rights pass by will or by the laws of descent and distribution.

(b) Upon exercise of Stock Appreciation Rights, the holder shall be entitled to receive therefor payment, in the sole discretion of the Committee, in the form of shares of Common Stock (rounded down to the next whole number so that no fractional shares are issued), cash or any combination thereof. The amount of such payment shall be equal in value to the difference between the Stock Appreciation Right exercise price per share (which shall be at least equal to the Fair Market per share of the Common Stock as of the date of grant of the SAR) and the Fair Market Value per share of the Common Stock on the date the Stock Appreciation Right is exercised, multiplied by the number of shares with respect to which the Stock Appreciation Right shall have been exercised.

(c) Stock Appreciation Rights shall terminate in accordance with the provisions of Section 4.1(h) (as applied to Stock Appreciation Rights instead of Options as otherwise therein provided) if the holder's employment or service with the Company (or its successor, if applicable) terminates.

5.4 Effect on Related Stock Option. The number of shares of Common Stock with respect to which Stock Appreciation Rights are exercised (rather than the number of shares issued by the Company upon such exercise) shall be deemed for the purpose of Section 3.3 to have been issued under an Option granted pursuant to this Plan and shall not thereafter be available for the granting of further Benefits under this Plan.

5.5 No Rights as a Stockholder. Holders of Stock Appreciation Rights hereunder shall have no rights as stockholders in respect thereof. No adjustments shall be made for dividends (ordinary or extraordinary, whether in cash, securities or other property) or distributions or other rights for which the record date is prior to the date such stock certificate is issued, except as provided in Section 4.1(e), as applied to Stock Appreciation Rights.

ARTICLE VI

PERFORMANCE SHARES

6.1 Award of Performance Shares. The Committee shall have the authority to grant Performance Shares to any Eligible Person, subject to the maximum number of shares of Common Stock that may be issued under this Plan pursuant to Section 3.3, above. The Committee shall determine the Eligible Persons to whom, and the time or times at which, Performance Shares shall be awarded, the number of Performance Shares to be included in each award, the duration of the period (the "Performance Period") during which, and the conditions under which, receipt of the shares of Common Stock will be deferred, and the other terms and conditions of the award in addition to those set forth in Section 6.2. The provisions of Performance Share awards need not be the same with respect to each grantee, and such awards to individual grantees need not be the same in subsequent years.

6.2 Terms and Conditions. Performance Shares awarded pursuant to this Article VI shall be subject to the following terms and conditions and such other terms and conditions, not inconsistent with the terms of this Plan, as the Committee shall deem desirable:

(a) **Conditions.** The Committee, in its sole discretion, shall specify the Performance Period during which, and the conditions under which, the receipt of shares of Common Stock covered by the Performance Share award will be deferred. The receipt of shares of Common Stock pursuant to a Performance Share award may be conditioned upon the attainment of one or more pre-established performance goals, which if applicable, may be established in accordance with the requirements of Section 162(m) of the Code and the regulations promulgated thereunder. To meet such requirements, objective performance goals must be established by the Committee in writing not later than 90 days after the commencement of the Performance Period, provided that the outcome is substantially uncertain at the time the goal is established. The performance goals may be based on the Company's stock price, return on assets, return on capital employed, return on shareholders' equity, earnings, earnings per share, total shareholder return, sales, costs, success in meeting specified product development or other milestones, or otherwise, whether related to the performance of Osiris, a particular business unit, individual performance, or otherwise, as may be established by the Committee from time to time. Except as provided in any applicable Agreement, when circumstances occur that cause predetermined performance objectives to be an inappropriate measure of performance, the Compensation Committee, in its discretion, may adjust the performance goals.

(b) **Award Certificate.** Each Performance Share award shall be evidenced by, and subject to the terms of, a Performance Share certificate executed by the Company. The Performance Share certificate shall specify the number of shares of Common Stock subject to the award, the applicable Performance Period, the applicable performance goals, and the other terms and conditions applicable to such award.

(c) **Stock Certificates.** If the Committee determines, after the expiration of the Performance Period, that the performance goals specified in the Performance Share certificate and all other material terms of the Performance Share award have been satisfied, stock certificates representing the number of shares of Common Stock covered by the Performance Share award shall be issued and registered in the name of, and delivered to, the grantee.

(d) **Termination of Employment or Service.** Unless otherwise determined by the Committee at the time of grant, the Performance Shares will be forfeited upon a grantee's termination of employment or service during the Performance Period for any reason (including death, disability or retirement).

(e) **Payouts.** At the end of a Performance Period, the Committee shall determine the extent to which the applicable performance goals have been satisfied. In the event of a payout with respect to a Performance Share award, such payout shall be made no later than two and one-half ($2\ ^{1}/_{2}$) months following the end of the Performance Period.

(f) **Effect of Recapitalization; Reorganization.** In the event of a transaction described in Section 4.1(e), each outstanding Performance Share award shall be adjusted as provided in Section 4.1(e).

6.3 Individual Limit. The maximum number of shares of Common Stock that may be subject to Performance Share awards granted to any individual Eligible Person during any calendar year shall be 50,000 shares (subject to any increase or decrease pursuant to the adjustment provisions of this Plan).

6.4 Deferrals. The Committee, in its discretion, may provide an opportunity for Eligible Persons to defer Performance Share awards beyond the scheduled payment date described in Section 6.2(e). In such event, the deferral election and deferred payout shall comply with the requirements of

Section 409A of the Code. Accordingly, (i) the deferral election shall be made no later than twelve (12) months prior to the end of the Performance Period (or six months prior to the end of the Performance Period if the Performance Shares qualify as "performance-based compensation" within the meaning of Section 409A), (ii) the deferred payout date shall be a specified date or other permissible payment event under Section 409A that is at least five (5) years after the date described in Section 6.2(e), and (iii) in the case of an Eligible Person who is a "specified employee" within the meaning of Section 409A of the Code and such deferred payment is made on account of his or her separation from service with the Company, the payment is made at least six (6) months following such separation from service.

ARTICLE VII

PERFORMANCE UNITS

7.1 Award of Performance Units. The Committee shall have the authority to grant Performance Units to any Eligible Person, subject to Section 3.3. The Committee shall determine the Eligible Person to whom, and the time or times at which, Performance Units shall be awarded, the number of Performance Units to be included in each award, the duration of the period (the "Performance Cycle") during which, and the conditions under which, a grantee's right to Performance Units will be vested, and the other terms and conditions of the award in addition to those set forth in Section 7.2. A Performance Unit shall have a fixed dollar value. The provisions of Performance Unit awards need not be the same with respect to each grantee, and such awards to individual grantees need not be the same in subsequent years.

7.2 Terms and Conditions. The Performance Units awarded pursuant to this Article VII shall be subject to the following terms and conditions and such other terms and conditions, not inconsistent with the terms of this Plan, as the Committee shall deem desirable:

(a) **Conditions.** The Committee, in its sole discretion, shall specify the Performance Cycle during which, and the conditions under which, the grantee's right to Performance Units will be vested. The vesting of Performance Units shall be conditioned upon the attainment of one or more pre-established performance goals, which if applicable may be objective and established in accordance with the requirements of Section 162(m) of the Code and the regulations promulgated thereunder. To meet such requirements, objective performance goals must be established by the Committee in writing not later than 90 days after the commencement of the Performance Cycle, provided that the outcome is substantially uncertain at the time the goal is established. The performance goals may be based on the Company's stock price, return on assets, return on capital employed, return on shareholders' equity, earnings, earnings per share, total shareholder return, sales, costs, success in meeting specified product development or other milestones, or otherwise, whether related to the performance of Osiris, a particular business unit, individual performance, or otherwise, as may be established by the Committee from time to time. Except as provided in any applicable Agreement, when circumstances occur that cause predetermined performance objectives to be an inappropriate measure of performance, the Committee, in its discretion, may adjust the performance goals.

(b) **Award Certificate.** Each Performance Unit Award shall be evidenced by, and subject to the terms of, a Performance Unit certificate executed by the Company. The Performance Unit certificate shall specify the dollar value of the award, the applicable Performance Cycle, the applicable performance goals, and the other terms and conditions applicable to such award.

(c) **Termination of Employment.** Unless otherwise determined by the Committee at the time of grant, the Performance Units will be forfeited upon an Eligible Person's termination of employment or service during the Performance Cycle for any reason (including death, disability or retirement).

(d) **Payouts.** At the end of a Performance Period, the Committee shall determine the extent to which the applicable performance goals have been satisfied. In the event of a payout with respect to a Performance Unit award, such payout shall be made no later than two and one-half ($2\ ^{1}/_{2}$) months following the end of the Performance Period. Payment may be made in cash, shares of Common Stock or a combination of both, as determined by the Committee in its sole discretion.

(e) **Effect of Recapitalization; Reorganization.** In the event of a transaction described in Section 4.1(e), each outstanding Performance Unit award shall be adjusted as provided in Section 4.1(e).

7.3 Individual Limit. The maximum dollar amount of Performance Unit awards that may be granted to any individual during any calendar year shall be $4,000,000.

7.4 Deferrals. The Committee, in its discretion, may provide an opportunity for Eligible Persons to defer Performance Unit awards beyond the scheduled payment date described in Section 7.2(d). In such event, the deferral election and deferred payout shall comply with the requirements of Section 409A of the Code. Accordingly, (i) the deferral election shall be made no later than twelve (12) months prior to the end of the Performance Period (or six months prior to the end of the Performance Period if the Performance Units qualify as "performance-based compensation" within the meaning of Section 409A), (ii) the deferred payout date shall be a specified date or other permissible payment event under Section 409A that is at least five (5) years after the date described in Section 7.2(d), and (iii) in the case of an Eligible Person who is a "specified employee" within the meaning of Section 409A of the Code and such deferred payment is made on account of his or her separation from service with the Company, the payment is made at least six (6) months following such separation from service.

ARTICLE VIII

RESTRICTED STOCK

8.1 Restricted Stock. The Committee, in its discretion, may from time to time award and direct the Company to issue and transfer Restricted Stock to any Eligible Person eligible to receive Benefits under this Plan. Each Eligible Person who is awarded Restricted Stock subject to continuing restrictions shall receive a Restricted Stock Agreement from the Company in a form specified by the Committee and containing the terms and conditions, consistent with this Plan, as the Committee, in its sole discretion, shall determine at the time the award is made. Restricted Stock awarded to Eligible Persons may not be sold, transferred, pledged or otherwise encumbered during the Restriction Period. The Eligible Person shall otherwise have the entire beneficial ownership of the Restricted Stock awarded to him or her, including the right to receive dividends and the right to vote such Restricted Stock.

If an Eligible Person ceases to be employed by, or serve as a Non-Employee Director of, the Company prior to the expiration of the Restriction Period, or if the specified conditions are not met, then he or she shall forfeit all of his or her Restricted Stock with respect to which the Restriction Period has not yet expired and those shares of Common Stock must be immediately returned to the Company; provided, however, that the Restricted Stock Agreements, in the discretion of the Committee and pursuant to such terms and conditions as it may impose, may provide: (1) that, if such Eligible Person's employment or service terminates for any reason other than conduct that in the judgment of the Committee involves dishonesty or action by the Eligible Person that is detrimental to the best interests of the Company, then the Restricted Stock or any related compensation deferral or a portion thereof shall not be forfeited; (2) that, if such Eligible Person's employment or service terminates on account of total and permanent disability, then the Eligible Person shall not forfeit his or her Restricted Stock or any related compensation deferral or a portion thereof; and (3) that, if such Eligible Person dies while employed by, or serving as a Non-Employee Director of, the Company, then his or her Restricted Stock or any related compensation deferral or a portion thereof is not forfeited.

In addition, the Committee shall, in accordance with its authority under Section 2.3 hereof, have the power to make any determinations as to the lapse of restrictions in respect of any Restricted Stock upon the occurrence of any event described above.

Subject to Section 10.10, each Eligible Person who is awarded Restricted Stock may, but need not, be issued a stock certificate in respect of such shares of Restricted Stock. Each certificate registered in the name of an Eligible Person, if any, shall bear an appropriate legend referring to the terms, conditions and restrictions applicable to such award as specifically set forth in the Restricted Stock Agreement.

The Committee shall require that any stock certificate issued in the name of an Eligible Person representing shares of Restricted Stock be held in the custody of the Company until the expiration of the Restriction Period applicable to such Restricted Stock and that, as a condition of such issuance of a certificate for Restricted Stock, the Eligible Person shall have delivered a stock power, endorsed in blank, relating to the shares covered by such certificate. In no event shall the Restriction Period end prior to the payment, or the making by the Eligible Person to the Company of adequate provision for the payment, of the amount of any federal, state or local income or employment tax withholding that may be required with respect to the Restricted Stock.

During the Restriction Period, the individual who owns Restricted Stock shall have the right to vote shares of Restricted Stock and to receive any dividends or other distributions paid on such shares, subject to any restrictions deemed appropriate by the Committee.

If any change is made in the Common Stock by reason of any merger, consolidation, reorganization, recapitalization, stock dividend, split up, combination of shares, exchange of shares, change in corporate structure, or otherwise, then any shares received by an Eligible Person with respect to Restricted Stock shall be subject to the same restrictions applicable to such Restricted Stock and the certificates representing such shares shall be deposited with the Company.

ARTICLE IX

CHANGE OF CONTROL

9.1 Upon a Change of Control where the Company is not the surviving corporation (or survives only as a subsidiary of another corporation), unless the Committee determines otherwise, all outstanding Benefits shall be assumed by, or replaced with comparable rights granted by, the surviving corporation.

9.2 Notwithstanding the foregoing, subject to Section 9.3, in the event of a Change of Control, the Committee may take any of the following actions: (a) require that holders surrender their outstanding Options and Stock Appreciation Rights in exchange for a payment by the Company, in cash or Common Stock as determined by the Committee, in an amount equal to the amount by which the then Fair Market Value of the shares subject to the holder's unexercised Options and Stock Appreciation Rights exceeds the exercise price of the Options and Stock Appreciation Rights; (b) after giving holders an opportunity to exercise their outstanding Options and Stock Appreciation Rights, terminate any or all unexercised Options and Stock Appreciation Rights, at such time as the Committee deems appropriate; or (c) declare all (or a portion of all) outstanding Options and Stock Appreciation Rights to be fully exercisable and declare that all (or certain) restrictions and conditions on outstanding Performance Shares, Performance Unit, and Restricted Stock shall immediately lapse. Any surrender or termination of rights under this Section 9.2 shall take place as of the date of the Change of Control or such other date as the Committee may specify.

9.3 Notwithstanding anything in the Plan to the contrary, in the event of a Change of Control, the Committee shall not have the right to take any actions described in the Plan (including without limitation actions described in Section 9.2) that would make the Change of Control ineligible for

favorable accounting treatment or that would make the Change of Control ineligible for desired tax treatment if, in the absence of such right, the Change of Control would qualify for such treatment and the Company intends to use such treatment with respect to the Change of Control.

ARTICLE X

MISCELLANEOUS

10.1 Withholding Taxes. An Eligible Person granted Options, Restricted Stock, Stock Appreciation Rights, Performance Shares or Performance Units under this Plan shall be conclusively deemed to have authorized the Company to withhold from the salary, commissions, fees or other compensation of such Eligible Person funds in amounts or property (including Common Stock) in value equal to any federal, state and local income, employment or other withholding taxes applicable to the income recognized by such Eligible Person and attributable to the Options, Option Shares, Restricted Stock, Stock Appreciation Rights, Performance Shares or Performance Units as, when and to the extent, if any, required by law; provided, however, that, in lieu of the withholding of federal, state and local taxes as herein provided, the Company may require that the Eligible Person (or other person exercising such Option, Stock Appreciation Rights, Performance Shares or Performance Units or holding such Restricted Stock) pay the Company an amount equal to the federal, state and local withholding taxes on such income at the time such withholding is required or such other time as shall be satisfactory to the Company.

10.2 Amendment, Suspension, Discontinuance or Termination of Plan. The Committee may from time to time amend, suspend or discontinue this Plan or revise it in any respect whatsoever for the purpose of maintaining or improving the effectiveness of this Plan as an incentive device, for the purpose of conforming this Plan to applicable governmental regulations or to any change in applicable law or regulations or for any other purpose permitted by law; provided, however, that no such action by the Committee shall adversely affect any Benefit theretofore granted under this Plan without the consent of the holder so affected; and provided further that the Committee may not materially increase the number of shares of Common Stock authorized under Section 3.3 of this Plan or materially modify this Plan's requirements as to eligibility for participation or materially increase the benefits accruing to participants under this Plan, in any such case without the approval of the stockholders of the Company. Unless sooner terminated by the Committee, this Plan will terminate on May 27, 2020; it being acknowledged however, for the avoidance of doubt, that any awards granted or made prior to any termination will not be affected thereby.

10.3 Governing Law. This Plan shall be governed by, and construed in accordance with, the laws of the State of Delaware (without giving effect to principles of conflict of laws); provided, however, that if and in the event of the consummation of the merger (the "Merger") of Company with and into Osiris Maryland, Inc., a Maryland corporation, as survivor (the "Surviving Company"), this Plan shall thereupon be governed by, and construed in accordance with, the laws of the State of Maryland (without giving effect to principles of conflict of laws).

10.4 Designation. This Plan may be referred to in other documents and instruments as the "Osiris Therapeutics, Inc. Amended and Restated 2006 Omnibus Plan."

10.5 Indemnification of Committee. In addition to such other rights of indemnification as they may have as directors or as members of the Committee, the members of the Committee shall be indemnified by the Company against the reasonable expenses, including attorneys' fees, actually and necessarily incurred in connection with the defense of any investigation, action, suit or proceeding, or in connection with any appeal therefrom, to which they or any of them may be a party by reason of any action taken or failure to act under or in connection with this Plan or any Benefit, and against all amounts paid by them in settlement thereof (provided such settlement is approved by independent legal counsel selected by the Company) or paid by them in satisfaction of a judgment in or dismissal or

other discontinuance of any such investigation, action, suit or proceeding, except in relation to matters as to which it shall be adjudged in such investigation, action, suit or proceeding that such Committee member is liable for negligence or misconduct in the performance of his or her duties; provided that, within 60 days after institution of any such investigation, action, suit or proceeding, a Committee member shall in writing offer the Company the opportunity, at its own expense, to handle and defend the same.

10.6 Reservation of Shares. The Company shall at all times during the term of this Plan, and so long as any Benefit shall be outstanding, reserve and keep available (and will seek or obtain from any regulatory body having jurisdiction any requisite authority in order to issue) such number of shares of its Common Stock as shall be sufficient to satisfy the requirements of this Plan. Inability of the Company to obtain from any regulatory body of appropriate jurisdiction authority considered by the Company to be necessary or desirable to the lawful issuance of any shares of its Common Stock hereunder shall relieve the Company of any liability in respect of the nonissuance or sale of such Common Stock as to which such requisite authority shall not have been obtained.

10.7 Application of Funds. The proceeds received by the Company from the sale of Common Stock pursuant to the exercise of Options will be used for general corporate purposes.

10.8 No Obligation to Exercise. The granting of a Benefit shall impose no obligation upon the holder to exercise or otherwise realize the value of that Benefit.

10.9 Approval of Stockholders. No Benefit granted under this Plan shall be enforceable against the Company unless and until this Plan, insofar as it relates to such Benefit, has been approved or ratified by the stockholders of the Company in the manner and to the extent required by the Exchange Act and the General Corporation Law of the State of Delaware (or following the Merger, the Maryland General Corporation Law).

10.10 Uncertificated Shares. Each Eligible Person who exercises an Option to acquire Common Stock or is awarded Restricted Stock may, but need not, be issued a stock certificate in respect of the Common Stock so acquired. A "book entry" (i.e., a computerized or manual entry) shall be made in the records of the Company to evidence the issuance of shares of Common Stock to an Eligible Person where no certificate is issued in the name of the Eligible Person. Such Company records, absent manifest error, shall be binding on Eligible Persons. In all instances where the date of issuance of shares may be deemed significant but no certificate is issued in accordance with this Section 10.10, the date of the book entry shall be the relevant date for such purposes.

10.11 Forfeiture for Competition. If a participant in this Plan provides services to a competitor of the Company or any of its subsidiaries, whether as an employee, officer, director, independent contractor, consultant, agent or otherwise, such services being of a nature that can reasonably be expected to involve the skills and experience used or developed by the participant while an Eligible Person, then that participant's rights to any Benefits hereunder shall automatically be forfeited, subject to a determination to the contrary by the Committee.

10.12 Successors. This Plan shall be binding upon any and all successors of the Company (including without limitation, if and in the event of the consummation of the Merger, the Surviving Company, which shall then be and become the "Company" hereunder).

10.13 Employment/Service Rights. Nothing in this Plan or in any Agreement shall confer on any Employee any right to continue in the employ of the Company or any of its subsidiaries or shall interfere in any way with the right of the Company or any of its subsidiaries to terminate such person's employment at any time. Nothing in this Plan or in any Agreement shall confer on any Non-Employee Director any right to continue to serve as a member of the Board, nor is there any implied agreement or understanding that such Non-Employee Director will be nominated for reelection to the Board.

10.14 Other Actions. Nothing contained in the Plan shall be construed to limit the authority of the Company to exercise its corporate rights and powers, including, but not by way of limitation, the right of the Company to grant options for proper corporate purposes other than under the Plan with respect to any employee or other person, firm, corporation or association.

10.15 Tax Treatment and Characterization. Neither the Company nor any other person represents or warrants to any Plan participant (i) that any Option granted hereunder shall be considered an ISO for applicable tax purposes or (ii) that favorable or desirable tax treatment or characterization will be applicable in respect of any Benefit.

10.16 Legend. The Committee may require each person exercising an Option to represent to and agree with the Company in writing that he or she is acquiring the Option Shares without a view to distribution thereof. In addition to any legend required by this Plan, the stock certificates representing such Option Shares may include any legend which the Committee deems appropriate to reflect any restrictions on transfer.

All certificates for Option Shares shall be subject to such stock transfer orders and other restrictions as the Committee may deem advisable under the rules, regulations and other requirements of the Securities and Exchange Commission, any stock exchange upon which the Common Stock is then listed, any applicable federal or state securities law, and any applicable corporate law, and the Committee may cause a legend or legends to be put on any such certificates to make appropriate reference to such restrictions.

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 2012 Annual Meeting of Stockholders and Proxy Statement dated April 27, 2012, in connection with the 2012 Annual Meeting of Stockholders of Osiris Therapeutics, Inc. to be held at 1:00 p.m., EDT, on Monday, June 11, 2012 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 2012 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 on the reverse side hereof on the proposals set forth in said Proxy.

SEE REVERSE SIDE FOR ALL PROPOSALS. If you wish to vote in accordance with the Board of Directors' recommendations, just sign on the reverse side. You need not mark any boxes. Please mark, date and return this card promptly, using the enclosed envelope. No postage is required if mailed in the United States.

PLEASE COMPLETE, DATE, SIGN, AND MAIL THIS PROXY CARD PROMPTLY IN THE ENCLOSED POSTAGE-PAID ENVELOPE OR PROVIDE YOUR INSTRUCTIONS TO VOTE VIA THE INTERNET.

(Continued, and to be marked, dated and signed, on the other side)

FOLD AND DETACH HERE

OSIRIS THERAPEUTICS, INC. — ANNUAL MEETING, JUNE 11, 2012

YOUR VOTE IS IMPORTANT!

Proxy materials are available online at:
http://www.pstvote.com/osiris2012
You may vote your proxy in the following ways:

1. Via the Internet:
   Login to http://www.pstvote.com/osiris2012
   Enter your control number (12 digit number located on your Notice)

or

2. Via Mail:
   Philadelphia Stock Transfer, Inc.
   2320 Haverford Road, Suite 230
   Ardmore, PA 19003

PLEASE SEE REVERSE SIDE FOR VOTING INSTRUCTIONS

x Please mark votes as in this example.

The Board of Directors recommends a vote **FOR** Proposals 1, 2 and 3.

1. Election of one Class III Director (or if the nominee is not available for election, such substitute as the Board of Directors may designate) for a three-year term and until his successor is duly elected and qualified.

	Nominee:	Peter Friedli
FOR THE NOMINEE		o
WITHHOLD AUTHORITY FOR THE NOMINEE		o

TO VOTE "FOR THE NOMINEE" OR TO WITHHOLD AUTHORITY TO VOTE FOR THE NOMINEE MARK THE APPROPRIATE BOX ABOVE.

2. Proposal to approve the amendment to our Amended and Restated 2006 Omnibus Plan and to re-approve the Amended and Restated 2006 Omnibus Plan, including for purposes of Section 162(m) of the Internal Revenue Code of 1986.

FOR	AGAINST	ABSTAIN
o	o	o

3. Proposal to ratify the appointment of Grant Thornton LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2012.

FOR	AGAINST	ABSTAIN
o	o	o

In their discretion, the proxies are authorized to vote upon such other matters as may properly come before the meeting or any adjournments or postponements thereof.

This Proxy when executed will be voted in the manner directed herein. If no direction is made this proxy will be voted FOR THE NOMINEE in Proposal No. 1, FOR Proposal No. 2, FOR and FOR Proposal No. 3.

PLEASE MARK, SIGN, DATE AND RETURN PROMPTLY IN THE ENCLOSED 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).