

OSIRIS THERAPEUTICS, INC.

FORM 10-K (Annual Report)

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[TABLE OF CONTENTS](#)

[FINANCIAL STATEMENTS](#)

[Table of Contents](#)

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

Form 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934:

For the fiscal year ended December 31, 2011

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934:

For the transition period from _____ to _____

Commission file number 001-32966

Osiris Therapeutics, Inc.

(Exact name of registrant as specified in its charter)

Maryland
(State or other jurisdiction of
incorporation or organization)

71-0881115
(I.R.S. Employer
Identification No.)

7015 Albert Einstein Drive, Columbia, Maryland

21046-1707
(Zip Code)

(Address of principal executive offices)

443-545-1800

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

<u>Title of Each Class</u>	<u>Name of Each Exchange on with Registered</u>
Common Stock, \$0.001 par value	NASDAQ Global Market

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer

Accelerated filer

Non-accelerated filer
(Do not check if a
smaller reporting company)

Smaller reporting company

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

On June 30, 2011, the last business day of the registrant's most recently completed second fiscal quarter, the aggregate market value of voting Common Stock held by non-affiliates of the registrant, based upon the last sale price of the Common Stock reported on the NASDAQ Global Market was approximately \$145,302,000.

The number of shares of the registrant's Common Stock outstanding as of March 10, 2012 is 32,827,521.

Documents Incorporated by Reference:

Portions of the Registrant's definitive proxy statement for its 2012 Annual Meeting of Stockholders (the "Proxy Statement") to be filed no later than 120 days after the close of the fiscal year are incorporated herein by reference in Part III.

OSIRIS THERAPEUTICS, INC.
Annual Report on Form 10-K
Fiscal Year Ended December 31, 2011

INDEX

	<u>Page</u>
PART I	
Item 1. Business	3
Item 1A. Risk Factors	29
Item 1B. Unresolved Staff Comments	52
Item 2. Properties	52
Item 3. Legal Proceedings	52
Item 4. Removed and Reserved	52
PART II	
Item 5. Market for the Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	53
Item 6. Selected Financial Data	55
Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations	56
Item 7A. Quantitative and Qualitative Disclosures About Market Risk	72
Item 8. Financial Statements and Supplementary Data	73
Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	108
Item 9A. Controls and Procedures	108
Item 9B. Other Information	108
PART III	
Item 10. Directors, Executive Officers and Corporate Governance	108
Item 11. Executive Compensation	108
Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	109
Item 13. Certain Relationships and Related Transactions, and Director Independence	109
Item 14. Principal Accounting Fees and Services	109
PART IV	
Item 15. Exhibits, Financial Statement Schedules	109

PART I

ITEM 1. Business.

CAUTIONARY STATEMENTS ABOUT FORWARD-LOOKING INFORMATION

This Annual Report on Form 10-K includes "forward-looking statements" within the meaning of Section 21E of the Securities Exchange Act of 1934, or the Exchange Act. Statements included or incorporated herein which are not historical facts are forward looking statements. When used in this Annual Report, the words *estimates*, *expects*, *anticipates*, *projects*, *plans*, *intends*, *believes*, *forecasts* and variations of such words or similar expressions are intended to identify forward-looking statements, but these terms are not the exclusive means of identifying forward looking statements.

Forward looking statements reflect management's current views with respect to future events and performance and are based on currently available information and management's assumptions regarding future events. While management believes that its assumptions are reasonable, forward-looking statements are subject to various known and unknown risks and uncertainties and actual results may differ materially from those expressed or implied herein. In connection with the "safe harbor provisions" of the Private Securities Litigation Reform Act of 1995, the Company notes that certain factors, among others, which could cause future results to differ materially from the forward-looking statements, expectations and assumptions expressed or implied herein are discussed in greater detail under Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Item 1A "Risk Factors," and may be discussed elsewhere herein or in other documents we file with the Securities and Exchange Commission, or SEC. Examples of forward-looking statements may include, without limitation, statements regarding any of the following: our product development efforts; our clinical trials and anticipated regulatory requirements, and our ability to successfully navigate these requirements; the success of our product candidates in development; status of the regulatory process for our biologic drug candidates; implementation of our corporate strategy; our financial performance; our product research and development activities and projected expenditures, including our anticipated timeline and clinical strategy for mesenchymal stem cells (MSCs) and biologic drug candidates (including Prochymal® and Chondrogen™); our cash needs; patents, trademarks and other proprietary rights; the safety and ability of our potential products to treat disease; our ability to supply a sufficient amount of our product candidates and, if approved, products to meet demand; our costs to comply with governmental regulations; our relationship and potential disagreements or disputes with collaborating partners; our ability to maintain and benefit from our collaborative arrangements; our ability to benefit from government contracts; our plans for distribution and marketing; our plans regarding facilities; types of regulatory frameworks we expect will be applicable to our potential products; and results of our scientific research.

Readers are cautioned that all forward-looking statements attributable to us or persons acting on our behalf apply only as of the date of this Annual Report and are expressly qualified in their entirety by the cautionary statements included herein. We undertake no obligation to publicly update or revise any forward-looking statements to reflect subsequent events or circumstances and do not intend to do so.

When we use the terms "Osiris," "we," "us," and "our" we mean Osiris Therapeutics, Inc., a Maryland corporation.

Company Overview

We are a leading stem cell company headquartered in Columbia, Maryland and focused on developing and marketing products to treat medical conditions in the inflammatory, cardiovascular, orthopedic and wound healing markets. We have two business segments, Therapeutics and Biosurgery. Our Therapeutics business is focused on developing biologic stem cell drug candidates from a readily

available and non-controversial source—adult bone marrow. Our Biosurgery business, created in 2009 and operating as a separate segment since 2010, works to harness the ability of cells and novel constructs to promote the body's natural healing with the goals of improving surgical outcomes and offering better treatment options for patients and physicians.

In our Biosurgery business, we currently manufacture, market and distribute Grafix® and Ovation® for tissue repair. In our Therapeutics segment, our pipeline of internally developed biologic drug candidates under evaluation includes Prochymal for inflammatory, autoimmune and cardiovascular indications, as well as Chondrogen for arthritis in the knee. We believe our stem cell therapeutic products have significant therapeutic potential because of their ability to regulate inflammation, promote tissue regeneration and prevent pathological scar formation. We are a fully integrated company, with capabilities in research, development, manufacturing and distribution of stem cell products.

We began operations on December 23, 1992 and were a Delaware corporation until, with approval of our stockholders, we reincorporated as a Maryland corporation on May 31, 2010.

Therapeutics Segment. Our Therapeutics segment is focused on developing biologic stem cell drug candidates from a readily available and non-controversial source—adult bone marrow. Our lead biologic drug candidate, Prochymal (remestemcel-L), is being evaluated in clinical trials for a number of indications, including acute graft versus host disease ("GvHD"), Crohn's disease, acute myocardial infarction, type 1 diabetes and gastrointestinal injury resulting from radiation exposure (animal rule). Prochymal is the only stem cell therapeutic currently granted both Orphan Drug and Fast Track status by the United States Food and Drug Administration ("FDA"). Our pipeline of internally developed biologic drug candidates under evaluation also includes Chondrogen for osteoarthritis in the knee.

In the fourth quarter of 2008, we entered into a collaboration agreement with Genzyme Corporation, then an independent and now a Sanofi company, for the development and commercialization of Prochymal and Chondrogen. Under the terms of the agreement, we retained the rights to commercialize Prochymal and Chondrogen in the United States and Canada, and Genzyme was granted exclusive rights to commercialize Prochymal and Chondrogen in all other countries, except with respect to GvHD in Japan, where Prochymal has previously been licensed to JCR Pharmaceuticals Co., Ltd. Under the agreement, we were paid \$130.0 million for these rights.

The collaboration agreement provides that it will expire upon the completion of all development plans stipulated in the agreement and the expiration of all payment obligations; however, in addition to certain opt out rights, Genzyme may terminate the agreement early and without further obligation at any time, and either party may terminate the agreement due to non-performance, material breach or insolvency.

In February 2012, Sanofi issued a press release which included an update on their R&D pipeline, stating that it has "discontinued" its project with Prochymal for GvHD. The statement issued by Sanofi was made without consultation with or knowledge by us. Through our legal counsel, we have advised Sanofi that we are treating these public statements as Sanofi's election to terminate the collaboration agreement. The agreement provides for voluntary termination by Sanofi and that, upon such voluntary termination, all rights to Prochymal revert back to us, and we are free to commercialize or enter into commercialization agreements for Prochymal with other parties without restriction. While we have been proceeding on the basis that Sanofi has terminated the collaboration agreement, Sanofi has since advised us that it disagrees with our characterization of their press release. We have requested an explanation from Sanofi with respect to their statements regarding Prochymal. There can be no assurances as to the outcome of these matters. However, we continue to proceed with our Prochymal regulatory approval efforts and, if successful, commercialization, alone or with another collaborator.

In 2007, we also partnered with Genzyme Corporation to develop Prochymal as a medical countermeasure to nuclear terrorism and other radiological emergencies. In January 2008 we were awarded a contract from the United States Department of Defense ("DoD"), to develop and stockpile Prochymal for the repair of gastrointestinal injury resulting from acute radiation exposure. Since no sale of product occurred prior to July 2010 and no other activities with respect to nuclear terrorism have taken place with Genzyme, the term of this partnership expired, per the agreement, in July 2010.

Additionally, we have partnered with the Juvenile Diabetes Research Foundation ("JDRF") for the development of Prochymal as a treatment for the preservation of insulin production in patients with newly diagnosed type 1 diabetes mellitus.

Our two biologic drug candidates, Prochymal and Chondrogen, utilize human mesenchymal stem cells, also referred to as MSCs. MSCs can selectively differentiate, based on the tissue environment, into various tissue lineages such as bone, muscle, fat, tendon, ligament, cartilage and bone marrow stroma. In addition, MSCs have anti-inflammatory properties and can prevent fibrosis or scarring. These characteristics give MSCs the potential to treat a wide variety of medical conditions. We believe that our biologic drug candidates have advantages over other stem cell therapeutics in development for the following reasons:

- **Stem Cell Source.** Our stem cells are obtained from adult bone marrow, a readily available source. The cells are drawn from the hips of volunteer donors between the ages of 18 and 30 years, using a simple needle and syringe aspiration. Because the cells are obtained from consenting adult donors, we are able to largely avoid the ethical controversy surrounding embryonic and fetal stem cell research.
- **Ability to Mass Produce.** Through our proprietary manufacturing methods, we can grow MSCs in a controlled fashion to produce up to 10,000 treatments of our biologic drug candidates from a single bone marrow donation. Our ability to produce a large quantity of treatments from one donation provides us with manufacturing efficiencies and product consistency that are essential to commercialization.
- **Universal Compatibility.** Many stem cell therapies under development can elicit a rejection response in the recipient and therefore require donor-to-recipient matching or potentially harmful immunosuppression. This greatly reduces manufacturing efficiencies and creates a risk of mismatch which can result in an acute inflammatory response leading to serious medical complications and can even be fatal. Based on our clinical experience, we believe that our biologic drug candidates are not rejected by the patient's immune system and so, like type O negative blood, do not require matching. This universal compatibility allows us to produce a standardized product available to all patients in almost any medical setting.
- **Treatment on Demand.** Our biologic drug candidates can be stored frozen at end-user medical facilities until they are needed. We anticipate that medical facilities will be able to prescribe and dispense these products in much the same way as conventional drugs. In contrast, other stem cell technologies under development require weeks to prepare after a patient's need is identified. This is a key feature of our technology, as many patients in the critical care setting require prompt treatment.

Biosurgery Segment. Our Biosurgery segment seeks to harness the ability of cells and novel constructs to promote the body's natural healing, with the goals of improving surgical outcomes and offering better treatment options for patients and physicians. During the third quarter of 2010, we launched limited commercial distribution of several products developed and manufactured by our Biosurgery segment, including Graftix and Ovation. We intend to build on the success of our first generation implantable product, Osteocel® for regenerating bone in orthopedic indications. Osteocel generated over \$40 million of revenue for us before we sold it in 2008 to NuVasive, Inc. for

\$85.0 million. Disease targets for Biosurgery products commercialized or in development include diabetic foot ulcers, venous stasis ulcers, dermal burns, and various orthopedic conditions. The assets and operations related to Osteocel are reported as discontinued operations in the financial statements included in this Annual Report on Form 10-K for all periods.

Grafix is a three-dimensional tissue matrix designed for application directly to acute and chronic wounds, including diabetic foot ulcers and burns. Flexible and conformable to complex anatomies, this cellular repair matrix provides a rich source of extracellular matrix, viable endogenous MSCs and epithelial cells, as well as growth factors directly to the site of the wound, protecting the area from inflammation, scarring and infection.

Ovation is a novel cellular repair matrix designed for use in surgical applications where bone tissue repair is needed. Easily applied to the site of injury, Ovation provides the three essential components of periosteum—collagen matrix, viable endogenous MSCs and key growth factors such as BMPs and VEGF—to enable tissue regeneration.

Grafix and Ovation are regulated by the FDA under 21CFR Part 1271, Human Cells, Tissues and Cellular and Tissue-based Products ("HCT/Ps"). We are registered with the FDA as a tissue establishment and are accredited by the American Association of Tissue Banks ("AATB"). Extensive donor screening, serological testing, bioburden testing and sterility testing is performed on every lot to demonstrate suitability for transplantation. Our Biosurgery products are all manufactured in our Columbia, Maryland facility. Each lot is tested to confirm viable cell content post thaw.

We market and distribute both Grafix and Ovation through a network of distributors as well as directly to hospitals and clinics. A significant market for Grafix is chronic wounds, which are primarily treated in the outpatient setting, and to obtain full reimbursement for use in the outpatient setting, a prospective randomized clinical trial comparing the standard of care to Grafix is needed. We have finalized the design for this reimbursement trial and expect to begin enrollment during the first half of fiscal 2012. The study will allow for the collection of data necessary for obtaining coverage from Medicare administrative carriers and private commercial payers.

We expended approximately \$19.2 million in fiscal 2011, \$23.5 million in fiscal 2010, and \$63.3 million in fiscal 2009, on research and development. In each of the three fiscal years ended December 31, 2011, we recognized \$10.0 million of revenue from the Genzyme collaborative agreement. In fiscal 2011, we earned \$960,000 from our collaboration with JDRF. In fiscal 2010, we were reimbursed for \$471,000 of research and development expenditures through our contract with DoD and earned \$1.2 million in funding from JDRF. In fiscal 2009, we were reimbursed for \$3.0 million of research and development expenditures through our contract with DoD and earned \$1.2 million in funding from JDRF. For more detailed financial information, including information regarding our revenues, profit and loss, and total assets and research and development costs and expenses for the past three fiscal years, including information by segment, as available, see our Financial Statements included in Item 8 to this Annual Report on Form 10-K for fiscal year 2011.

Clinical Programs

The following table summarizes key information about our biologic drug candidates.

Drug Candidate	Indication	Status
Prochymal	Steroid Refractory Acute GvHD	In Registration
	Biologics Refractory Crohn's Disease	Phase 3
	Type I Diabetes Mellitus	Phase 2
	Acute Myocardial Infarction	Phase 2
	Acute Radiation Syndrome	Phase 3 (Animal Rule)
Chondrogen	Osteoarthritis & Cartilage Protection	Phase 2

Prochymal, our lead biologic drug candidate, is being evaluated in clinical trials for a number of indications including acute GvHD, Crohn's disease, acute myocardial infarction, type 1 diabetes and gastrointestinal injury resulting from radiation exposure (animal rule). Prochymal is currently designated by the FDA as both an Orphan Drug and Fast Track product.

Prochymal for Treatment-Resistant Acute GvHD

Acute GvHD is a life threatening immune system reaction in patients who have received a bone marrow transplant that commonly affects one or more of the following organs: skin, gastrointestinal tract, and liver. We estimate that there are approximately 3,000 instances of GvHD in the United States each year.

Bone marrow transplantation is a treatment of last resort for patients with certain cancers and some genetic diseases. This procedure can result in a particularly serious type of rejection referred to as acute GvHD. This condition gets its name because the bone marrow transplant, or the graft, begins to attack the recipient, or the host. As noted in an article published in the journal *Biology of Blood and Marrow Transplantation* in 2005, acute GvHD is one of the most common complications of allogeneic bone marrow or hematopoietic stem cell transplantation, affecting approximately 50% of transplant patients. Acute GvHD is graded for prognostic and treatment purposes on a four grade scale, with Grade I considered mild, Grade II moderate, and Grades III-IV considered severe and life-threatening. The onset of GvHD in patients who have received a bone marrow transplant leads to a poor prognosis because of the already weakened state of these patients. According to a 2002 article published in *Biology of Blood and Marrow Transplantation*, the estimated one-year survival rate for patients with acute GvHD decreases drastically with increasing disease severity, as illustrated below:

Acute GvHD	Estimated One Year Survival
Grade I	65%
Grade II	60%
Grade III	39%
Grade IV	22%

There are no drugs approved for GvHD. The disease is commonly treated off-label with steroids and other immunosuppressants. Typically, Grade II-IV GvHD is treated aggressively with steroids. A 2001 article published in the journal *Blood* noted that approximately 50% of these patients will not respond to treatment with steroids and approximately 50-80% of steroid refractory GvHD patients die of the disease.

GvHD that does not respond to steroids is known as steroid refractory GvHD. A large majority of steroid refractory GvHD patients die within six months. In a Phase 2 trial for treatment refractory GvHD, we enrolled patients that did not respond to treatment with steroids and at least one second

line therapy. Of these patients, all responded to treatment with Prochymal, and 59% achieved complete resolution of their disease. Prochymal has been granted Fast Track status by FDA, as well as Orphan Drug status by FDA and the European Medicines Agency, for GvHD.

The current off-label treatments used to treat acute GvHD are inadequate in two primary ways. First, mortality in patients with acute GvHD who are undergoing current treatments is extremely high. Second, most treatments for acute GvHD suppress or destroy the immune system. This can lead to a number of debilitating side effects, including severe and life threatening infection. Unlike steroids or other immunosuppressant drugs, which have a systemic effect, Prochymal's mechanism of action is designed to specifically target areas of inflammation. Therefore, we believe the use of Prochymal will result in fewer toxicities.

In May 2008, we received clearance from the FDA to initiate an expanded access treatment program making Prochymal available to children with life threatening GvHD. Under the program, children 2 months to 17 years of age, with Grades B-D acute GvHD that have not responded to steroids, are eligible for treatment. Upon completion of enrollment of the Phase 3 trials evaluating Prochymal in adults, we received clearance from the FDA to broaden the expanded access treatment program to include patients 18 to 70 years of age. The expanded access treatment programs for Prochymal in treating adult and pediatric patients with refractory GvHD are ongoing.

In September 2009, we announced the results for the two Phase 3 trials evaluating Prochymal in patients with GvHD, as more fully described below. While the trials did not reach significance in their primary endpoints, the studies did reveal several important findings:

- The primary endpoint for the steroid-refractory GvHD trial (durable complete response) for the per protocol population approached statistical significance (40% Prochymal vs. 28%, standard of care, $p=0.087$, $n=179$);
- Prochymal significantly improved response in steroid-refractory liver GvHD (76% vs. 47%, $p=0.03$) and gastrointestinal GvHD (82% vs. 64%, $p=0.03$);
- In the sickest patients—those with GvHD affecting all three organs, skin, liver and gastrointestinal tract—treatment with Prochymal resulted in a 63% overall response rate, while none of the placebo-treated patients responded ($p<0.05$);
- Children receiving Prochymal had an overall response rate of 64% compared to 36% in patients receiving placebo; and
- In children with steroid-refractory GvHD, Prochymal more than doubled complete response rates (64% vs. 29%) and reduced disease progression by half (21% vs. 43%).

In February 2010, we reported the results of a study evaluating Prochymal as a rescue therapy in 59 pediatric patients with severe, treatment-resistant acute GvHD. The trial enrolled patients with Grades B-D acute GvHD who had failed steroids and other immunosuppressive agents. Patients in the study received two intravenous infusions of Prochymal per week for a total of four weeks. Patients who experienced a partial response by day 28 were eligible for continued treatment. GvHD assessments were used in the study to detect improvements in patients treated with Prochymal. At study entry, 88% of children had Grade C/D GvHD, the most severe forms of GvHD and were unresponsive to an average of three lines of therapy. Overall response to treatment with Prochymal at 28 days was 63%. Response to Prochymal at day 28 significantly improved survival over those patients whose GvHD progressed (78% vs. 9%, $p<0.05$). Patients in the trial were treated at 31 pediatric transplant centers across the U.S., Canada, Europe and New Zealand.

In July 2010, we announced that the Biologics and Genetic Therapies Directorate of Health Canada, or Health Canada, had completed its initial evaluation and accepted for full review our New Drug Submission of Prochymal for the treatment of pediatric GvHD. We were informed by Health

Canada that the application had been granted Priority Review, shortening the scheduled examination period from 300 to 180 days. Health Canada also informed us of plans to add Prochymal to its Register of Innovative Drugs, subject to a final review upon approval. This registration would confer eight years of market exclusivity, beginning on the date of Prochymal's approval for commercial sale in Canada. This registration would also generally provide that, during such period of market exclusivity, no submission for a generic version of Prochymal would be approved by Health Canada for GvHD.

In January 2011, Health Canada requested additional information to support our New Drug Submission ("NDS") for Prochymal as a treatment for pediatric GvHD. The agency determined that the application in its initial form was not in full compliance with the current Canadian Food and Drug Regulations and we were given 90 days to answer certain questions that were raised during the review. We submitted answers to Health Canada's questions in March 2011. In the second quarter of 2011, Health Canada requested additional information surrounding the NDS for Prochymal and had questions regarding post marketing commitments and we filed a complete response to inquiries from the Biologics and Genetic Therapies Directorate of Health Canada in September 2011. Furthermore, Health Canada has indicated that they are enlisting external experts to assist them with the review. We are unable to provide a reliable timeframe for completion of the review. Prochymal has been deemed eligible for Notice of Compliance with Conditions (NOC/c).

Phase 3 Clinical Trial—Steroid Refractory Acute GvHD.

Our Phase 3 trial evaluated the safety and efficacy of Prochymal in conjunction with standard of care for the treatment of patients who had failed to respond to corticosteroid treatment for acute GvHD. This clinical trial was a double-blind, placebo-controlled study. Patients six months to 70 years of age were randomized to receive Prochymal or placebo at a 2:1 ratio in addition to standard of care. The trial completed enrollment with 260 patients in 2009 and treated 244 patients from 72 leading bone marrow transplant centers in the United States, Canada, Europe and Australia.

The primary endpoint, durable complete response, for the per-protocol population in the Phase 3 trial evaluating Prochymal in steroid-refractory GvHD approached but did not reach statistical significance, with 40% Prochymal patients versus 28% of placebo/standard of care patients achieving a durable complete response. The per-protocol patient population refers to the group of patients that met all of the study protocol requirements, such as inclusion and exclusion criteria. The addition of Prochymal to standard of care significantly improved response in steroid-refractory liver (76% vs. 47%, $p=0.03$) and gastrointestinal (82% vs. 64%, $p=0.03$) GvHD. In the sickest patients—those with GvHD affecting all three organs—skin, liver and gastrointestinal tract—treatment with Prochymal resulted in a 63% overall response rate, while none of the placebo-treated patients responded ($p<0.05$). Pediatric patients receiving Prochymal had an overall response rate of 64% compared to 36% in pediatric patients receiving placebo. In children with steroid-refractory GvHD, Prochymal more than doubled complete response rates (64% vs. 29%) and reduced disease progression by half (21% vs. 43%). Prochymal also demonstrated a positive safety profile relative to placebo.

Phase 3 Clinical Trial—First Line Treatment of Acute GvHD.

Our previous Phase 2 trial for treatment of newly diagnosed acute GvHD completed enrollment in 2006 and indicated that patients were twice as likely to have total clinical resolution of their disease when Prochymal was added to steroid therapy, compared to reported results for treatment with steroids alone. Twenty-nine of 31 patients, or 94%, responded in the Phase 2 trial, after receiving two infusions of Prochymal, with 24 patients, or 77% achieving a complete response, meaning the patients had experienced total clinical resolution of the disease. At ninety days, 61% of all patients treated with Prochymal still had a durable response requiring no additional immunosuppressive therapy, clinical intervention, or increased steroid use. Of these, 95% were alive at six months.

The Phase 3 trial to evaluate Prochymal as a first line treatment for GvHD is a randomized, double-blind, placebo-controlled study that completed enrollment in 2009 with 192 patients from 52 leading transplant centers across the United States, Canada and Australia. Patients received a total of six infusions during the first four weeks of the study. The majority of patients enrolled in this trial were suffering from skin GvHD, which was well-controlled with steroids, particularly when given at a uniform controlled dose as prescribed in the protocol. The high response rates diminished the potential to detect statistical differences.

Phase 3 Clinical Trial—Biologics Refractory Crohn's Disease.

Based on clinical observations of the effects of Prochymal on gastrointestinal GvHD, we are developing Prochymal for the treatment of Crohn's disease. Crohn's disease is a chronic condition that results in inflammation of the gastrointestinal tract. We received Fast Track designation from the FDA for the development of Prochymal for patients with moderate to severe biologics refractory Crohn's disease.

We completed a Phase 2 trial in 2006 studying Prochymal as a treatment for moderate to severe Crohn's disease that is refractory to steroids and other immunosuppressants. Four leading centers in the United States enrolled ten patients for the prospective, randomized, open label trial. Patients with a Crohn's Disease Activity Index, or CDAI, of at least 220, who had previously failed treatment with steroids and other immunosuppressive agents, were given two infusions of Prochymal seven days apart. The average CDAI at baseline was 341 for patients in the study. Patients had suffered from Crohn's disease for an average of 14.2 years, and 80% of the patients required prior surgical intervention to treat their Crohn's disease prior to study entry. Within 14 days of treatment with Prochymal, one-third of the patients had a reduction of CDAI of greater than 100 points. Mean Inflammatory Bowel Disease Questionnaire, or IBDQ, scores improved significantly from baseline to Day 28 (113 to 146, $p=0.008$) and one-third of the patients achieved clinical remission of their disease.

As a result of the positive data from the Phase 2 trial, a Phase 3 trial evaluating Prochymal for the treatment of refractory, moderate to severe Crohn's disease was initiated. The placebo-controlled, double-blind study was designed to enroll 270 patients, 18 to 70 years of age with a CDAI greater than 250. The primary endpoint of this trial is the proportion of patients with CDAI of less than 150 (clinical remission) at day 28. The trial was initiated at approximately 60 leading centers in the U.S. and Canada. In 2009, enrollment was temporarily suspended on account of concerns about the trial design, as discussed below.

The Crohn's program had initially consisted of two linked trials—one aimed at inducing remission (Protocol 603) and the other at maintaining response (Protocol 610) in patients who had failed other available treatments for the disease. The primary endpoint for Protocol 603, which initially included a placebo and two Prochymal dose arms, is the proportion of patients experiencing disease remission within 28 days of initiation of therapy with Prochymal, compared to those patients receiving placebo. For the primary endpoint of disease remission, the CDAI score must fall to below 150. Concerns that the linked trial design was biasing response rates led to the suspension of enrollment. The trial remained blinded following suspension to permit an interim analysis of the 207 patients enrolled. The average CDAI scores at study entry exceeded 350 in all treatment arms, indicating that the patients had very debilitating disease. For the primary endpoint of disease remission, the interim analysis revealed that one dose arm for Prochymal approached statistical significance in the intent to treat ("ITT") population, and reached significance in the per protocol population. These results showed that despite the initial concerns, the difference in response rates between one dose arm of Prochymal and placebo is consistent with the original statistical assumptions of the protocol, and Prochymal significantly outperformed placebo. Additionally, the analysis showed that Prochymal continued to demonstrate a benign safety profile with no significant differences in any of the safety outcomes compared to placebo.

As a result, in April 2010, we announced that we would resume enrollment in our Phase 3 Crohn's disease trial.

The decision to resume enrollment was made following discussions with the FDA about the results of the interim analysis. Enrollment is now ongoing with the best-performing Prochymal dose arm and the placebo arm, according to the pre-specified, adaptive trial design. The trial has been repowered to compensate for the statistical penalty incurred by the interim analysis. The follow-on maintenance trial (Protocol 610) has been discontinued to remove the potential bias due to trial design. Nevertheless, for those subjects enrolled in its companion Protocol 603 trial, we decided to evaluate the safety in subjects with active Crohn's disease who are resistant to standard Crohn's disease therapies in an open-label re-treatment trial with Prochymal (Protocol 611).

Phase 2 Clinical Trial—Acute Myocardial Infarction.

Prochymal is also being evaluated as a therapy to improve heart function in patients who have suffered a heart attack. A heart attack, or acute myocardial infarction, ("AMI"), occurs when coronary arteries become blocked with fatty deposits, depriving the heart muscle of oxygen and nutrients. Based on statistics published in 2005 by the American Stroke Association and the American Heart Association, approximately 700,000 individuals in the United States each year experience their first heart attack. According to these same statistics, approximately 20% of these patients suffer extensive damage to their heart muscle leading to heart failure within six years. Furthermore, we believe the statistics indicate that despite improvements in the standard of care, this progression from myocardial infarction to heart failure remains largely unavoidable in patients with AMIs.

Prochymal is being developed for the treatment of heart muscle damage following AMI. Its primary indication is to treat post-AMI complications and prevent the formation of scar tissue and associated cardiac dysfunction. Our preclinical studies indicate that the mechanism by which Prochymal improves myocardial function includes the prevention of pathological scarring of the heart muscle and the formation of new blood vessels. We are developing Prochymal as a therapy to be delivered through a standard intravenous line up to 7 days post-AMI.

In preclinical studies, Prochymal selectively targeted the damaged area of the heart when a single infusion was administered. These studies also indicated that Prochymal has the effect of retarding or stopping the progression of further cardiac tissue deterioration and limiting the damage caused by an AMI. Significant improvements in cardiac function as demonstrated by increased ejection fraction, reduced end diastolic pressures, and reduced wall stress were observed eight to ten weeks after administration of Prochymal. A preclinical study was performed to determine if an intravenous infusion of MSCs following myocardial infarction would result in an improvement in cardiac function. Significant improvement in cardiac function as indicated by left ventricular ejection fraction ("LVEF") was observed three months after infarct in those animals receiving intravenous delivery of MSCs compared to control animals. MSCs were detected in the damaged area of the heart muscle of Prochymal treated animals, but not in the remote, undamaged regions.

In March 2006, we completed enrollment of a 53-patient Phase 1 randomized, double-blind, placebo-controlled clinical study to evaluate Prochymal in patients following AMI. The trial was designed to investigate patient response to three different doses of Prochymal versus placebo. Exploratory efficacy endpoints included overall improvement in the function and remodeling of the heart muscle six months after treatment. A safety evaluation for each subject was conducted two years after the subject was enrolled in the trial.

In March 2007, we reported six-month results in this trial. Heart attack patients receiving Prochymal had significantly lower rates of adverse events, such as cardiac arrhythmias, as well as significant improvements in heart, lung and global function. Administration of Prochymal was found to be well tolerated at all dose levels. Patients in the Prochymal group were four times less likely to

experience an arrhythmic event compared to those receiving placebo (9% vs. 37%, $p=0.025$). The percentage of patients who experienced clinically significant premature ventricular contraction was significantly less after receiving Prochymal as compared to placebo at the one month (6% vs. 32%, $p<0.05$) and two month (9% vs. 38%, $p<0.05$) time points. Patients with anterior wall myocardial infarctions had a statistically significant 7.0 point (24%) improvement in ejection fraction at three months and a 7.3 point (25%) improvement at six months over baseline ($p<0.05$). In comparison, placebo patients in this group did not have a significant increase in ejection fraction. Patients receiving Prochymal had significantly improved pulmonary function as measured by improvement in FEV1% predicted values (17 point Prochymal vs. 6 point placebo, $p<0.05$). FEV1 or forced expired volume in one second is the amount of air that can be exhaled in a patient's first second of expiration. Comparing the patient's FEV1 reading with normal predicted values (FEV1% predicted) provides a measure of the severity of pulmonary disease. Significantly more patients who received Prochymal experienced improvement in their overall condition at six months as compared to those receiving placebo (42% vs. 11%, $p=0.027$).

In February 2008, we reported one-year results in the Phase 1 trial. The trial continued to demonstrate Prochymal's strong safety profile as well as continued statistically significant improvement in heart function. One year magnetic resonance imaging ("MRI") data on LVEF was showed patients treated with Prochymal had a statistically significant 5.2 point increase over baseline ($p=0.021$). Patients receiving placebo showed only a 1.8 point improvement over baseline, which was not statistically significant. Patients with more severe myocardial infarction, defined as a baseline LVEF of 45% or less, demonstrated even greater effects. The Prochymal treatment group showed a 6.5 point improvement one year post-treatment, compared to a 1.9 point increase in the placebo group.

Data from the final two-year time point was reported in February 2009 and indicated a continuing benefit from treatment with Prochymal. The trial met its primary endpoint demonstrating the safety of Prochymal in the acute myocardial infarction setting. Patients receiving Prochymal continued to experience fewer adverse events than that of placebo (8 vs. 11 per patient). During the trial, patients receiving Prochymal experienced fewer arrhythmias as compared to patients receiving placebo. This effect was maintained for the duration of the study, with 47.4% of placebo patients experiencing cardiac arrhythmia compared to only 11.8% of Prochymal patients ($p=0.006$). Ventricular arrhythmias are associated with tissue damage and scar formation in the heart resulting from infarction and can be a sign of poorer prognosis. For patients with severe myocardial infarction, defined as a baseline LVEF of 45% or less, greater effects were observed. The Prochymal group showed a significant 9.5 point improvement over baseline two years post-treatment ($p<0.05$). This compares favorably to the 3.1 point increase observed for the placebo group. No serious adverse events were attributed to Prochymal, and all-cause hospitalizations trended lower in the Prochymal group (38.2%) as compared to the placebo group (47.4%).

Based upon the positive results from the Phase 1 trial, we received approval from the FDA to initiate a Phase 2 trial. The Phase 2 double-blind, placebo-controlled trial is evaluating the safety and efficacy of Prochymal in conjunction with standard of care for improving heart function in patients who experienced a first heart attack. This trial focuses on patients who have suffered a severe myocardial infarction, defined as LVEF between 20% and 45% at baseline. Enrollment of 220 patients was completed in March 2011 at 33 leading centers in the United States and Canada. Patients were randomized to either Prochymal or placebo at a 1:1 ratio. Efficacy endpoints determined from cardiac MRI include end systolic volume, LVEF and the ability of Prochymal to preserve functional heart tissue, or limit scar formation following a heart attack. In addition, functional and quality of life assessments are being performed.

Phase 2 Clinical Trial—Early Onset Type 1 Diabetes Mellitus.

We are also investigating Prochymal as a treatment for the preservation of insulin production in patients with newly diagnosed type 1 diabetes mellitus. Type 1 diabetes, commonly known as juvenile diabetes or insulin-dependent diabetes, is an autoimmune disorder that attacks and destroys insulin producing islet cells in the pancreas causing glucose accumulation. As a result, those suffering from type 1 diabetes must take insulin to regulate blood sugar levels. Over time, poorly controlled diabetes can lead to serious health conditions, including heart disease, stroke, blindness, amputations, kidney disease and nerve damage. Both animal and human bone marrow-derived MSCs have been shown to preserve islet cell function in animal models of diabetes. We believe that based upon their mechanism of action, MSCs may home to the pancreas and inhibit the local immune and inflammatory responses, preventing the destruction of pancreatic islets.

In October 2007, we reported the initiation of a Phase 2 trial evaluating Prochymal in conjunction with standard of care in preserving insulin production in patients aged 12 to 35 years. Patients must have been diagnosed with type 1 diabetes mellitus within 2 to 20 weeks of enrollment. Patients in the double-blind, placebo-controlled study received three intravenous infusions of Prochymal over the course of sixty days. The primary efficacy endpoint is the amount of C-peptide produced during a Mixed Meal Tolerance Test at one year. This test is frequently used in diabetic patients to determine how much insulin is being produced by the pancreas in response to glucose stimulation. The patients in the trial will be followed for two years. In early 2010, enrollment was completed with a total of 63 patients.

We entered into a collaborative agreement with the Juvenile Diabetes Research Foundation, or JDRF, for this study. Under this agreement, the JDRF committed to fund \$4.0 million of clinical study costs contingent upon us meeting specific milestones. We achieved all of the contingent milestones as of December 31, 2010 and have received full payment from the JDRF. In January 2012, we provided an update on this first-of-its-kind trial, conducted in partnership with JDRF, and the interim assessment at one year showed that systemic infusions of Prochymal were well-tolerated in this unique population. There were no differences in adverse event rates between the Prochymal and placebo groups. Importantly, no patients experienced a reaction to the infusions despite the cells being unrelated to the recipient, unmatched, and used without immunosuppression. No significant differences in the rates of disease progression, as measured by stimulated C-peptide levels at the one year time point, have been observed. However there was a trend towards fewer hypoglycemic events for patients treated with Prochymal as compared to controls. The patients will be followed for another year (for a total of two years), after which time a complete analysis of the data will be conducted.

Phase 2 Clinical Trial—Chronic Obstructive Pulmonary Disease.

Enrollment in the 62-patient Phase 2 clinical trial evaluating the safety and efficacy of Prochymal in conjunction with standard of care for improving pulmonary function in patients with moderate to severe Chronic Obstructive Pulmonary Disease, or COPD, was completed in the second half of 2008. Patients in the double-blind, placebo-controlled study were randomized to either Prochymal or placebo at a 1:1 ratio and received 4 infusions over the course of 90 days. Measurements used in the trial to detect potential improvements in subjects treated with Prochymal include pulmonary function tests, exercise capability, systemic inflammation and quality of life assessments. In addition, exacerbations and hospitalizations due to COPD were monitored. Patients were evaluated over the course of two years.

The trial met its primary goal of demonstrating the safety of Prochymal in patients with compromised pulmonary function. Prochymal significantly decreased systemic inflammation in patients when compared to those receiving placebo, as determined by C-reactive protein at 6 months. Despite this reduction in inflammation, however, pulmonary function in patients receiving Prochymal was not significantly improved compared to those receiving placebo.

Phase 3 Development—Animal Rule—Acute Radiation Syndrome.

In 2007, we partnered with Genzyme Corporation to develop Prochymal as a medical countermeasure to nuclear terrorism and other radiological emergencies. In January 2008, we were awarded a contract from DoD for the development and stockpiling of Prochymal for the treatment of acute radiation syndrome ("ARS"). We have completed work on the first phase of the DoD contract in fiscal 2010 and are not pursuing any further contracts on nuclear countermeasures. Our agreement with Genzyme for nuclear countermeasures expired in July 2010, in accordance with the terms of that contract.

Chondrogen

Chondrogen is our biologic drug candidate for knee repair. Chondrogen, a preparation of adult MSCs formulated for direct injection into the knee, regenerated meniscus and prevented osteoarthritis in animal models. As described further below, we completed a Phase 1/2 clinical trial for Chondrogen, designed to evaluate the safety and preliminary efficacy in patients following surgery to remove torn meniscus. The current standard of care for significant injuries to the meniscus is partial meniscectomy surgery, in which the damaged portion of the meniscus is permanently removed. As noted in a 1999 article in the journal *Sports Medicine*, patients after meniscectomy are 10 to 15 times more likely to develop osteoarthritis, a highly debilitating orthopedic condition. As a result, a significant medical need exists for a product that can prevent cartilage degeneration.

In the randomized double-blind, placebo-controlled Phase 1/2 clinical trial evaluating Chondrogen, 55 patients received one of two doses of Chondrogen or vehicle control. At one-year, 23.5% of patients in the 50×10^6 cells Chondrogen arm had at least a 15% meniscal volume increase on MRI, compared to no patients in the placebo group ($p=0.04$). At one-year, the data showed improvements in joint condition that correlated with a clinically and statistically significant improvement in pain in patients with osteoarthritis ("OA") who received Chondrogen as compared to those treated with the control, hyaluronic acid ("HA"). The effects were dose dependent and maintained through two-years. The two-year follow-up also showed that Chondrogen continued to demonstrate a positive safety profile. Chondrogen was well tolerated and was not associated with serious adverse events. Also, it did not result in any adverse hematological events nor in the formation of any abnormal or ectopic tissue. No safety concerns were observed in the long term 5-year safety follow-up.

In stem cell studies requiring patient-reported outcomes, such as our Chondrogen studies, high placebo rates have been observed. We have seen similar effects in our Crohn's disease studies. We continue to evaluate ways to overcome or compensate for this elevated placebo rate. We will initiate our next clinical trials in this field once better techniques or outcomes are available to control for the placebo effect.

Scientific Background

Stem cells are a special class of cells that can self-replicate and differentiate into multiple tissue types. Different populations of stem cells, also called progenitor or precursor cells, reside within the body. These cells are generally classified according to their differentiation potential, or ability to become distinct cell types. Embryonic stem cells ("ESCs") are recognized as being totipotent, or unlimited, in terms of the number of different cell types they can become. Other stem cells are either multipotent, meaning capable of becoming two or more cell types, or unipotent, meaning preprogrammed for a single final cell type. Multipotent stem cells include the hematopoietic stem cells ("HSCs") responsible for generating cells associated with the circulatory and immune systems, MSCs responsible for the formation of connective tissue cells, and neuronal stem cells dedicated to producing the different nervous system cell types. Stem cells participate in embryological and fetal development and orchestrate tissue repair following disease or injury in the adult. Though the precise mechanism of

their activity has not yet been determined, experimental work has provided empirical evidence of the therapeutic benefit of various types of stem cells administered to animal and human subjects.

The ESC has the greatest differentiation potential and is capable of developing into all cell types found within the human body. ESCs must be harvested from human embryos, giving rise to ethical controversies surrounding the procurement of ESCs, which have hindered progress in ESC research. Also, technical difficulties in purifying and growing ESCs and safety concerns have prevented widespread clinical evaluation.

In adults, two major classes of stem cells exist in bone marrow: HSCs and MSCs. Throughout life, HSCs, located within the bone marrow give rise to most types of blood cells. HSC transplantation has served as the basis for a number of aggressive treatments for various types of cancer. However, therapies based on HSCs are largely limited to hematological disorders because HSCs can only differentiate into blood cells.

In contrast to HSCs, MSCs are progenitor cells that differentiate into various connective tissues, such as bone, muscle, fat, tendon, ligament, cartilage and bone marrow stroma when they receive appropriate biochemical and biomechanical signals. Other biochemical stimuli cause MSCs to mobilize to areas of injury or inflammatory disease. Once there, MSCs coordinate tissue regeneration at a local level by producing tissue growth factors and by interacting with local cells to reduce inflammation and scarring. Importantly, MSCs do not express certain markers on the surface of cells, known as HLA class II antigens, which are responsible for recognition of the cells by the immune system. Also, the cell surface markers, CD40, CD80 and CD86, which are essential for activation of immune cells, are not present on MSCs. These characteristics allow MSCs to:

- be transplanted into an unmatched patient without giving rise to an immune response;
- regenerate connective tissues like bone and cartilage;
- act as a potent anti-inflammatory agent; and
- exhibit anti-fibrotic activity to limit tissue damage.

MSCs and HSCs are most readily isolated from bone marrow. Because MSCs represent a small fraction of bone marrow cells, they require amplification to be clinically useful. We have developed and optimized a proprietary process for isolating and expanding these cells using standardized cell culture methodologies. We can grow MSCs in a controlled fashion to produce up to 10,000 treatments of our biologic drug candidates from a single bone marrow donation.

Stem cells can be derived from either the patient, referred to as an autologous source, or from a donor, referred to as an allogeneic source. For many cell therapies, allogeneic sourcing is not possible due to the immune response that typically occurs following the injection of unrelated cells. The non-immunogenic nature of MSCs permits allogeneic cell sourcing and carries significant advantages over autologous sourcing. Allogeneic cell sourcing from a healthy donor population allows for specific quality control measures to select therapeutically optimal stem cells. For example, if a patient's cells are of poor quality due to advanced age, disease or metabolic state, the resulting product will likely be of similarly poor quality. We believe that allogeneic sources used in large scale production will enable us to utilize quality control practices to ensure that product potency is reproducible from treatment to treatment. We have developed quality standards for our biologic drug candidates, including potency assays relevant to the specific indication. No patients participating in our clinical trials have experienced an adverse immune response due to Prochymal.

Strategy

We are striving to be the first company to receive marketing approval of a stem cell drug and to become the world's leading provider of stem cell therapies.

Successfully commercialize our lead stem cell therapy, Prochymal. We completed enrollment of the first worldwide Phase 3 stem cell clinical trial in the fourth quarter of 2008, enrolling 244 patients at 72 leading bone marrow transplant centers across the United States, Canada, United Kingdom, Spain, Italy, Australia, Germany and Switzerland. Assuming marketing approval, we plan to develop a sales and marketing organization to promote Prochymal initially for the treatment of the orphan indication of refractory GvHD. Based on the small number of hospitals performing bone marrow transplants and treating patients with GvHD and the lack of effective treatments for this population, we believe we can successfully market Prochymal with a small, highly trained sales force.

Promote market acceptance and share of Grafix and Ovation and expand our pipeline of other Biosurgery products. We intend to continue to promote our Biosurgery products through marketing and distribution efforts, and to conduct clinical trials necessary to procure third party reimbursement for outpatient procedures using these products. We also intend to identify new Biosurgery products or additional applications for our current products.

Expand our pipeline of biologic drug candidates where our stem cell technology has a therapeutic potential. We are continuously investing in our biologic drug candidate pipeline by evaluating our therapies in additional diseases and disorders where we believe MSCs may have therapeutic benefit. This will allow us to maintain our position as a leader in cellular therapeutics.

Exploit our MSC technology, manufacturing ability and proprietary know-how to advance our pipeline. We intend to leverage our preclinical research, safety data and manufacturing ability to grow our biologic drug candidate pipeline. Because we utilize MSCs as the active agent for all of our biologic drug candidates, we believe the accumulated safety data will reduce the time and cost associated with early stage clinical trials for new indications.

Internally develop and commercialize future biologic drug candidates and novel tissue products. We believe that we have the requisite experience to develop and commercialize any future biologic drug candidates without the help of a strategic partner if necessary or determine it to be the preferred strategy. Due to our experience with Osteocel and our current pipeline candidates, we believe we have gained the clinical, regulatory, manufacturing and commercial capabilities to successfully develop and commercialize biologic drug candidates and novel tissue products.

Collaborations

Genzyme Corporation—Collaboration Agreements

Prochymal and Chondrogen Development and Commercialization

In October 2008, we entered into a collaboration agreement with Genzyme Corporation, then an independent and now a Sanofi company, for the development and commercialization of Prochymal and Chondrogen. Under the terms of the agreement, we retained the right to commercialize Prochymal and Chondrogen in the United States and Canada, and Genzyme was provided the exclusive right to commercialize the treatments in all other countries, except with respect to GvHD in Japan where JCR Pharmaceuticals Co., Ltd. has these rights.

In February 2012, Sanofi issued a press release which included an update on their R&D pipeline, stating that it has "discontinued" its project with Prochymal for GvHD. The statement issued by Sanofi was made without consultation with or knowledge by us. Through our legal counsel, we have advised Sanofi that we are treating these public statements as Sanofi's election to terminate the collaboration agreement. The agreement provides for voluntary termination by Sanofi and that, upon such voluntary termination, all rights to Prochymal revert back to us, and we are free to commercialize or enter into commercialization agreements for Prochymal with other parties without restriction. While we have been proceeding on the basis that Sanofi has terminated the collaboration agreement, Sanofi has since

advised us that it disagrees with our characterization of their press release. We have requested an explanation from Sanofi with respect to their statements regarding Prochymal. There can be no assurances as to the outcome of these matters. However, we continue to proceed with our Prochymal regulatory approval efforts and, if successful, commercialization, alone or with another collaborator.

The Collaboration Agreement also provided for upfront non-contingent, non-refundable payments to us of \$130.0 million (\$75.0 million of which was received in November 2008 and \$55.0 million of which was received in July 2009). This collaboration agreement also provided for contingent milestone payments to us of up to \$1.25 billion, in addition to royalties on any sales by Genzyme. Termination of the collaborative agreement would mean that we no longer have the opportunity to earn these contingent payments.

Prochymal Development to Treat Acute Radiation Syndrome

In July 2007, we entered into an agreement with Genzyme for collaboration in the preparation and execution of development and purchase agreements with United States and Allied government agencies for countermeasures to nuclear terrorism and other radiological emergencies. In January 2008, we were awarded a contract from DoD for the development and stockpiling of Prochymal for the treatment of ARS. During the three years ended December 31, 2010, DoD has paid us \$6.0 million in connection with this contract. We are not presently pursuing other government contracts in partnership with Genzyme. Since no sale of product occurred prior to July 2010 and no other activities with respect to nuclear terrorism have taken place, the term of this agreement with Genzyme expired in July 2010.

Juvenile Diabetes Research Foundation—Collaborative Agreement

In October 2007, we entered into a collaborative agreement with the Juvenile Diabetes Research Foundation for the development of Prochymal as a treatment for the preservation of insulin production in patients with newly diagnosed type 1 diabetes. Under the terms of the agreement, JDRF has agreed to fund \$4.0 million of the research costs, payable to us based upon the achievement of established milestones. We received \$1.5 million in funding from JDRF during 2009, \$2.0 million in funding from JDRF during 2008, and the remaining \$500,000 in funding during 2010. We recognize revenue from the JDRF agreement over the estimated schedule of completing this research.

JCR Pharmaceuticals Co., Ltd.—License Agreement

In August 2003, we entered into a license agreement with JCR Pharmaceuticals Co., Ltd., pursuant to which we granted to JCR an exclusive right in Japan to our MSC technology for use in connection with the use of hematopoietic stem cells derived from peripheral blood, cord blood or bone marrow in the treatment of hematological malignancies.

The license agreement provided for a payment by JCR to us of an up-front license fee of \$3.0 million and payment of an additional \$0.5 million upon a certain technology transfer. We received a \$0.5 million milestone payment in 2007 when JCR filed an Investigational New Drug ("IND") application in Japan. We also received a \$1.0 million milestone payment in the first quarter of 2010 when JCR commenced a pivotal trial in Japan. In addition, if and when marketing approval is obtained in Japan, JCR is required to pay up to \$5.5 million in additional pre-commercialization milestones per product and certain amounts for pre-determined thresholds of cumulative net sales. Lastly, JCR has an obligation to pay royalties to us, with such amount dependent upon the cumulative net sales.

Under the terms of the collaborative arrangement, JCR bears all costs associated with bringing the drug to market in Japan. JCR is obligated to use its reasonable best efforts to develop and commercialize in Japan products covered under the terms of the license, including conducting clinical trials and procuring regulatory and other approvals. The license expires with respect to specific products on the later of 15 years from the date of the first sale of the product in Japan or the date on

which our last patent in Japan covering that product expires. Also, the license and the collaboration can be terminated unilaterally by JCR upon 180 days notice to us or by mutual agreement between us and JCR.

In conjunction with this collaboration, JCR made a \$3.0 million investment in our preferred stock, which converted at the closing of our initial public offering into 136,363 shares of our common stock.

Intellectual Property

Our broad intellectual property portfolio originates from our pioneering scientific efforts. We have established a considerable patent position in adult stem cell technology and actively seek to protect proprietary technologies that we consider important to our business, including compositions of matter as well as methods of manufacture and methods of use. We believe that one particularly strong aspect of our patent estate is a claim that relates to the isolated mesenchymal stem cell regardless of its origin, type of expansion or ultimate use. Other layers of our patent protection relate to the application of our stem cell technologies to various organs (e.g. heart, lungs) and therapeutic areas (e.g. autoimmune disorders, inflammatory disorders) among others. Additionally, we own IP related to purified compositions of MSCs and the methods that we believe are necessary to manufacture a safe product. We currently own or have exclusive licenses to 46 issued U.S. patents. Foreign counterparts to these patents, including composition of matter claims, have been granted, and we own or hold licenses to 145 issued patents in Europe, Canada, Australia and other countries. The patents and patent licenses included in our portfolio address, among other things, composition of matter, methods of use, and methods of manufacture of mesenchymal stem cells. We aggressively pursue our patent portfolio, and have 31 additional U.S. patent applications and 85 foreign patent applications pending. We are also committed to protecting our intellectual property position by continuously monitoring the competitive landscape and are prepared to act aggressively in the event that our market position is threatened by an infringing product.

For most of our biologic drug candidates, we rely on multiple patents in combination. The following provides a description of some of our key patents and is not intended to represent an assessment of claims limitations or scope. Each of the following patents is assigned to Osiris or licensed with a conveyance of all substantial rights as described below. For the issued U.S. patents referred to

below, there are corresponding applications that allow us to pursue patents in other countries, some of which have been issued. These foreign patents have expiration dates ranging from 2012 to 2019.

Patent	Jurisdiction	Subject Matter	Related Product(s)	Expiry*
5486359	United States	Composition of Matter for mesenchymal stem cells.	Prochymal, Chondrogen	2013
5733542	United States	Enhancing bone marrow engraftment using MSCs.	Prochymal	2015
5811094	United States	Therapeutic use of MSCs for the repair of connective tissue.	Prochymal, Chondrogen	2015
6328960	United States	Use of MSCs in transplantation, e.g. marrow, tissues and organs.	Prochymal	2019
6355239	United States	Basis for universal use of MSCs without recipient matching.	Prochymal, Chondrogen	2018
6368636	United States	MSCs for prevention and treatment of immune responses in transplantation.	Prochymal	2019
6387369	United States	Use of MSCs for cardiac muscle repair.	Prochymal	2020
7029666	United States	Uses for human mesenchymal stem cells	Prochymal	2018
7892829	United States	Cardiac muscle regeneration using mesenchymal stem cells	Prochymal	2018

* All noted expiry dates are based on filing dates; actual expiry depends on a number of factors and may vary.

Patent life determination depends on the date of filing of the application and other factors promulgated under patent law and regulatory laws including, for example, the United States Drug Price Competition and Patent Term Restoration Act of 1984, known as the Hatch-Waxman Act. The patent term restoration period is generally one-half the time between the effective date of an Investigational New Drug Application or IND and the submission date of a New Drug Application ("NDA") or Biologics License Application ("BLA"), plus the time between the submission date of an NDA or BLA and the approval of the drug. Only the earliest patent applicable to an approved drug is eligible for the extension. The United States Patent and Trademark Office, in consultation with the FDA, reviews and approves applications for patent term extension. Where appropriate and when eligible, we expect to apply for patent term extensions in an effort to bolster market exclusivity beyond nominal patent expiration dates.

We also rely upon trade secrets to protect our proprietary information. Through our experience with MSCs and MSC-based product development, we have developed expertise and know-how in this field. We have the capability to manufacture clinical grade MSCs in-house. We also contract for the production through contract manufacturers. To protect this know-how, our policies require confidentiality agreements with our employees, consultants, contractors, manufacturers, outside collaborators, sponsored researchers, and advisors. These agreements generally provide for protection of confidential information, restrictions on the use of materials and assignment of inventions conceived during the course of performance for us. These agreements might not effectively prevent disclosure of our confidential information.

We were founded on the basis of MSC technology obtained from Case Western Reserve University ("CWRU"). In January 1993, we entered into a Technology Transfer and License Agreement with CWRU, which was subsequently amended in October 1999 and twice in October 2003. Pursuant to this license agreement, certain patents were assigned to us and others were exclusively licensed to us, with the right to grant sublicenses. The exclusive license is subject to any rights of a governmental agency

based on research funding by such an agency, and to CWRU's retained rights under the patents for non-clinical research, testing or educational purposes of CWRU.

With respect to the patents licensed to us by CWRU, we are obligated to pay royalties to CWRU based on sales of products covered by granted licensed patents, and such royalties commence with respect to each such product on the third anniversary of the initial sale thereof. We are also obligated to pay minimum royalties under the agreement with CWRU and remain responsible for patent costs. The license is terminable by CWRU in the event that there is a material breach by us. Otherwise the license is for the life of the patents. Under certain circumstances, we are obligated to negotiate in good faith with a third party a sublicense under patents licensed from CWRU and under patents and know-how owned by us that are reasonably required by the third party to exercise the granted sublicense. We are not obligated to grant such a sublicense where it would have a potential adverse effect on a product being researched, developed or commercialized by us or by a licensee or sublicensee of ours.

Manufacturing

Production of Biologic Drug Candidates

One way in which we believe that we have differentiated ourselves from other stem cell companies is through proprietary manufacturing methods that allow for the controlled growth of MSCs to produce up to 10,000 treatments of our biologic drug candidates from a single bone marrow donation. This is in contrast to many other stem cell technologies that are able to make only a single treatment from each donation.

We have been manufacturing MSCs for over thirteen years. The first material manufactured in-house was released in 1999. Since that time manufacturing has continued to expand to support our clinical trials. The current manufacturing process utilizes cell factories, a closed system of surfaces on which the cells adhere, for stem cell expansion. We have developed this technology into a reproducible process that can be scaled up and transferred to additional sites. A second manufacturing site was successfully qualified in 2003. In addition, JCR Pharmaceuticals, our partner in Japan, has successfully implemented our manufacturing technology in Japan. We and our contract manufacturers believe that we perform all of our manufacturing activities in compliance with the FDA's current Good Manufacturing Practice requirements.

Our manufacturing process begins with the collection of bone marrow aspirate from qualified volunteer donors, 18-30 years of age. Prior to donation, these individuals are screened and tested for a battery of diseases including HIV and hepatitis according to the FDA's donor suitability guidance. We purchase bone marrow aspirate from commercial sources. Since the MSC is extremely rare, accounting for only one in every 100,000 cells in bone marrow, an initial purification process is required. Upon arrival at our facilities, MSCs are isolated and selectively removed from the bone marrow through a multi-step process. A beneficial feature of our stem cells is that they adhere to the surface of the cell factory and the other remaining cell populations that do not adhere are removed in processing. Our stem cells are then expanded, harvested, packaged and cryopreserved as an in-process intermediate, and we conduct a second battery of quality testing. Each packaged intermediate is further expanded and formulated to produce the final product. Sterility and other extensive quality testing completes the process. This well-defined process has allowed for the development of a supply chain where material specifications have been established and vendors have been qualified.

The final product has been configured to allow for ease of storage, distribution and use in the clinic. We ultimately expect the product will be provided in ready-to-use patient dose quantities, shipped frozen from the distribution center, and stored in the freezer at the clinic or hospital.

Production of Grafix and Ovation

Grafix and Ovation are novel cellular repair matrices derived from human placental tissue, and provide the essential components needed for repair and regeneration—extracellular matrix, viable endogenous MSCs and a replenishing source of growth factors—without the need for autografting. Unlike our biologic drug candidates, the stem cells and cellular matrix used in Grafix and Ovation are obtained from tissue donors. Additionally, the production of our Biosurgery products differs from the production of our biologic drug candidates in numerous other ways, including that the cells are not expanded.

We contract with tissue recovery agencies for our Biosurgery products source tissue. Once an initial qualification of the donor is performed the tissue is sent to our processing center overnight. The agencies also compile the donor medical records, collect medical and social history, and collect samples for serological testing. These agencies operate on a fee for service basis. We intend to enter into contracts with additional tissue recovery agencies in the future in order to fulfill expected product demand.

The processing of our Biosurgery products is in many ways more like the process of organ donation than standard tissue processing. This is because it is essential that the stem cells contained within these products are kept in a living, healthy state. We overcome this challenge through a proprietary process that is designed to maintain the integrity of the material, particularly the stem cells. Following completion of this process as well as quality control testing and quality assurance review, the Biosurgery product is released for distribution.

Production of Osteocel

In July 2008, we sold our Osteocel business to NuVasive, Inc. and concurrently entered into a Manufacturing Agreement under which we continued to manufacture Osteocel for the exclusive sale to NuVasive through March 2009. We do not presently have any further obligations to NuVasive.

Osteocel is a matrix of viable cancellous bone containing primary or unexpanded MSCs. Unlike our biologic drug candidates, the stem cells and cancellous bone used in Osteocel are obtained from organ and tissue donors. Additionally, the production of Osteocel is different from our biologic drug candidates in that it contains tissue matrix and does not feature the expansion of MSCs.

Sales, Marketing and Distribution

Therapeutic Drug Candidates

Although some uncertainty persists as a result of the current status of our collaboration with Genzyme, we currently intend to self-commercialize all of our biologic drug candidates upon regulatory agency approval through the creation of sales and marketing capabilities in existing and new indications. We have also entered into a collaborative arrangement with JCR Pharmaceuticals Co., Ltd. for the distribution of Prochymal for GvHD in Japan following marketing approval.

Our biologic drug candidates are stored at -135 degrees Celsius or lower. Generally, we do not believe this will pose a significant problem for end-users as most sophisticated hospitals and medical centers have freezers with these storage capabilities readily available. However, some facilities may not have this type of storage available and this may limit distribution. In an effort to mitigate this, we are performing studies to store the product at higher temperatures.

Biosurgery Products

We currently intend to continue to self-commercialize all of our Biosurgery products through the efforts of focused direct distribution and marketing staff, and through a growing network of

distributors. Our marketing of Grafix is targeted at facilities caring for burn and chronic wound patients in the United States. The most rapid adoption for Grafix has been for the treatment of burns and severe wounds in an inpatient hospital environment. We are initiating efforts to obtain the reimbursement codes necessary for third party reimbursement in an outpatient setting. Once reimbursement codes are obtained, we anticipate that Grafix will be more widely adopted for treatment of chronic wounds, including diabetic foot ulcers.

Our marketing of Ovation is targeted to orthopedic surgeons and neurosurgeons practicing in the United States. The most rapid adoption to date has been for spinal fusion procedures. We may consider entering into strategic partnerships with device or other orthopedic distributors because this field is so broad that this may be the most efficient way to maximize product distribution.

Competition

Our industry is subject to rapid and intense technological change. We face, and will continue to face, intense competition from pharmaceutical, biopharmaceutical and biotechnology companies, as well as numerous academic and research institutions and governmental agencies engaged in drug discovery activities or funding, both in the United States and abroad. Some of these competitors are pursuing the development of drugs and other therapies that target the same diseases and conditions that we target in our commercial, clinical and preclinical programs.

Many of the companies competing against us have financial and other resources substantially greater than our own. In addition, many of our competitors have significantly greater experience in testing pharmaceutical and other therapeutic products, obtaining regulatory approvals of products, and marketing and selling those products. Accordingly, our competitors may succeed in more rapidly obtaining approval for products and achieving widespread market acceptance. If we obtain necessary regulatory approval and commence significant commercial distribution of our products, we will also be competing with respect to manufacturing efficiency and marketing capabilities, areas in which we have limited commercial-scale experience.

Our two biologic drug candidates, if approved, would compete with marketed products and other future biologic drug candidates. For each of our clinical-stage biologic drug candidates, the primary competitors include:

- *Prochymal*. If approved, Prochymal will likely be the first drug indicated for the treatment of acute GvHD. The competitive landscape in Crohn's disease is more crowded and, if approved, Prochymal will compete with Johnson & Johnson's Remicade®, Abbott's HUMIRA®, Biogen's Tysabri® and UCB's Cimzia®.
- *Chondrogen*. If approved, Chondrogen will compete with pain relievers such as acetaminophen, nonsteroidal anti-inflammatory drugs and intra-articular injection of corticosteroid or hyaluronic acid. However, none of these pain relievers have proven disease modification, which is one of the goals of the Chondrogen development program.

We also compete with other companies and organizations that are marketing products competitive with Grafix and Ovation. These include Advanced Biohealing, the manufacturer of Dermagraft which competes with Grafix; Organogenesis, the manufacturer of Apligraf, which competes with Grafix, and Medtronic, the manufacturer of Infuse (rhBMP-2), which competes with Ovation. In addition to those listed, there are other potential competitors developing a variety of competing products.

We may face competition in the future from other companies that are researching and developing stem cell therapies. We are aware of many companies working in this area, including: Aastrom Biosciences, Advanced Cell Technology, Aldagen, Inc., Athersys, Cellerant Therapeutics, Cellerix SA, Cognate Therapeutics, Cytori Therapeutics, Gamida Cell, Mesoblast, MultiCell Technologies, Theradigm, Pluristem Therapeutics, Inc. and StemCells.

We expect to compete based upon, among other things, our intellectual property portfolio and the efficacy of our products. Our ability to compete successfully will depend on our continued ability to attract and retain skilled and experienced scientific, clinical development and executive personnel, to identify and develop viable biologic drug candidates and to exploit these products and compounds commercially before others are able to develop competitive products.

In addition, our stem cell therapies may be expensive as compared to other therapies and this may make it more difficult for such therapies to compete with other pharmaceuticals.

Government Regulation

Regulation by governmental authorities in the United States and other countries is a significant factor in the development, manufacture, commercialization and reimbursement of our products and services. Certain products we develop will require marketing approval, or licensure, by governmental agencies prior to commercialization. In particular, human therapeutic products are subject to rigorous preclinical and clinical testing and other approval procedures of the U.S. Food and Drug Administration, or FDA, and similar regulatory authorities in other countries. Various governmental statutes and regulations also govern or influence testing, manufacturing, safety, labeling, storage and record keeping related to such products and their marketing. State, local and other authorities may also regulate pharmaceutical manufacturing facilities. The process of obtaining these approvals and the subsequent compliance with appropriate statutes and regulations require the expenditure of substantial time and money, and there can be no guarantee that approvals will be granted.

Regulatory Approval Process

Our biologic drug candidates will require approval from the FDA and corresponding agencies in other countries before they can be marketed. The FDA regulates human therapeutic products in one of three broad categories: biologics, drugs, or medical devices. Our biologic drug candidates will be regulated as biological products. The FDA generally requires the following steps for pre-market approval or licensure of a new biological product or new drug product:

- preclinical laboratory and animal tests conducted in compliance with the FDA's Good Laboratory Practice, or GLP, requirements to assess a drug's biological activity and to identify potential safety problems, and to characterize and document the product's chemistry, manufacturing controls, formulation, and stability;
- submission to the FDA of an IND application or equivalent application in other territories, which must become effective before clinical testing in humans can begin;
- obtaining approval of Institutional Review Boards ("IRBs") of research institutions or other clinical sites to introduce the biologic drug candidate into humans in clinical trials;
- adequate and well-controlled human clinical trials to establish the safety and efficacy of the product for its intended indication conducted in compliance with the FDA's Good Clinical Practice, ("GCP") requirements;
- compliance with current Good Manufacturing Practices ("cGMP") regulations and standards;
- submission of a BLA to the FDA, a NDS to Health Canada, or an equivalent thereof in other territories, for marketing that includes adequate results of preclinical testing and clinical trials;
- review of the marketing application in order to determine, among other things, whether the product is safe, and effective for its intended use; and

- obtaining regulatory approval of the product, including inspection and approval of the product manufacturing facility as compliant with cGMP requirements, prior to any commercial sale of the pharmaceutical agent.

Typically, clinical testing involves a three-phase process, although the phases may overlap. In Phase 1, clinical trials are conducted with a small number of healthy volunteers or patients and are designed to provide information about product safety and to evaluate the pattern of drug distribution and metabolism within the body. In Phase 2, clinical trials are conducted with groups of patients afflicted with a specific disease in order to determine preliminary efficacy, optimal dosages and expanded evidence of safety. In some cases, an initial trial is conducted in diseased patients to assess both preliminary efficacy and preliminary safety and patterns of drug metabolism and distribution, in which case it is referred to as a Phase 1/2 trial. Phase 3 clinical trials are generally large-scale, multi-center, comparative trials conducted with patients afflicted with a target disease in order to provide statistically valid proof of efficacy, as well as safety and potency. Often an agency will require Phase 4 or post-marketing trials to collect additional data about the drug on the market. During all phases of clinical development, regulatory agencies require extensive monitoring and auditing of all clinical activities, clinical data and clinical trial investigators. An agency may, at its discretion, alter, suspend, or terminate the testing based upon the data which have been accumulated to that point and its assessment of the risk/benefit to the patient.

Upon review of a BLA or NDS or equivalent, the regulatory authority may grant marketing authorization, request additional clinical data or deny approval if the agency determines that the application does not satisfy its approval criteria. Review of a marketing application typically takes one to three years, but may last longer, especially if the agency asks for more information or clarification of information already provided. Further clinical trials may be required to gain approval to promote the use of the product for any additional indications. Such additional indications are obtained through the approval of supplemental applications.

The process of obtaining regulatory approval is lengthy, uncertain, and requires the expenditure of substantial resources. Each NDA or BLA must be accompanied by a user fee, pursuant to the requirements of the Prescription Drug User Fee Act ("PDUFA") and its amendments. PDUFA also imposes an annual product fee for prescription drugs and biologics (\$65,030), and an annual establishment fee (\$392,700) on facilities used to manufacture prescription drugs and biologics. Fee waivers or reductions are available in certain circumstances, including a waiver of the application fee for the first application filed by a small business. Additionally, no user fees are assessed on NDAs or BLAs for products designated solely as orphan drugs. If a contract manufacturer is used, the contract manufacturer is responsible for the establishment fee.

Before approving a marketing application, all facilities and manufacturing techniques used for the manufacture of products must comply with applicable FDA regulations governing cGMP. In the United States, a local field division of the FDA is responsible for completing this inspection and for providing a recommendation for or against approval. This effort is intended to assure appropriate facility and process design in order to avoid potentially lengthy delays in product approvals due to inspection deficiencies. Similarly, before approving a new drug or biologics application, the FDA may also conduct pre-licensing inspection of a company, its contract research organizations and/or its clinical trial sites to ensure that clinical, safety, quality control and other regulated activities are compliant with GCP. To assure such cGMP and GCP compliance, the applicants must incur significant time and cost and put forth significant effort in the areas of training, record keeping, production, and quality control. Following approval, the manufacture, holding, and distribution of a product requires the continued allocation of significant resources to maintain full compliance in these areas.

After regulatory approval has been obtained, the agency will typically require post-marketing reporting to monitor potential side effects of the drug. Further studies may be required to provide

additional data on the product's risks, benefits, and optimal use, and will be required to gain approval for the use of the product as a treatment for clinical indications other than those for which the product was initially tested. Results of post-marketing programs may limit or expand the further marketing of the product. Further, if there are any modifications to the drug, including changes in indication, labeling, or a change in the manufacturing process or manufacturing facility, a supplement may be required.

Additionally, once a drug product has been authorized to enter commercial distribution, numerous additional regulatory requirements apply. These include, among others, cGMPs; labeling regulations; the FDA's general prohibition against promoting drug products for unapproved or off-label uses; and adverse event reporting regulations, which require that manufacturers report if their drug may have caused or contributed to a death or serious injury. The FDA has broad post-market and regulatory and enforcement powers. Failure to comply with the applicable U.S. drug regulatory requirements could result in, among other things, warning letters, fines, injunctions, consent decrees, civil penalties, refunds, recalls or seizures of products (which would result in the cessation or reduction of production volume), total or partial suspension of production, withdrawals or suspensions of current product applications, and criminal prosecution. Adverse drug reactions related to a drug product in any existing or future markets could cause regulatory authorities to withdraw market approval for such product.

Fast Track and Orphan Drug Designations

Congress enacted the Food and Drug Administration Modernization Act of 1997 in part to ensure the availability of safe and effective drugs, biologics, and medical devices by expediting the FDA review process for new products. The Modernization Act establishes a statutory program for the approval of Fast Track products, including biologics. A Fast Track product is defined as a new drug or biologic intended for the treatment of a serious or life-threatening condition that demonstrates the potential to address unmet medical needs for this condition. Under the Fast Track program, the sponsor of a new drug or biologic may request the FDA to designate the drug or biologic as a Fast Track product at any time during the clinical development of the product. This designation assures access to FDA personnel for consultation throughout the development process and provides an opportunity to request priority review of a marketing application providing an expedited six-month review timeline. During the first quarter of 2005, the FDA designated Prochymal as a Fast Track product for the treatment of GvHD. Prochymal also received Fast Track designation from the FDA in January 2007 for the treatment of refractory Crohn's disease. We cannot predict whether this designation will impact the timing or likelihood of FDA approval of Prochymal.

The Orphan Drug Act provides incentives to manufacturers to develop and market drugs for rare diseases and conditions affecting fewer than 200,000 persons in the United States at the time of application for Orphan Drug designation. The first developer to receive FDA marketing approval for an Orphan Drug is entitled to a seven year exclusive marketing period in the United States for that product as well as a waiver of the BLA user fee. However, a drug that the FDA considers to be clinically superior to, or different from, another approved orphan drug, even though for the same indication, may also obtain approval in the United States during the seven year exclusive marketing period. The FDA granted Orphan Drug designation for Prochymal for GvHD during the last quarter of 2005, and for type 1 diabetes during the second quarter of 2010.

Legislation similar to the Orphan Drug Act has been enacted in countries other than the United States, including the European Union. The orphan legislation in the European Union is available for therapies addressing conditions that affect five or fewer out of 10,000 persons. The marketing exclusivity period is for ten years, although that period can be reduced to six years if, at the end of the fifth year, available evidence establishes that the product is sufficiently profitable not to justify maintenance of market exclusivity.

Human Cellular and Tissue-Based Product

Human cells or tissue intended for implantation, transplantation, infusion, or transfer into a human recipient is regulated by the FDA as human cells, tissues, and cellular and tissue-based product, or HCT/Ps. Our Biosurgery products are regulated as 361 HCT/Ps and not as biologics or drugs. HCT/Ps are regulated differently from drug or biologic products due to the fact they are minimally manipulated tissues intended for homologous use in the patient's body, are not combined with a drug, device or biologic, and do not have systemic or metabolic effects on the body. The FDA does not require premarket approval for HCT/Ps, however, it does require strict adherence to federally mandated cGMP regulations. These regulations are analogous to the GMP regulations described above in terms of manufacturing standards. In addition, the FDA's regulations include other requirements to prevent the introduction, transmission and spread of communicable disease. The FDA's regulations require tissue establishments to register and list their HCT/Ps with the FDA and to evaluate donors through screening and testing.

We maintain state licensure as a human tissue bank in Maryland, California, Florida, Illinois and New York. These are the only states in which such licensure is required for us.

Privacy Law

Federal and state laws govern our ability to obtain and, in some cases, to use and disclose data we need to conduct research activities. Through the Health Insurance Portability and Accountability Act of 1996 ("HIPAA") Congress required the Department of Health and Human Services to issue a series of regulations establishing standards for the electronic transmission of certain health information. Among these regulations were standards for the privacy of individually identifiable health information. Most health care providers were required to comply with the Privacy Rule as of April 14, 2003.

HIPAA does not preempt, or override, state privacy laws that provide even more protection for individuals' health information. These laws' requirements could further complicate our ability to obtain necessary research data from our collaborators. In addition, certain state privacy and genetic testing laws may directly regulate our research activities, affecting the manner in which we use and disclose individuals' health information, potentially increasing our cost of doing business, and exposing us to liability claims. In addition, patients and research collaborators may have contractual rights that further limit our ability to use and disclose individually identifiable health information. Any claims that we have violated individuals' privacy rights or breached our contractual obligations, even if we are not found liable, could be expensive and time-consuming to defend and could result in adverse publicity that could harm our business.

Other Regulations

In addition to privacy law requirements and regulations enforced by the FDA, we also are subject to various local, state and federal laws and regulations relating to safe working conditions, laboratory and manufacturing practices, the experimental use of animals and the use and disposal of hazardous or potentially hazardous substances, including chemicals, micro-organisms and various radioactive compounds used in connection with our research and development activities. These laws include, but are not limited to, the Occupational Safety and Health Act, the Toxic Test Substances Control Act and the Resource Conservation and Recovery Act. Although we believe that our safety procedures for handling and disposing of these materials comply with the standards prescribed by state and federal regulations, we cannot assure you that accidental contamination or injury to employees and third parties from these materials will not occur. We may not have adequate insurance to cover claims arising from our use and disposal of these hazardous substances.

Foreign Regulation

We expect to have to obtain approval for the manufacturing and marketing of each of our products from regulatory authorities in foreign countries prior to the commencement of marketing of the product in those countries. The approval procedure varies among countries, may involve additional preclinical testing and clinical trials, and the time required may differ from that required for FDA approval. Although there is now a centralized European Union approval mechanism in place, this applies only to certain specific medicinal product categories. Each European country may impose certain of its own procedures and requirements in addition to those requirements set out in the appropriate legislation, many of which could be time-consuming and expensive.

Employees

As of December 31, 2011, our headcount was 54 full-time and three part-time employees. Of this total, 26 were engaged in research and development and clinical trials for our Therapeutics segment, 19 were engaged in research, development and manufacturing activities in our Biosurgery segment, and 12 were engaged in administration, finance, sales and marketing, and facilities. All of our employees have entered into non-disclosure agreements with us regarding our intellectual property, trade secrets and other confidential or proprietary information. None of our employees are represented by a labor union or covered under a collective bargaining agreement, and we have not experienced any work stoppages.

Executive Officers of the Registrant

Executive officers are appointed annually by the Board of Directors and, subject to the terms of any applicable employment agreement, serve at the discretion of the Board of Directors. Information regarding our executive officers is as follows:

<u>Name</u>	<u>Age</u>	<u>Position</u>	<u>Other Offices or Positions Held During the Past Five Years</u>
C. Randal Mills, Ph.D.	40	President and Chief Executive Officer (since July 2004)	Dr. Mills is also a member of the Board of Directors. Prior to joining Osiris, Dr. Mills was an executive officer of RTI Biologics, Inc. (NASDAQ—RTIX). 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 Operation and R&D, and is credited with several key initiatives, including the development and commercialization of RTI's core technology, BioCleanse®.

Table of Contents

Name	Age	Position	Other Offices or Positions Held During the Past Five Years
Stephen W. Potter	55	Senior Vice President of Operations and Business Development (since February 2011)	Prior to joining Osiris in February 2011, Mr. Potter served as Senior Vice President of Corporate and Business Development for Genzyme Corporation. During his more than ten years at Genzyme, he led a team responsible for providing strategic analysis and transaction support. 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.
Lode Debrabandere, Ph.D.	46	Senior Vice President, Therapeutics (since July 2006)	Prior to joining Osiris, Dr. Debrabandere served for over four years with Bristol-Myers Squibb as Vice President for Strategic Marketing for Neuroscience and Infectious Diseases. He led the Neuroscience Unit and was the Global Brand Leader for Abilify™. Previously, Dr. Debrabandere led the Marketing department of UCB Pharma Inc., focusing in the areas of allergy/respiratory (Zyrtec™) and neurology (Keppra™).
Michelle LeRoux Williams, Ph.D.	37	Chief Scientific Officer (since May 2007)	Dr. Williams joined Osiris in 2001 as the Director of Orthopedics and was responsible for the development of Osteocel from the initial concept through product launch in 2005. Dr. Williams also advanced the Chondrogen program from preclinical testing through the Phase I/II clinical trial. Prior to joining Osiris, 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.

Name	Age	Position	Other Offices or Positions Held During the Past Five Years
Philip R. Jacoby, Jr.	59	Chief Financial Officer, Treasurer and Corporate Secretary (since October 2005)	Mr. Jacoby has over 30 years of financial and management experience with public and privately held companies. Mr. Jacoby joined Osiris in April 2005 as our Corporate Controller and principal accounting officer in preparation for our initial public offering. Prior to joining Osiris, Mr. Jacoby was the Vice President and Corporate Controller for FTI Consulting, Inc. (NYSE—FCN) for five years. Upon graduation from the University of Maryland, he spent over eight years with Arthur Andersen & Co.

Available Information

Our website address is www.osiris.com. Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and any amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 are available on our website free of charge as soon as reasonably practicable after we electronically file such material with, or furnish it to, the U.S. Securities and Exchange Commission, or SEC. The public may read and copy these materials at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains a website that contains such reports, proxy and information statements and other information, and the Internet address is <http://www.sec.gov>. Information contained on our website is not and should not be deemed a part of this annual report or any other report or filing filed with the SEC.

ITEM 1A. Risk Factors.

Risks Related To Our Business

We have a history of operating losses and may not achieve or sustain profitability.

Until fiscal 2009, we incurred losses in each year since our inception, and may incur additional losses over the next several years. As of December 31, 2011, we had an accumulated deficit of \$232.3 million. These losses resulted principally from costs incurred in our research and development programs and from our general and administrative expenses. These losses, among other things, have had and will continue to have an adverse effect on our stockholders' equity, total assets and working capital.

We expect to continue to incur significant operating expenses in the foreseeable future as we seek to:

- complete our Phase 3 clinical trials for Prochymal for Crohn's disease;
- complete our Phase 2 clinical trial for Prochymal for cardiac indications, and, if supported by the Phase 2 clinical trial, initiate Phase 3 clinical trials;

- resolve uncertainties regarding the status of the Genzyme collaboration agreement;
- enlarge our work force consistent with expanding our business and operations and distribution of our Biosurgery products and if approved for sale, our biological drug candidates;
- maintain, expand and protect our intellectual property portfolio; and
- add operational, financial, accounting, facilities engineering and information systems personnel, consistent with expanding our operations.

The extent of our future operating losses or profits is highly uncertain, and we may not achieve or sustain profitability. If we are unable to achieve and then maintain profitability, the market value of our common stock will decline and you could lose part or all of your investment.

The current credit and financial market conditions may exacerbate certain risk affecting our business.

We rely upon third parties for certain aspects of our business, including collaboration partners, wholesale distributors, contract clinical trial providers, contract manufacturers and third-party suppliers. Because of the recent tightening of global credit and the volatility in the financial markets, there may be a delay or disruption in the performance or satisfaction of commitments to us by these third parties, which could adversely affect our business.

If we are not able to recruit and retain qualified management and scientific personnel, we may fail in developing our technologies and biologic drug candidates.

Our future success depends to a significant extent on the skills, experience and efforts of the principal members of our scientific, management and sales personnel. These members include C. Randal Mills, Ph.D., Stephen W. Potter, Michelle L. Williams, Ph.D., Philip R. Jacoby, Jr., and Lode Debrabandere Ph.D. The loss of any or all of these individuals could harm our business and might significantly delay or prevent the achievement of research, development or business objectives. We have entered into employment agreements with Dr. Mills, Dr. Debrabandere and Mr. Potter. The existence of an employment agreement does not, however, guarantee retention of these employees, and we may not be able to retain those individuals for the duration of or beyond the end of their respective terms. Except for Dr. Mills, Dr. Debrabandere and Mr. Potter, none of our employees is employed for a specified term. Competition for personnel is intense. We may be unable to retain our current personnel or attract or integrate other qualified management and scientific personnel in the future.

If the potential of our stem cell therapies to treat diseases is not realized, the value of our technology and our development programs could be significantly reduced.

We are currently evaluating the potential of our stem cell therapies to treat diseases. We have not yet proven in clinical trials that our stem cell therapies will be a safe and effective treatment for any disease to the satisfaction of a regulatory agency. Our stem cell therapies are susceptible to various risks, including undesirable and unintended side effects, unintended immune system responses, inadequate therapeutic efficacy or other characteristics that may prevent or limit their marketing approval or commercial use. If the potential of our stem cell therapies to treat disease is not realized, the value of our technology and our development programs could be significantly reduced. Because our biologic drug candidates are based on MSCs, any negative developments regarding the therapeutic potential or side effects of MSCs could have a material adverse effect on our business, financial condition and results of operations.

Our product development programs are based on novel technologies and are inherently risky.

We are subject to the risks of failure inherent in the development of products based on new technologies. The novel nature of our therapeutics creates significant challenges in regards to product

development and optimization, manufacturing, government regulation, third-party reimbursement and market acceptance. For example, the FDA has relatively limited experience with stem cell therapies. None has been approved by the FDA for commercial sale, and the pathway to regulatory approval for our biologic drug candidates may accordingly be more complex and lengthy. Additionally, stem cells are subject to donor-to-donor variability, which can make standardization more difficult. As a result, the development and commercialization pathway for our therapies may be subject to increased uncertainty, as compared to the pathway for new conventional drugs.

There are no approved treatments for some of the disease indications we are pursuing. This could complicate and delay approval of our biologic drug candidates.

There are no drugs or therapies currently approved with stated indications for the treatment of steroid refractory GvHD. As a result, the clinical efficacy endpoints, or the criteria to measure the intended results of treatment, for our biologic drug candidate Prochymal for the treatment of GvHD may be difficult to determine. In addition, patients battling GvHD and who, therefore, are candidates for treatment with Prochymal, are typically very ill as a result of an underlying genetic or oncologic condition. Due to the graveness of their underlying disease and the very serious complications and disorders that often accompany acute GvHD, many of these patients will die from causes other than GvHD prior to the completion of the study even if their GvHD responds favorably to treatment with Prochymal.

There are also no drugs or therapies currently approved with stated indications for the repair of heart muscle following heart attack. As a result, the clinical endpoints for our biologic drug candidate Prochymal for cardiac indications may be difficult to determine. In the case of Prochymal for the treatment of Crohn's disease, there are other products approved for the treatment of this disease, so it is expected that the clinical efficacy endpoints for Prochymal for this indication will be established by comparison with these already approved treatments. In order to obtain regulatory approval for any indication, we will have to demonstrate, among other things, that our biologic drug candidate is safe and effective for that indication. The results of our clinical trials must be statistically significant, meaning that there must be sufficient data to indicate that it is unlikely the outcome occurred by chance. These challenges may prevent us from developing and commercializing products on a timely or profitable basis, or at all.

Our biologic drug candidates and biosurgery products represent new classes of therapy that the marketplace may not understand or accept.

Even if we successfully develop and obtain regulatory approval for our biologic drug candidates, the market may not understand or accept them. We are developing biologic drug candidates that represent novel treatments and will compete with a number of more conventional products and therapies manufactured and marketed by others, including major pharmaceutical companies. The novel nature of our biosurgery products creates significant challenges in regards to product development and optimization, manufacturing, government regulation, and third-party reimbursement. As a result, the development pathway for our biosurgery products may be subject to increased scrutiny, as compared to the pathway for more conventional products. The degree of market acceptance of any of our developed and potential products will depend on a number of factors, including:

- the clinical safety and effectiveness of our products and their perceived advantage over alternative treatment methods;
- our ability to demonstrate that Prochymal can have a clinically significant effect, initially on treatment resistant acute GvHD, and then also the other indications for which we seek approval;
- our ability to differentiate ourselves from the ethical controversies associated with stem cell drug candidates derived from human embryonic tissue;

- our ability to explain clearly and educate others on the use of human placental tissue, to avoid potential confusion with the ethical controversies associated with human fetal tissue;
- ethical controversies that may arise regarding the use of stem cells or human tissue of any kind, including adult stem cells, adult bone marrow and other adult tissues derived from donors in the manufacture and distribution for profit of our products;
- adverse reactions involving our biologic drug candidates, our biosurgery products or the products or product candidates of others that are stem cell based;
- our ability to supply a sufficient amount of our product to meet regular and repeated demand in order to develop a core group of medical professionals familiar with and committed to the use of our products; and
- the cost of our products such as Prochymal and the reimbursement policies of government and third-party payors.

If the health care community does not accept our potential products for any of the foregoing reasons, or for any other reason, it could affect our sales, having a material adverse effect on our business, financial condition and results of operations.

The successful commercialization of our biologic drug candidates, or any of our other potential stem cell therapeutics, as well as the distribution of our biosurgery products, will depend on obtaining reimbursement from third-party payors.

If we successfully develop and obtain necessary regulatory approvals, we or our collaborators expect to distribute our biologic drug candidates initially in the United States and Canada. We intend to redistribute our biosurgery products initially in the United States. In the United States, the market for any pharmaceutical product is affected by the availability of reimbursement from third-party payors, such as government health administration authorities, private health insurers, health maintenance organizations and pharmacy benefit management companies. Stem cell therapies like Prochymal and biosurgery products like Grafix and Ovation may have high higher costs or fees associated with them compared with standard pharmaceuticals, due to the higher cost and complexity associated with -their -research, development and production, the small size and large geographic diversity of the target patient population for some indications, and the complexity associated with distribution of stem cell therapies—and biosurgery products—which require special handling, storage and shipment procedures and protocols. This, in turn, may make it more difficult for us to obtain adequate reimbursement from third-party payors, particularly if we cannot demonstrate a favorable cost-benefit relationship. Third-party payors may also deny coverage or offer inadequate levels of reimbursement for our potential products if they determine that the product has not received appropriate clearances from the FDA or other government regulators or is experimental, unnecessary or inappropriate. For example, patients battling GvHD and who, therefore, are candidates for treatment with Prochymal, are typically very ill as a result of an underlying genetic or oncologic condition. Because these patients have a low probability of survival (whether or not their GvHD is successfully treated), third-party payors may resist reimbursing the cost of treatment.

In the countries of Europe and in some other countries, the pricing of prescription pharmaceutical products and services and the level of government reimbursement are subject to governmental control. In these countries, pricing negotiations with governmental authorities can take six to twelve months or longer after the receipt of marketing approval for a product. To obtain reimbursement or pricing approval in some countries, we may be required to conduct one or more clinical trials that compares the cost effectiveness of our products to other available therapies. Conducting one or more clinical trials would be expensive and result in delays in commercialization of our products. Certain countries may not allow the import, sale or use of our products.

Managing and reducing health care costs has been a general concern of federal and state governments in the United States and of foreign governments. Although we do not believe that any recently enacted or presently proposed legislation should impact our business, we might be subject to future regulations or other cost-control initiatives that materially restrict the price we receive for our products. In addition, third-party payors are increasingly challenging the price and cost-effectiveness of medical products and services, and many limit reimbursement for newly approved health care products. In particular, third-party payors may limit the indications for which they will reimburse patients who use any products that we may develop. Cost control initiatives could decrease the price for products that we may develop, which would result in lower product revenues to us.

Our dependence upon a limited supply of bone marrow donors and biologics growth media may impact our ability to produce sufficient quantities of our biologic drug candidates as necessary to complete our clinical trials, and if our trials are successful, to meet product demand.

The population of acceptable bone marrow donors is limited to volunteers between the ages of 18 and 30. In addition, potential donors are prescreened for a variety of health conditions and are only allowed to donate bone marrow a total of six times in their lifetime, limiting the number of donations. The amount of bone marrow donated may be insufficient for us to mass produce our biologic drug candidates. In addition, the expansion of MSCs through our proprietary manufacturing methods utilizes biologic growth media which may be in limited supply. Future government regulation or health concerns may also reduce the number of donors or otherwise limit the amount of bone marrow available to us. We may not be able to secure quantities of bone marrow or biologic growth media sufficient to meet the manufacturing demands.

Our dependence upon human tissue necessary to produce our biosurgery products may impact our ability to produce these products on a large scale.

Our biosurgery products consist of human tissue provided to us from not-for-profit donor procurement agencies. Graftix and Ovation are processed from human placental tissue. While we are not aware of significant supply issues and placental tissue is generally available to us, these organizations may not be able to provide us with sufficient amounts of human tissue to meet the demand, if we are successful in expanding distribution efforts for our biosurgery products.

Our biologic drug candidates are derived from human bone marrow sources and our biosurgery products are derived from human tissue and therefore both have the potential for disease transmission.

The utilization of donated bone marrow and human tissue creates the potential for transmission of communicable disease, including but not limited to human immunodeficiency virus ("HIV") viral hepatitis, syphilis, Creutzfeldt-Jakob disease, or the human form of "mad cow" disease, and other viral, fungal or bacterial pathogens. Although we are required to comply with federal and state regulations intended to prevent communicable disease transmission, and our suppliers of adult human bone and bone marrow are also required to comply with such regulations in connection with their collection, storage and supply to us:

- we or our suppliers may fail to comply with such regulations;
- even with compliance, our products might nevertheless be viewed by the public as being associated with transmission of disease; and
- a patient that contracts an infectious disease might assert that the use of our products resulted in disease transmission, even if the patient became infected through another source.

Any actual or alleged transmission of communicable disease could result in patient claims, litigation, distraction of management's attention and potentially increased expenses. Further, any failure

in screening, whether by us or other manufacturers of similar products, could adversely affect our reputation, the support we receive from the medical community and overall demand for our products. As a result, such actions or claims, whether or not directed at us, could have a material adverse effect on our reputation with our customers and our ability to distribute our products, which could have a material adverse effect on our business, financial condition and results of operations.

We may not be able to manufacture our biologic drug candidates in quantities sufficient for later stage clinical studies or for commercial sale.

If we successfully obtain marketing approval for one of our biologic drug candidates, we may not be able to produce sufficient quantities of the product at an acceptable cost. Commercial-scale production of therapies made from live human MSCs involves production in small batches and strict adherence to complex manufacturing and storage protocols and procedures. Our biologic drug candidates are inherently more difficult to manufacture at commercial-scale than chemical pharmaceuticals, which are manufactured using precise chemical formulations and operational methods.

We may not be able to manufacture our biosurgery products in sufficient quantities to expand our market for the products.

We may encounter difficulties in the production of our biosurgery products due to our limited manufacturing capabilities. This difficulty could reduce redistribution efforts of our products, increase our distribution costs or cause production delays, any of which could damage our reputation and effect our operations. Even if we have access to quantities of human tissue sufficient to allow us otherwise to expand our manufacturing capabilities, we may not be able to produce sufficient quantities of the product at an acceptable cost, or at all.

We use third-party collaborators to help us develop and commercialize our products, and our ability to commercialize such products may be impaired or delayed if collaborations are unsuccessful.

We have arrangements in place with third-party collaborators as a means to help us with research and development efforts or marketing and distribution.

For example, we have a collaboration with JCR Pharmaceuticals Co., Ltd. granting to JCR an exclusive right to Prochymal for the treatment of GvHD in Japan. In addition, in October 2008, we entered into a Collaboration Agreement with Genzyme for the development and commercialization of Prochymal and Chondrogen.

We are subject to a number of risks associated with our dependence upon our collaborative relationships, including:

- our collaborators may not cooperate with us or perform their obligations under our agreements with them;
- we cannot control the quality, amount and timing of our collaborators' resources that will be devoted to performing their responsibilities under our agreements with them, and our collaborators may choose to pursue alternative technologies in preference to those being developed in collaboration with us;
- refusal to or failure of our collaborators to perform their responsibilities in a timely manner, including breach;
- the right of the collaborator to terminate its collaboration agreement with us for reasons outside our control, and in some cases on limited notice;
- business combinations and changes in a collaborator's business strategy may adversely affect the party's willingness or ability to complete its obligations;

- loss of significant rights to our collaborative parties if we fail to meet our obligations;
- disagreements as to ownership of clinical trial results or regulatory approvals;
- withdrawal of support by a collaborator following development or acquisition by the collaborator of competing products; and
- disagreements with a collaborator regarding the collaboration agreement or ownership of intellectual property or other proprietary rights.

Due to these factors and other possible events, we could suffer delays in the research, development or commercialization of our products or we may become involved in litigation or arbitration, which would be time consuming and expensive.

Sanofi recently issued a press release stating that it is "discontinuing" its project with Prochymal for GvHD, which we are treating as a termination of our collaboration agreement for the development and commercialization of Prochymal and Chondrogen in the United States and Canada; however, Sanofi has advised us that it disagrees with our position.

In October 2008, we entered into a Collaboration Agreement with Genzyme, then an independent and now a Sanofi company, for the development and commercialization of Prochymal and Chondrogen. Under this collaboration agreement, Genzyme paid to us non-contingent, non-refundable cash payments totaling \$130.0 million. The agreement provided Genzyme with certain rights to intellectual property developed by us, and required that we continue to perform certain development work related to the subject biologic drug candidates. In February 2012, Sanofi issued a press release which included an update on their R&D pipeline, stating that it has "discontinued" its project with Prochymal for GvHD. The statement issued by Sanofi was made without consultation with or knowledge by us. Through our legal counsel, we have advised Sanofi that we are treating these public statements as Sanofi's election to terminate the collaboration agreement. The agreement provides for voluntary termination by Sanofi and that, upon such voluntary termination, all rights to Prochymal revert back to us, and we are free to commercialize or enter into commercialization agreements for Prochymal with other parties without restriction. While we have been proceeding on the basis that Sanofi has terminated the collaboration agreement, Sanofi has since advised us that it disagrees with our characterization of their press release. We have requested an explanation from Sanofi with respect to their statements regarding Prochymal. There can be no assurances as to the outcome of these matters. However, we continue to proceed with our Prochymal regulatory approval efforts and, if successful, commercialization, alone or with another collaborator.

Our alternatives include proceeding with the development and commercialization of Prochymal on our own, or entering into additional collaborations in the future, assuming in either case that we are not prohibited from doing so by Genzyme. We may instead be required to continue our collaboration with Genzyme. Termination of our Collaboration Agreement with Genzyme for the development and commercialization of Prochymal and Chondrogen will render us ineligible to receive contingent milestone payments to us of up to \$1.25 billion provided for thereunder, in addition to royalties on any sales of Prochymal by Genzyme outside of the US, Canada and Japan.

We depend on current and any future collaborators in performing their responsibilities in connection with the relevant collaboration. If we need to undertake these efforts on our own and at our own expense, or find other collaborators, it could substantially increase our cash requirements. We may not have the capability or financial capacity to undertake these activities on our own, or we may not be able to find other collaborators on acceptable terms, or at all. This may limit the programs we are able to pursue and result in significant delays in the development, sale and manufacture of our products, and may have a material adverse effect on our business.

We are currently dependent upon third-parties for services and raw materials needed for the manufacture of our biologic drug candidates and our biosurgery products, and if these are successfully used, may become dependent, or in the case of our biosurgery products, are dependent, upon third-parties for their distribution. If any of these third parties fail or are unable to perform in a timely manner, our ability to manufacture and deliver could be compromised.

In order to produce our biologic drug candidates for use in clinical studies, to produce our biosurgery products, and to produce any of our biologic drug candidates that may be approved for commercial sale, we require biological media, reagents and other highly specialized materials. This is in addition to the bone marrow aspirate used in the manufacture of our biologic drug candidates and the human tissue donations used to manufacture our biosurgery products. These items must be manufactured and supplied to us in sufficient quantities and in compliance with cGMP. To meet these requirements, we have entered into supply agreements with firms that manufacture these components to cGMP standards. Our requirements for these items are expected to increase if and when we transition to the manufacture of commercial quantities of our biologic drug candidates.

In the case of our biologic drug candidates, as we proceed with our clinical trial efforts, we must be able to demonstrate to the FDA that we can manufacture our biologic drug candidates with consistent characteristics. Accordingly, we are materially dependent on these suppliers for supply of cGMP-grade components of consistent quality. Our ability to complete ongoing clinical trials may be negatively affected in the event that we are forced to seek and validate a replacement source for any of these critical components. If we are not able to obtain adequate supplies of these items of consistent quality from our third-party suppliers, it will also be more difficult to manufacture commercial quantities of our biologic drug candidates that are approved for commercial sale.

If commercial sale of our biologic drug candidates is approved we expect to rely on third parties to sell or redistribute those products. The same expectation is true with respect to our Biosurgery segment. Proper shipping and distribution requires compliance with specific storage and shipment procedures. Failure to comply with these procedures or the occurrence of inadvertent damage to the shipping container will necessitate return and replacement, potentially resulting in additional cost and causing us to fail to meet supply requirements.

Use of third-party manufacturers may increase the risk that we will not have adequate quantities of our biosurgery products or our biologic drug candidates.

Our biosurgery product supply chain and manufacturing infrastructure depend on the performance of a number of complex contracts between us on the one hand and our suppliers and redistributors on the other. If any of our suppliers, distributors or other business partners cannot or do not perform their contractual obligations, then our production efforts may suffer. If we cannot or do not perform our contractual obligations, then we may be subject to arbitration, mediation or litigation that could have an adverse material effect on us.

We use third-party manufacturers to supply our biologic drug candidates for clinical trials. Reliance on third-party manufacturers entails risks to which we would not be subject if we manufactured such components ourselves, including:

- reliance on the third party for regulatory compliance and quality assurance;
- the possible breach of the manufacturing agreement by the third party; and
- the possible termination or nonrenewal of the agreement by the third party, based on its own business priorities, at a time that is costly or inconvenient for us.

Our contract manufacturers are subject to all of the risks and uncertainties that we have when we manufacture on our own. Similar to us, they are subject to ongoing, periodic, unannounced inspection

by the FDA and corresponding state and foreign agencies or their designees to ensure strict compliance with cGMP regulations and other governmental regulations and corresponding foreign standards. However, we do not control compliance by our contract manufacturers with these regulations and standards. Our present or future manufacturers might not be able to comply with these regulatory requirements. If our third-party manufacturers fail to comply with applicable regulations, the FDA or other regulatory authorities could impose sanctions on us, including fines, injunctions, civil penalties, denial of marketing approval of our biologic drug candidates, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of biologic drug candidates or our other products, operating restrictions and criminal prosecutions. Any of these actions could significantly and adversely affect supplies of our biologic drug candidates or other products and could have a material adverse effect on our business, financial condition and results of operations.

We have contracted with Lonza to manufacture quantities of our stem cell drug candidates for our clinical trials. If Lonza is unable to increase production sufficiently, if and when necessary, we may also not be able to meet anticipated market demand in the future.

If our processing and storage facility or our clinical manufacturing facilities are damaged or destroyed, our business and prospects would be negatively affected.

If our processing and storage facility or the equipment in the facility were to be significantly damaged or destroyed, we could suffer a loss of some or all of the stored units of our biologic drug candidates and it would force us to halt our clinical trial processes.

We lease approximately 61,203 square feet of space in Columbia, Maryland that houses essentially all of our corporate operations. Currently, we maintain insurance coverage totaling \$20.7 million against damage to our property and equipment, an additional \$5.0 million to cover business interruption and extra expenses, and \$6.0 million to cover R&D restoration expenses. If we have underestimated our insurance needs, we will not have sufficient insurance to cover losses above and beyond the limits on our policies.

Ethical and other concerns surrounding the use of stem cell therapy or human tissue may negatively affect public perception of us or our products or biologic drug candidates, or may negatively affect regulatory approval of our products or biologic drug candidates, thereby reducing demand for our products and adversely affecting the market price for our common stock.

The commercial success of our biologic drug candidates will depend in part on general public acceptance of the use of stem cell therapy for the prevention or treatment of human diseases. The use of embryonic stem cells and fetal tissue for research and stem cell therapy has been the subject of substantial national and international debate regarding related ethical, legal and social issues. In the U.S., for example, until March 2009, federal government funding of embryonic stem cell research was limited to specifically identified cell lines and was not otherwise available. We do not use embryonic stem cells or fetal tissue, but the public may not be able to, or may fail to, differentiate our use of adult stem cells from the use by others of embryonic stem cells or fetal tissue. This could result in a negative perception of our company or our products or biologic drug candidates.

We may obtain stem cells from volunteer adult bone marrow donors from non-profit organizations that collect and process tissue donations. Bone marrow donors receive payment, but ethical concerns have been raised by some about the use of donated human tissue in a for-profit setting

Future adverse events in the field of stem cell therapy or changes in public policy could also result in greater governmental regulation of our biologic drug candidates and potential regulatory delays relating to their testing or approval.

We will compete with other companies in the marketing and redistribution of our biosurgery products and we may eventually compete with other companies in the marketing and sale of our biologic drug candidates. Many of these competitors have greater resources or capabilities than we have, or may succeed in developing better products or in developing products more quickly than we do, and we may not compete successfully with them.

In the marketplace, we compete or may eventually compete with other companies and organizations that are marketing or developing products competitive with Grafix and Ovation and therapies for our targeted disease indications, based on traditional pharmaceutical, medical device or other, non-cellular therapy and technologies. These include for our biosurgery products: Advanced Biohealing, the manufacturer of Dermagraft which competes with Grafix; Organogenesis, the manufacturer of Apligraf which competes with Grafix, and Medtronic, the manufacturer of Infuse (rhBMP-2), which competes with Ovation. These include for our biologic drug candidates: Novartis, the manufacturer of Neoral® for the prevention of organ rejection in transplant patients, which would compete with Prochymal for the treatment of GvHD; and Johnson & Johnson, the manufacturer of Remicade®, and Abbott, the manufacturer of Humira®, which would compete with Prochymal for the treatment of Crohn's disease. In addition to those listed above, we have other potential competitors developing a variety of therapeutics.

We also face competition in the cell therapy field from academic institutions and governmental agencies. Many of our current and potential competitors have greater financial and human resources than we have, including more experience in research and development and more established marketing and distribution capabilities.

We anticipate that competition in our industry will increase. In addition, the health care industry is characterized by rapid technological change, resulting in new product introductions and other technological advancements. Our competitors may develop and market products that render products now or in the future under development by us, or any products manufactured or marketed by us, non-competitive or otherwise obsolete.

The use of our stem cell therapies and biosurgery products in human subjects may expose us to product liability claims, and we may not be able to obtain adequate insurance.

We face an inherent risk of product liability claims. None of our products have been widely used over an extended period of time, and therefore our safety data are limited. We derive the raw materials for our products from human donor sources, the manufacturing process is complex, and the handling requirements are specific, all of which increase the likelihood of quality failures and subsequent product liability claims. We will need to increase our insurance coverage if and when we begin commercializing our biologic drug candidates. We may not be able to obtain or maintain product liability insurance on acceptable terms with adequate coverage or at all. If we are unable to obtain insurance, or if claims against us substantially exceed our coverage, then our business could be adversely impacted. Whether or not we are ultimately successful in any product liability litigation, such litigation could consume substantial amounts of our financial and managerial resources and could result in, among other things:

- significant awards against us;
- substantial litigation costs;
- recall of the product;
- injury to our reputation;
- withdrawal of clinical trial participants; or
- adverse regulatory action.

Any of these results could have a material adverse effect on our business, financial condition and results of operations.

Our long term business prospects will depend significantly on the success of our biologic drug candidates business.

Although we expect to continue to manufacture tissue based surgical biologic products in the future, our biologic drug candidate business will likely be the primary focus of our company. Our long term business prospects will, therefore, be dependent largely on the success of our biologic drug candidate business. This business is based on novel technologies and involves significant risks and challenges in regards to product development and optimization, manufacturing, government regulation, intellectual property, third-party reimbursement and market acceptance, among the other risks disclosed by us.

We will incur additional operating expenses in connection with the expansion of our Biosurgery segment.

We expect to continue to incur significant operating expenses in connection with our planned expansion of our Biosurgery segment, as we seek to:

- develop our distribution network of professionals for the distribution of Grafix, Ovation and other biosurgery products;
- hire additional manufacturing, quality control, and quality assurance, and management personnel as necessary to expand our manufacturing operations;
- expand our manufacturing capacity for our biosurgery products, which will require that we maintain a portion of our space as a Food FDA compliant and validated product manufacturing facility; and
- seek to expand and protect our intellectual property portfolio for our biosurgery products.

In addition, at present, our biosurgery products represent our only publicly available products. Our redistribution fees from these products have been low to date. Our ability to scale up our production capabilities for larger quantities of these products remains to be proven. Our costs in marketing and distributing these products will also increase as production increases.

Risks Related to Intellectual Property

If our patent position does not adequately protect our products, others could compete against us more directly, which would harm our business and have a material adverse effect on our financial condition and results of operations.

Our success depends, in large part, on our ability to obtain and maintain intellectual property protection for our biologic drug candidates. The patent position of biotechnology companies is generally highly uncertain, involves complex legal and factual questions and has been the subject of much litigation. Neither the U.S. Patent and Trademark Office nor the courts has a consistent policy regarding the breadth of claims allowed or the degree of protection afforded under many biotechnology patents.

The claims of our existing U.S. patents and those that may issue in the future, or those licensed to us, may not confer on us significant commercial protection against competing products. Third parties may challenge, narrow, invalidate, design around, or circumvent any patents owned, assigned or licensed to us and those that we may obtain in the future. Our patents on MSC technology, in particular, cover mesenchymal stem cells and the therapeutic uses thereof. Patents with such claims tend to be more vulnerable to challenge by other parties than patents with extremely narrow claims. Also, our pending patent applications may not issue, may issue with substantially narrower claims than

currently pending claims, or we may not receive any additional patents. Further, the laws of foreign countries may not protect our intellectual property rights to the same extent as do the laws of the United States. Our patents might not contain claims that are sufficiently broad to prevent others from utilizing our technologies. Consequently, our competitors may independently develop competing products that do not infringe our patents or other intellectual property.

Because of the extensive time required for development, testing and regulatory review of a potential product, it is possible that, before any of our products can be commercialized, any related patent may expire or remain in force for only a short period following commercialization, thereby reducing any advantages of the patent. For instance, one of our patents related to our MSC technology will expire in 2013 if no extensions are applied for and received. To the extent our biologic drug candidates based on that technology are not commercialized ahead of this date, to the extent we have no other patent protection on such products, or to the extent that regulatory or patent extensions are not granted, those products would not have the robust protection we currently expect to enjoy. The background technologies used in the development of our biologic drug candidates are known in the scientific community, and it is possible to duplicate the methods we use to create our biologic drug candidates.

If certain license agreements are terminated, our market exclusivity could be adversely affected.

We are a party to various agreements that give us rights to use specified technologies applicable to research, development and commercialization of our product candidates. If these agreements are voided or terminated, our product development, research and commercialization efforts may be altered or delayed. Certain aspects of our technology rely on patented inventions developed using university or other third party resources. The universities or third parties may have certain rights, as defined by law or applicable agreements, in such patents, and may choose to exercise such rights. If we fail to comply with any terms or provisions of these agreements, our rights could be terminated. Currently, we are in compliance with the terms of all agreements, and we do not have any reason to believe that our rights might be terminated.

If we are unable to protect the confidentiality of our proprietary information, trade secrets and know-how, our competitive position would be impaired and our business, financial condition and results of operations could be adversely affected.

Some aspects of our technology, especially regarding manufacturing processes, are unpatented and maintained by us as trade secrets. In an effort to protect these trade secrets, we require our employees, consultants, collaborators and advisors to execute confidential disclosure agreements before the commencement of their relationships with us. These agreements require that all confidential information developed by the individual or made known to the individual by us during the course of the individual's relationship with us be kept confidential and not disclosed to third parties. These agreements, however, may not provide us with adequate protection against improper use or disclosure of confidential information, and these agreements may be breached. A breach of confidentiality could affect our competitive position. In addition, in some situations, these agreements may conflict with, or be subject to, the rights of third parties with whom our employees, consultants, collaborators or advisors have previous employment or consulting relationships. Also, others may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets.

Adequate remedies may not exist in the event of unauthorized use or disclosure of our confidential information. The disclosure of our trade secrets would impair our competitive position and could have a material adverse effect on our business, financial condition and results of operations.

If we infringe or are alleged to infringe intellectual property rights of third parties, it will adversely affect our business, financial condition and results of operations.

Our research, development and commercialization activities, including any biologic drug candidates or products resulting from these activities, may infringe or be alleged to infringe patents owned by third parties and to which we do not hold licenses or other rights. There may be applications that have been filed but not published that, when issued, could be asserted against us. These third parties could bring claims against us that would cause us to incur substantial expenses and, if successful against us, could cause us to pay substantial damages. Further, if a patent infringement suit were brought against us, we could be enjoined from certain activities including a stop or delay in research, development, manufacturing or sales activities related to the product or biologic drug candidate that is the subject of the suit.

As a result of patent infringement claims, or in order to avoid potential claims, we may choose or be required to seek a license from the third party. These licenses may not be available on acceptable terms, or at all. Even if we are able to obtain a license, the license would likely obligate us to pay license fees or royalties or both, and the rights granted to us might be nonexclusive, which could result in our competitors gaining access to the same intellectual property. Ultimately, we could be prevented from commercializing a product, or be forced to cease some aspect of our business operations, if, as a result of actual or threatened patent infringement claims, we are unable to enter into licenses on acceptable terms. All of the issues described above could also impact our collaborators, which would also impact the success of the collaboration and therefore us.

There has been substantial litigation and other proceedings regarding patent and other intellectual property rights in the pharmaceutical and biotechnology industries. In addition to infringement claims against us, we may become a party to other patent litigation and other proceedings, including interference and reexamination proceedings declared by the United States Patent and Trademark Office and opposition proceedings before the patent offices for other countries (e.g. the European Patent Office) or similar adversarial proceedings, regarding intellectual property rights with respect to our products and technology. For example, a patent that was granted to us in Europe for human mesenchymal stem cells in the cardiac context was opposed in the European Patent Office by two different companies. In 2008 we prevailed in an opposition before the European Patent Office against one patent related to the cardiac indications of Prochymal. Though we were successful in that particular case, the outcome of any future patent controversies is uncertain. For example, we are currently a party to a patent opposition before the European Patent Office regarding one patent claiming Chondrogen; this process is in an early stage of the opposition proceedings and the ultimate result cannot be predicted at this time with any reasonable degree of certainty. The cost to us of any patent litigation or other proceeding, even if resolved in our favor, could be substantial. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources. Patent litigation and other proceedings may also absorb significant management time. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace and, as a result, on our business, financial condition and results of operations. To the extent that our employees, consultants or contractors use intellectual property owned by others, disputes may arise as to the rights related to or resulting from the use of such intellectual property.

We may become involved in lawsuits to protect or enforce our patents or the patents of our collaborators or licensors, which could be expensive and time consuming.

Litigation may be necessary to enforce patents issued or licensed to us, to protect trade secrets or know-how, or to determine the scope and validity of the proprietary rights. Litigation, opposition or interference proceedings could result in substantial additional costs and diversion of management focus.

If we are ultimately unable to protect our technology, trade secrets or know-how, we may be unable to operate profitably.

Competitors may infringe our patents or the patents of our collaborators or licensors. As a result, we may be required to file infringement claims to protect our proprietary rights. This can be expensive, particularly for a company of our size, and time-consuming. In addition, in an infringement proceeding, a court may decide that a patent of ours is invalid or is unenforceable, or may refuse to enjoin the other party from using the technology at issue. An adverse determination of any litigation or defense proceedings could put one or more of our patents at risk of being invalidated or interpreted narrowly. Interference proceedings brought by the U.S. Patent and Trademark Office may be necessary to determine the priority of inventions with respect to our patent applications or those of our collaborators or licensors. Litigation or interference proceedings may fail and, even if successful, may result in substantial costs and distraction to our management. We may not be able, alone or with our collaborators and licensors, to prevent misappropriation of our proprietary rights, particularly in countries where the laws may not protect such rights as fully as in the United States.

Furthermore, though we would see protective orders where appropriate, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, during the course of this kind of litigation, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If investors perceive these results to be negative, the market price for our common stock could be significantly harmed.

The biotechnology industry, including our fields of therapeutic interest, is highly competitive and subject to significant and rapid technological change. Accordingly, our success will depend, in part, on our ability to respond quickly to such change through the development and introduction of new products. Our ability to compete successfully against currently existing and future alternatives to our product candidates and systems and competitors who compete directly with us in the biopharmaceutical industry will depend, in part, on our ability to: attract and retain skilled scientific and research personnel; develop technologically superior products; develop competitively priced products; obtain patent or other required regulatory approvals for our products; and be early entrants to the market; manufacture, market and sell our products, independently or through collaborations. If a third party were to commercialize a competitive product, there is no assurance that we would have a basis for initiating patent infringement proceedings or that, if initiated, we would prevail in such proceedings.

We are dependent on our intellectual property rights, and if our intellectual property rights do not issue into enforceable patents, are invalidated by third party attack or are circumvented by others' scientific innovation, our business could be seriously affected. As a result, others could compete against us directly, which would harm our business and could have a material adverse effect on our financial condition and results of operations.

Our success depends, in large part, on our ability to obtain and maintain intellectual property protection for our products. The patent position of biotechnology companies is generally highly uncertain, involves complex legal and factual questions and has been the subject of much litigation. Neither the U.S. Patent and Trademark Office nor the courts has a consistent policy regarding the breadth of claims allowed or the degree of protection afforded under many biotechnology patents.

The claims of our existing U.S. and foreign patents and those that may issue in the future, or those licensed to us, may not confer on us significant commercial protection against competing products. Third parties may challenge, narrow, invalidate or circumvent any patents we own or may obtain in the future. Our patents on MSC technology, in particular, are quite broad in that they cover mesenchymal stem cells and the therapeutic use thereof. Patents with broad claims tend to be more vulnerable to challenge by other parties than patents with more narrowly written claims. Also, our pending patent

applications may not issue, and we may not receive any additional patents. Further, the laws of foreign countries may not protect our intellectual property rights to the same extent as do the laws of the United States. Our patents might not contain claims that are sufficiently broad to prevent others from utilizing our technologies.

Consequently, our competitors may independently develop competing products that do not infringe our patents or other intellectual property.

Given our patent position in regard to our biosurgery products, if we are unable to protect the confidentiality of our proprietary information and know-how related to these products, our competitive position would be impaired and our business, financial condition and results of operations could be adversely affected.

A significant amount of our technology, including our teaching regarding the manufacturing processes of our biosurgery products, is unpatented and is maintained by us as trade secrets. In an effort to protect these trade secrets, we require our employees, consultants, collaborators and advisors to execute confidentiality agreements upon the commencement of their relationships with us. These agreements require that all confidential information developed by the individual or made known to the individual by us during the course of the individual's relationship with us be kept confidential and not disclosed to third parties. These agreements, however, may not provide us with adequate protection against improper use or disclosure of confidential information, and these agreements may be breached. For example, a portion of the manufacture of Grafix is protected by trade secrets. A breach of confidentiality could affect our competitive position. In addition, in some situations, these agreements may conflict with, or be subject to, the rights of third parties with whom our employees, consultants, collaborators or advisors have previous employment or consulting relationships. Also, others may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets.

Our biosurgery products are different from our biologic drug candidates in that they do not comprise cultured or manipulated MSCs. Because FDA approval is generally not required for tissue based products like these, competitors might choose to enter this market and produce a substantially similar product whereby we may not be able to prevent the marketing and distribution of any such similar products by others. Should others produce a substantially similar product, we will be subject to increased competition and our potential revenues from redistribution of these biosurgery products may be limited.

Moreover, like our biologic drug candidates, if our biosurgery products infringe or are alleged to infringe intellectual property rights of third parties, these third parties could bring claims against us that would cause us to incur substantial expenses and, if successful against us, could cause us to pay substantial damages. Further, if a patent infringement suit were brought against us, we could be forced to stop or delay research, development, manufacturing or redistribution of the product that is the subject of the suit. Our biosurgery products are subject to many of the same third party infringement risks that our biologic drug candidates are subject to.

Adequate remedies may not exist in the event of unauthorized use or disclosure of our confidential information. The disclosure of our trade secrets would impair our competitive position and could have a material adverse effect on our business, financial condition and results of operations.

Risks Related to Regulatory Approval and Other Government Regulations

If we are not able to successfully develop and commercialize our biologic drug candidates and obtain the necessary regulatory approvals, we may not generate sufficient revenues to continue our business operations.

In order to generate sales revenue from our biologic drug candidates, we must conduct extensive preclinical studies and clinical trials to demonstrate that our biologic drug candidates are safe and effective and obtain required regulatory approvals. Our early stage biologic drug candidates may fail to perform as we expect. Moreover, our biologic drug candidates in later stages of development may fail to show the desired safety and efficacy traits despite having progressed successfully through preclinical or initial clinical testing. We will need to devote significant additional research and development, financial resources and personnel to develop commercially viable products and obtain the necessary regulatory approvals

If our biologic drug candidates are not deemed safe and efficacious, we will not obtain the required regulatory approvals. If we fail to obtain such approvals, we may not generate sufficient revenues to continue our business operations.

Even if we obtain regulatory approval of a product, that approval may be subject to limitations on the indicated uses for which it may be marketed. Even after granting regulatory approval, the FDA and regulatory agencies in other countries continue to review and inspect marketed products, manufacturers and manufacturing facilities, which may create additional regulatory burdens. Later discovery of previously unknown problems with a product, manufacturer or facility, may result in restrictions on the product or manufacturer, including a withdrawal of the product from the market. Further, regulatory agencies may establish additional regulations that could prevent or delay regulatory approval of our products.

We cannot market and sell our biologic drug candidates in the United States or in other countries if we fail to obtain the necessary regulatory approvals or licensure.

We cannot sell our biologic drug candidates until regulatory agencies grant marketing approval, or licensure. The process of obtaining regulatory approval is lengthy, expensive and uncertain. It is likely to take several years to obtain the required regulatory approvals for our lead stem cell biologic drug candidate, Prochymal, or we may never gain the necessary approvals. Any difficulties that we encounter in obtaining regulatory approval may have a substantial adverse impact on our operations and cause our stock price to decline significantly. Moreover, because our biologic drug candidates are all based on a single platform technology, MSCs, any adverse events in our clinical trials for one of our biologic drug candidates could negatively impact the clinical trials and approval process for our other biologic drug candidates.

To obtain marketing approvals in the United States for our biologic drug candidate products, for instance, we must, among other requirements, complete carefully controlled and well-designed clinical trials sufficient to demonstrate to the FDA that the biologic drug candidate is safe and effective for each disease for which we seek approval. Several factors could prevent completion or cause significant delay of these trials, including an inability to enroll the required number of patients or failure to demonstrate adequately that MSCs are safe, effective and potent for use in humans. Negative or inconclusive results from or adverse medical events during a clinical trial could cause the clinical trial to be repeated or a program to be terminated, even if other studies or trials relating to the program are successful. The FDA can place a clinical trial on hold if, among other reasons, it finds that patients enrolled in the trial are or would be exposed to an unreasonable and significant risk of illness or injury. If safety concerns develop, we or the FDA could stop our trials before completion. Some participants in our biologic drug candidate clinical trials have experienced serious adverse events, seven of which have been determined to be possibly related to MSCs and one of which has been determined to be probably related. A serious adverse event is an event that results in significant medical consequences,

such as hospitalization, disability or death, and must be reported to the FDA. We cannot assure you that safety concerns regarding MSCs will not develop.

The pathway to regulatory approval for biologic drug candidates comprising MSCs may be more complex and lengthy than for approval of a new conventional drug. Similarly, to obtain approval to market our stem cell products outside of the United States, we, together with our collaborative partners, will need to submit clinical data concerning our products and receive regulatory approval from governmental agencies, which in certain countries includes approval of the price we intend to charge for our product. We may encounter delays or rejections if changes occur in regulatory agency policies during the period in which we develop a biologic drug candidate or during the period required for review of any application for regulatory agency approval. If we are not able to obtain regulatory approvals for use of our biologic drug candidates under development, we will not be able to commercialize such products, and therefore may not be able to generate sufficient revenues to support our business.

If we are not able to conduct our clinical trials properly and on schedule, marketing approval by FDA and other regulatory authorities may be delayed or denied.

The completion of our clinical trials may be delayed or terminated for many reasons, including, but not limited to, if:

- the FDA does not grant permission to proceed and places the trial on clinical hold;
- subjects do not enroll in our trials at the rate we expect;
- subjects experience an unacceptable rate or severity of adverse side effects;
- third-party clinical investigators do not perform our clinical trials on our anticipated schedule or consistent with the clinical trial protocol, Good Clinical Practice and regulatory requirements, or other third parties do not perform data collection and analysis in a timely or accurate manner;
- inspections of clinical trial sites by the FDA or Institutional Review Boards (IRBs) of research institutions participating in our clinical trials find regulatory violations that require us to undertake corrective action, suspend or terminate one or more sites, or prohibit us from using some or all of the data in support of our marketing applications; or
- one or more IRBs suspends or terminates the trial at an investigational site, precludes enrollment of additional subjects, or withdraws its approval of the trial.

Our development costs will increase if we have material delays in our clinical trials, or if we are required to modify, suspend, terminate or repeat a clinical trial. If we are unable to conduct our clinical trials properly and on schedule, marketing approval may be delayed or denied by the FDA.

Final marketing approval of our biologic drug candidates by the FDA or other regulatory authorities for commercial use may be delayed, limited, or denied, any of which would adversely affect our ability to generate operating revenues.

Any of the following factors may cause final marketing approval for our biologic drug candidates to be delayed, limited or denied:

- our biologic drug candidates require significant clinical testing to demonstrate safety and effectiveness before applications for marketing approval can be filed with the FDA;
- data obtained from preclinical and nonclinical animal testing and clinical trials can be interpreted in different ways, and the FDA may not agree with our interpretations;

- it may take many years to complete the testing of our biologic drug candidates, and failure can occur at any stage of the process;
- negative or inconclusive results or adverse side effects during a clinical trial could cause us to delay or terminate development efforts for a biologic drug candidate; or
- commercialization may be delayed if the FDA requires us to expand the size and scope of the clinical trials.

If marketing approval for our biologic drug candidates is delayed, limited or denied, our ability to market products, and our ability to generate product sales, would be adversely affected.

Producing and marketing an approved drug or other medical product is subject to significant and costly post-approval regulation.

Even if approved for commercial sale, it is likely that Prochymal will receive conditional approval by a regulatory agency, and we will be required to conduct Phase 4 clinical trials to obtain full approval. Even if we obtain full approval of a product, that approval is subject to limitations on the indicated uses for which we can market it. After granting marketing approval, regulatory agencies continue to review and inspect marketed products, manufacturers and manufacturing facilities, creating additional regulatory burdens. Later discovery of previously unknown problems with a product, manufacturer or facility may result in restrictions on the product or manufacturer, including a withdrawal of the product from the market. Further, regulatory agencies may establish additional regulations that could prevent or delay marketing approval of our products.

Our business involves the use of hazardous materials that could expose us to environmental and other liability.

We have facilities in Maryland that are subject to various local, state and federal laws and regulations relating to safe working conditions, laboratory and manufacturing practices, the experimental use of animals and the use and disposal of hazardous or potentially hazardous substances, including chemicals, micro-organisms and various radioactive compounds used in connection with our research and development activities. In the United States, these laws include the Occupational Safety and Health Act, the Toxic Test Substances Control Act and the Resource Conservation and Recovery Act. We cannot assure you that accidental contamination or injury to our employees and third parties from hazardous materials will not occur. We do not have insurance to cover claims arising from our use and disposal of these hazardous substances other than limited clean-up expense coverage for environmental contamination due to an otherwise insured peril, such as fire.

We may not be able to obtain or maintain Orphan Drug designation for our biologic drug candidates.

Some jurisdictions, including the European Union and the United States, may designate drugs for relatively small patient populations as orphan drugs. Although the FDA and its European counterpart, the European Medicines Agency, or EMEA, have designated Prochymal for the treatment of steroid refractory GvHD as an orphan drug, and the FDA has designated Prochymal for the treatment of type 1 diabetes as an orphan drug, none of our other biologic drug candidates have received such designation. Orphan Drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process, but does make the product eligible for orphan drug exclusivity, reduced filing fees and specific tax credits. Generally, if a company receives the first marketing approval for a product with an Orphan Drug designation in the clinical indication for which it has such designation, the product is entitled to orphan drug exclusivity. Orphan drug exclusivity means that the health authorities will not approve another application to market the same drug for the same indication, except in limited circumstances, for a period of up to seven years in the United States and ten years in Europe. This exclusivity, however, could block the approval of our biologic drug

candidates if a competitor obtains marketing approval before us. Even if we obtain orphan drug exclusivity for any of our biologic drug candidates, we may not be able to maintain it. For example, if a competitive product is shown to be clinically superior to our product, any orphan drug exclusivity we have will not block the approval of such competitive product.

The Fast Track designation for development of any of our products may not lead to a faster development or regulatory review or approval process, and it does not increase the likelihood the biologic drug candidate will receive marketing approval.

If a drug is intended for the treatment of a serious or life-threatening condition and the drug demonstrates the potential to address unmet medical needs for this condition, the drug sponsor may apply for FDA Fast Track designation for a particular indication. Marketing applications filed by sponsors of products in Fast Track development may qualify for priority review under the policies and procedures offered by the FDA, but the Fast Track designation does not assure any such qualification. Although we have obtained a Fast Track designation from the FDA for Prochymal for the treatment of GvHD and treatment refractory Crohn's disease, receipt of Fast Track designation may not result in a faster development process, review or approval compared to drugs considered for approval under conventional FDA procedures. In addition, the FDA may withdraw our Fast Track designation at any time. If we lose our Fast Track designation, the approval process may be delayed. In addition, our Fast Track designation does not guarantee that we will qualify for or be able to take advantage of the expedited review procedures and does not increase the likelihood that Prochymal will receive regulatory approval for the treatments of steroid refractory GvHD or Crohn's disease.

Should the FDA decide that Grafix or Ovation, or that any other biosurgery product we may develop, does not meet the appropriate regulatory requirements, we will be required to stop production, which could have a material adverse effect on our business, financial condition and results of operations.

The FDA has developed a tiered, risk-based regulatory framework, which includes criteria for facility management, quality assurance, donor selection, and processing of human cells, tissues, and cellular and tissue based products. We believe that commercial sale of Grafix and Ovation does not require pre-market approval by the FDA because we believe that these products meet the regulatory definition of human cells, tissue, and cellular and tissue-based products, or HCT/Ps. However, should the FDA decide that these products do not meet the regulatory definition of HCT/Ps, we will not be able to produce and redistribute these products until we obtain FDA approval, which could take years to obtain and which could have a material adverse effect on our business, financial condition and results of operations.

Risks Related to Government Contracts

Federal government spending priority or our relationships with the federal government may change in a manner that harms our business or prospects.

Our ability to successfully pursue and perform under development and purchase agreements with United States and Allied governmental agencies for countermeasures to nuclear terrorism and other radiological emergencies, including the contract awarded to us by the DoD for the development and stockpiling of Prochymal for the treatment of ARS, depends upon continued federal government expenditures on defense, emergency preparedness and other programs. These expenditures will likely fluctuate over time. While spending authorizations for defense and emergency preparedness related programs by the government have increased in recent years, and in particular after the 2001 terrorist attacks, future levels of expenditures and authorizations for these programs may decrease, remain constant or shift to program areas inapplicable to us. Our business, prospects, financial condition and/or operating results could be materially harmed by budgetary constraints affecting federal government spending generally, or specific departments or agencies in particular, and by changes in

fiscal policies or available funding, or by changes in federal government programs or requirements or delays in government appropriations process. In addition, our business, prospects, financial condition and/or operating results could be materially harmed if we are suspended or disbarred from contracting with the federal government or a significant governmental agency, or our reputation or relationship with governmental entities is impaired, or the government otherwise declines to do business with us, or significantly decreases the amount of business it is willing to do with us.

Federal government contracts contain provisions that may be unfavorable to us.

Federal government contracts contain provisions, and are subject to laws and regulations, that give the government rights and remedies not typically found in commercial contracts. These provisions may allow the government to terminate existing contracts for convenience, as well as for default, to reduce or modify contracts or subcontracts, to cancel multi-year contracts or related purchase orders if funds for contract performance for any subsequent year become unavailable, to decline to exercise an option to renew a multi-year contract or to decline to purchase product pursuant to an option afforded under a contract. If the government terminates a contract for convenience, we may recover only our incurred or committed costs, settlement expenses and profit on the work completed prior to the termination. If the government terminates a contract for default, we may not recover even those amounts, and instead may be liable for excess costs incurred by the government in procuring undelivered items and services from another source.

Unfavorable federal government audit results could subject us to penalties or sanctions and could impair our ability to win new contracts.

The Defense Contract Audit Agency, or DCAA, and other government agencies routinely audit and investigate government contracts and systems. These agencies review a contractor's performance on its contract, cost structure and compliance with applicable laws, regulations and standards. The DCAA also reviews the adequacy of, and a contractor's compliance with, its internal control systems and policies, including the contractor's accounting, purchasing, property, estimating, compensation and managing information systems. Allegations of impropriety or deficient controls could harm our reputation and/or adversely influence the award of new contracts. Any costs found to be improperly allocated to a specific contract will not be reimbursed, while such costs already reimbursed must be refunded. Therefore, a DCAA audit could result in a substantial adjustment to our revenue earned from federal government contracts.

The government may terminate our federal government contracts at any time.

Federal government contracts may span one or more base years and one or more option years, and may provide the government with one or more options in respect of continued performance by us thereunder. For example, our contract with the DoD for the development and stockpiling of Prochymal for the treatment of ARS provides the DoD with successive options for the purchase of Prochymal, assuming receipt of FDA approval for its use in the treatment of ARS. Federal government agencies have no obligation to exercise these options unless determined to be in the best interest of the government. Additionally, federal government contracts typically contain provisions permitting the government to terminate the contract for its convenience.

If we fail to comply with complex procurement laws and regulations, we could incur various penalties or sanctions.

To the extent which we enter into contracts or other arrangements with the United States or other Allied governments, we must comply with the laws and regulations relating to the formation, administration and performance of those contracts. These laws and regulations affect how we conduct business with our government contracts. In complying with these laws and regulations, we may incur

additional costs and delays, and non-compliance may also allow for the assignment of additional fines and penalties, including contractual damages. Among these laws and regulations are the Federal Acquisition Regulations, which comprehensively regulate the formation, administration and performance of United States federal government contracts, the Truth in Negotiations Act, which requires certification and disclosure of all costs and pricing data in connection with contract negotiations, and laws, regulations and executive orders restricting the use and dissemination of information classified for national security purposes, and restricting the export of certain products and technical data. We are subject to periodic review of our performance under and compliance with the terms of any federal government contracts to which we are a party. As a result of these reviews, we may learn that we are not in compliance with all of the terms of any such contracts and we could be subject to civil or criminal penalties or administrative sanctions for failure of compliance.

Risks Related to Our Common Stock

The trading price of the shares of our common stock is highly volatile, and purchasers of our common stock could incur substantial losses.

Our stock price is volatile. The stock market in general and the market for biotechnology companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, investors may not be able to sell their common stock at or above the price they paid for it. The market price for our common stock may be influenced by many factors, including:

- results of clinical trials of our biologic drug candidates or those of our competitors;
- regulatory developments in the United States and foreign countries;
- variations in our financial results or those of companies that are perceived to be similar to us;
- changes in the structure of healthcare payment systems;
- announcements by us of significant acquisitions, strategic partnerships, joint ventures or capital commitments;
- market conditions in the pharmaceutical and biotechnology sectors and issuance of securities analysts' reports or recommendations;
- sales of substantial amounts of our stock by existing stockholders;
- sales of our stock by insiders and 5% stockholders;
- general economic, industry and market conditions;
- additions or departures of key personnel;
- intellectual property, product liability or other litigation against us;
- expiration or termination of our relationships with our collaborators; and
- the other factors described in this "Risk Factors" section.

In addition, in the past, stockholders have initiated class action lawsuits against biotechnology and pharmaceutical companies following periods of volatility in the market prices of these companies' stock. Such litigation, if instituted against us, could cause us to incur substantial costs and divert management's attention and resources, which could have a material adverse effect on our business, financial condition and results of operations.

Certain provisions of Maryland law and of our charter and bylaws contain provisions that could delay and discourage takeover attempts and any attempts to replace our current management by stockholders.

Certain provisions of Maryland General Corporation Law (MGCL) and of our Maryland charter and Maryland bylaws contain provisions that may make it more difficult for or prevent a third party from acquiring control of us or changing our Board of Directors and management. These include, but are not limited to, the following:

- classification of the board of directors with staggered terms of three years, which prevents a majority of the incumbent directors from being replaced at a single annual stockholders' meeting;
- authorization of the board of directors to issue shares of preferred stock generally without stockholder approval;
- requirements that special meetings of stockholders may only be called by the chairman of the board of directors, upon request of stockholders holding at least 20% of the capital stock issued and outstanding, or upon a resolution adopted by, or an affirmative vote of, a majority of the board of directors; and
- requirements that our stockholders comply with advance notice procedures in order to nominate candidates for election to our Board of Directors or to place stockholders' proposals on the agenda for consideration at meetings of stockholders.

Maryland law also prohibits "business combinations" between us and an interested stockholder or an affiliate of an interested stockholder for five years after the most recent date on which the interested stockholder becomes an interested stockholder. These business combinations include a merger, consolidation, share exchange or, in certain circumstances specified in the statute, an asset transfer or issuance or reclassification of equity securities. Maryland law defines an interested stockholder as any person who beneficially owns 10% or more of the voting power of the corporation's stock, or an affiliate or associate of the corporation who, at any time within the two-year period prior to the date in question, was the beneficial owner of 10% or more of the voting power of the corporation's then-outstanding voting stock. A person is not an interested stockholder if the board of directors of the corporation approved in advance the transaction by which the person otherwise would have become an interested stockholder. However, such approval may be conditional.

After the five-year prohibition, any business combination between the corporation and an interested stockholder or an affiliate of an interested stockholder generally must be recommended by the board of directors and approved by the affirmative vote of at least 80% of the votes entitled to be cast by holders of the then-outstanding shares of voting stock, and two-thirds of the votes entitled to be cast by holders of the voting stock other than stock held by the interested stockholder with whom or with whose affiliate the business combination is to be effected or stock held by an affiliate or associate of the interested stockholder. These super-majority vote requirements do not apply if the holders of the common stock receive a minimum price, as defined under Maryland law, for their stock in the form of cash or other consideration in the same form as previously paid by the interested stockholder for its stock.

The statute permits various exemptions from its provisions, including business combinations that are approved or exempted by the board of directors before the time that the interested stockholder becomes an interested stockholder. Our Board of Directors has not exempted us from the business combination statute. Consequently, unless the Board of Directors adopts an exemption from this statute in the future, the statute will be applicable and may affect business combinations between us and other persons. The statute may discourage others from trying to acquire control of us or increase the difficulty of consummating any such acquisition.

Our bylaws also contain a provision exempting us from the "control share acquisition" provisions of the MGCL (Sections 3-701 through 3-709). We can provide no assurance that such provision of our bylaws will not be amended or eliminated in the future. Should this happen, the control share acquisition provisions would become effective and may discourage others from trying to acquire control of us and increase the difficulty of consummating any offer.

Subtitle 8 of Title 3 of the MGCL ("Subtitle 8") permits a Maryland corporation with a class of equity securities registered under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and with at least three independent directors to elect to be subject to any or all of five provisions:

- a classified board;
- a two-thirds vote requirement to remove a director;
- a requirement that the number of directors be fixed only by the vote of the directors;
- a requirement that a vacancy on the board be filled only by the remaining directors and for the remainder of the full term of the directorship in which the vacancy occurred rather than until the next annual meeting of stockholders as would otherwise be the case; and
- a majority requirement for the calling of a special meeting of stockholders.

An eligible Maryland corporation like us can elect into this statute by provision in its charter or bylaws or by a resolution of its board of directors, without stockholder approval. Furthermore, we can elect to be subject to the above provisions regardless of any contrary provisions in the charter or bylaws. Pursuant to Subtitle 8, we have elected to provide that vacancies on our Board of Directors may be filled only by the remaining directors and for the remainder of the full term of the class of directors in which the vacancy occurred. Through provisions in our charter and bylaws unrelated to Subtitle 8, we have a classified board, and the number of our directors may be fixed only by the vote of the directors.

Concentration of ownership of our common stock among our existing executive officers, directors and principal stockholders may prevent others from influencing significant corporate decisions, and provisions in our charter allowing for a stockholder vote by consent in lieu of a meeting may make it easier for stockholders holding a majority of our common stock to take action.

Our executive officers, directors and beneficial owners of 5% or more of our common stock and their affiliates, in aggregate, beneficially own approximately 51% of our outstanding common stock as of March 1, 2012. Included among this 51%, Peter Friedli, the Chairman of the Board of Directors, and certain entities with which he is affiliated, beneficially own approximately 43% of our outstanding common stock as of March 1, 2012. These persons, acting together, will be able to significantly influence all matters requiring stockholder approval, including the election and removal of directors and any merger or other significant corporate transactions. The interests of this group of stockholders may not coincide with our interests or the interests of other stockholders.

Moreover, as permitted by the MGCL, our charter provides that the holders of common stock entitled to vote generally in the election of directors may take action or consent to any action by delivering a consent in writing or by electronic transmission of the stockholders entitled to cast not less than the minimum number of votes (which is generally either a majority of votes cast or a majority of votes entitled to be cast) that would be necessary to authorize or take the action at a stockholders meeting if the corporation gives notice of the action not later than ten (10) days after the effective date of the action to each holder of the class of common stock and to each stockholder who, if the action had been taken at a meeting, would have been entitled to notice of the meeting.

Accordingly, these persons acting together, and Mr. Friedli specifically, currently has, and will continue to have, a significant influence over the outcome of all corporate actions requiring stockholder approval, including any actions that may be taken by stockholder consent in lieu of a meeting.

ITEM 1B. Unresolved Staff Comments.

Not Applicable.

ITEM 2. Properties.

Our corporate headquarters are located in Columbia, Maryland, where we lease approximately 61,000 square feet, currently at a rent of approximately \$1.3 million per annum. This lease expires in July 2016, and includes options to extend the term of the lease for two additional five year periods.

ITEM 3. Legal Proceedings.

From time to time in the ordinary course of business, we are subject to claims, asserted or unasserted, or named as a party to lawsuits, arbitrations, or investigations. Litigation, in general, and intellectual property and securities litigation in particular, can be expensive and disruptive to normal business operations. Moreover, the results of legal proceedings cannot be predicted with any certainty and in the case of more complex legal proceedings, such as intellectual property and securities litigation, the results are difficult to predict at all. We are not aware of any asserted or unasserted legal proceedings or claims that we believe would have a material adverse effect on our financial condition or results of our operations.

ITEM 4. Removed and Reserved.

PART II

ITEM 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Our common stock trades on the NASDAQ Global Market under the symbol "OSIR." The following table lists the high and low sale prices per share for our common stock based on the prices as reported on the NASDAQ Global Market for the periods indicated.

Quarter Ended	2011		2010	
	High	High	High	Low
March 31	\$ 8.10	\$ 5.97	\$ 9.24	\$ 6.95
June 30	8.02	6.32	8.20	5.39
September 30	8.39	4.39	8.15	5.63
December 31	5.66	4.12	8.58	6.36

Stockholders

As of March 7, 2012, there were approximately 181 stockholders of record of our common stock and, according to our estimates, approximately 4,575 beneficial owners of our common stock.

Dividends

We have not paid dividends to our stockholders since our inception and we do not plan to pay cash dividends in the foreseeable future. We currently intend to retain earnings, if any, to finance our growth.

Unregistered Sales of Securities

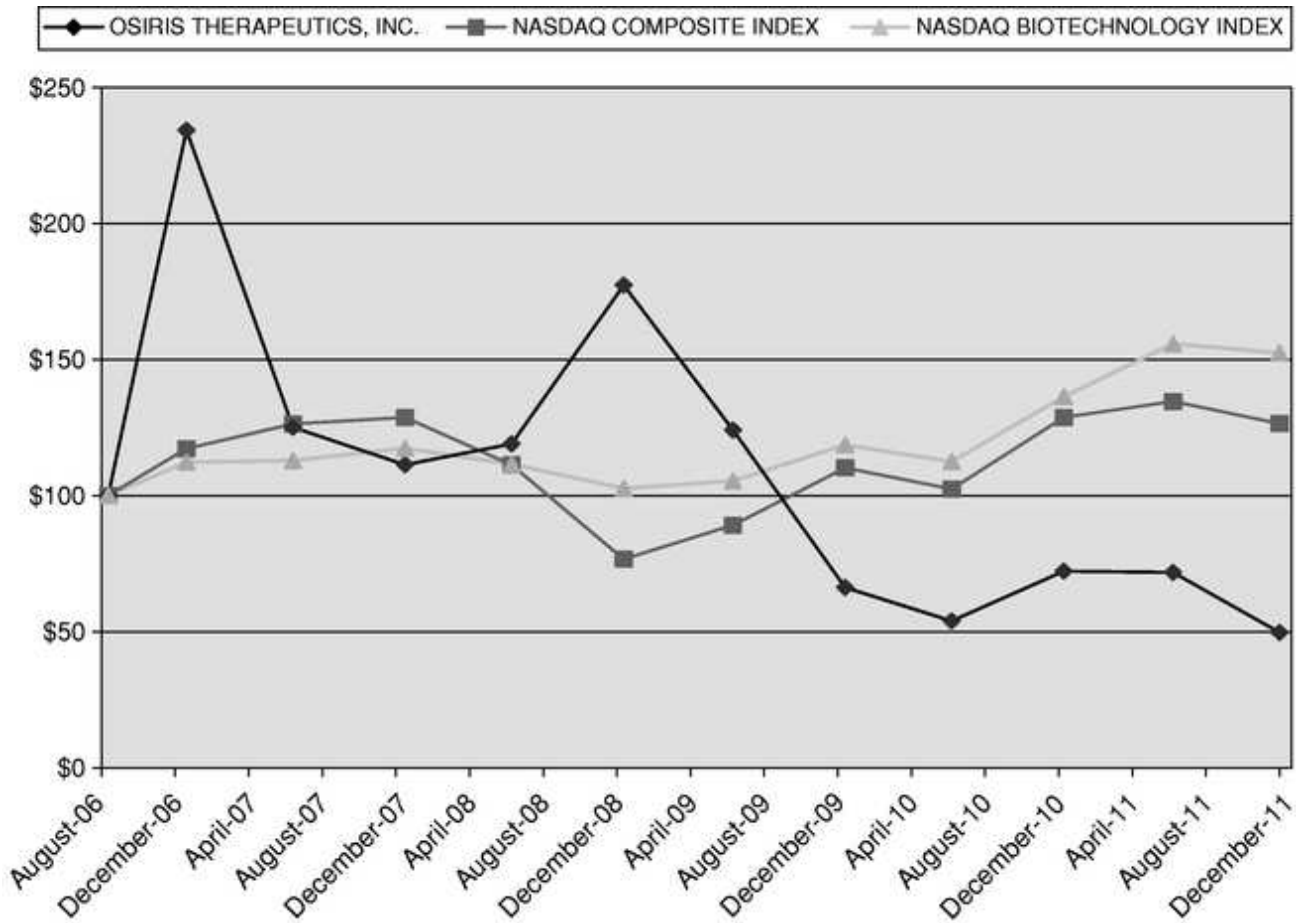
There were no issuances of unregistered securities during fiscal 2011.

Issuer Purchase of Equity Securities and Use of Proceeds

There were no repurchases by us of our securities during fiscal 2011 or 2010.

Stock Performance Graph

The following graph shows the cumulative total return, assuming the investment of \$100 on August 4, 2006 (the date on which our initial public offering was declared effective and our common stock began trading on the NASDAQ Global Market), on an investment in each of our common stock, the NASDAQ Composite Index (U.S. and Foreign) and the NASDAQ Biotechnology Index. The comparisons in the table are required by the SEC and are not intended to forecast or be indicative of possible future performance of our common stock.



Securities Authorized for Issuance under Equity Compensation Plans

The information required by Item 201(d) of Regulation S-K, pursuant to paragraph (a) of this Item 5, is incorporated herein by reference to the information contained in the Company's Proxy Statement for the 2012 Annual Meeting of Stockholders, which is anticipated to be filed pursuant to Regulation 14A no later than one hundred twenty (120) days following the end of the fiscal year reported on.

ITEM 6. Selected Financial Data.

We derived the selected financial data presented below for the periods or dates indicated from our financial statements. Our financial statements for these periods were audited by an independent registered public accounting firm. You should read the data below in conjunction with our financial statements, related notes and other financial information appearing in "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Item 8. Financial Statements and Supplementary Data." These historical results are not necessarily indicative of results that may be expected for future periods.

	Year Ended December 31,				
	2011	2010	2009	2008	2007
(in thousands, except per share data)					
Statement of Operations Data:					
Revenue from collaborative research agreements, government contracts, and royalties	\$ 41,140	\$ 43,021	\$ 44,533	\$ 10,044	\$ 2,048
Gross profit on biosurgery products	732	121	—	—	—
Operating expenses:					
Research and development	19,156	23,501	63,266	69,897	47,140
General and administrative and other expenses	7,881	6,450	8,807	8,586	6,071
Total operating expenses	27,037	29,951	72,073	78,483	53,211
Income (loss) from operations	14,835	13,191	(27,540)	(68,439)	(51,163)
Other income (expense), net	100	175	1,277	(978)	(6,695)
Income (loss) from continuing operations, before income taxes	14,935	13,366	(26,263)	(69,417)	(57,858)
Income tax (expense) benefit	(43)	(241)	2,699	—	—
Income (loss) from continuing operations	14,892	13,125	(23,564)	(69,417)	(57,858)
Income from discontinued operations, net of income taxes	—	—	38,136	35,925	3,937
Net income (loss)	\$ 14,892	\$ 13,125	\$ 14,572	\$ (33,492)	\$ (53,921)
Basic and diluted net income (loss) per share from continuing operations	\$ 0.45	\$ 0.40	\$ (0.72)	\$ (2.18)	\$ (2.03)
Basic and diluted net income (loss) per share	\$ 0.45	\$ 0.40	\$ 0.45	\$ (1.05)	\$ (1.89)
Weighted average shares of common stock used in computing basic net income (loss) per share	32,820	32,784	32,742	31,895	28,489
Weighted average shares of common stock used in computing diluted net income (loss) per share	33,118	33,097	32,742	31,895	28,489

	At December 31,				
	2011	2010	2009	2008	2007
	(in thousands)				
Balance Sheet Data:					
Cash and investments available for sale	\$ 47,265	\$ 67,608	\$ 100,715	\$ 62,238	\$ 18,164
Working capital(1)	43,393	27,423	52,362	70,599	7,247
Total assets	54,273	77,784	107,596	137,467	37,041
Notes payable, less current portion	—	—	—	—	1,200
Accumulated deficit	(232,327)	(247,219)	(260,344)	(274,916)	(241,424)
Total stockholders' equity (deficit)	45,818	27,457	12,560	(5,020)	14,336

(1) Working capital is computed as the excess of current assets over current liabilities.

ITEM 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

When reviewing the discussion below, you should keep in mind the substantial risks and uncertainties that characterize our business. In particular, we encourage you to review the risks and uncertainties described under "Risk Factors" included as Item 1A in this Annual Report on Form 10-K. These risks and uncertainties could cause actual results to differ materially from those forecasted in forward-looking statements or implied by past results and trends. Forward-looking statements are statements that attempt to project or anticipate future developments in our business; we encourage you to review the examples of forward-looking statements included in this Annual Report on Form 10-K under Item 1 at the beginning of this report. These statements, like all statements in this report, speak only as of the date of this report (unless another date is indicated), and we undertake no obligation to update or revise the statements in light of future developments.

The following is a discussion and analysis of our financial condition, results of operations, liquidity and capital resources for each of the three years in the period ended December 31, 2011 and significant factors that could affect our prospective financial condition and results of operations. You should read this discussion together with our financial statements and notes included in "Item 8. Financial Statements and Supplementary Data."

Business Overview

We are a leading stem cell company headquartered in Columbia, Maryland and focused on developing and marketing products to treat medical conditions in the inflammatory, cardiovascular, orthopedic and wound healing markets. We currently market and distribute Graftix and Ovation for tissue repair. Our pipeline of internally developed biologic drug candidates under evaluation includes Prochymal for inflammatory, autoimmune and cardiovascular indications, as well as Chondrogen for arthritis in the knee. We believe our stem cell products have significant therapeutic potential because of their ability to regulate inflammation, promote tissue regeneration and prevent pathological scar formation.

We began operations on December 23, 1992 and were a Delaware corporation until, with approval of our stockholders, we reincorporated as a Maryland corporation on May 31, 2010.

We have two business segments, Therapeutics and Biosurgery. Our Therapeutics business is focused on developing biologic stem cell drug candidates from a readily available and non-controversial source—adult bone marrow. Our Biosurgery division works to harness the ability of cells and novel constructs to promote the body's natural healing with the goals of improving surgical outcomes and offering better treatment options for patients and physicians.

We believe cellular therapies have certain advantages over traditional medical approaches. For example, cell therapies can be targeted, avoiding many of the safety complications arising from systemic treatments. Cell therapies can also be responsive to their environment, turning on or off certain effects as conditions in the surrounding tissue change. Cell therapies can also be multifaceted. For example, the cells in Prochymal, our leading biologic drug candidate, have demonstrated the ability to not only downregulate inflammation, but also to promote repair of the damage caused by the inflammation.

We believe the combination of these unique properties will allow us to solve many of the more challenging questions facing medicine today. We have established ourselves as the leader in the emerging field of cell therapy. We are an industry leader in the field, having developed the first commercially available stem cell product.

We are a fully integrated company, having developed capabilities in research, development, manufacturing, marketing and distribution of stem cell products. We have developed an extensive intellectual property portfolio to protect our technology in the United States and a number of foreign countries, including 46 U.S. and 145 foreign patents owned or licensed. We believe that our biologic drug candidates have advantages over other stem cell therapeutics in development for at least the following reasons:

- **Stem Cell Source.** Our stem cells are obtained from adult bone marrow, a readily available source. The cells are drawn from the hips of volunteer donors between the ages of 18 and 30 years, using a simple needle and syringe aspiration. Because the cells are obtained from consenting adult donors, we are able to largely avoid the ethical controversy surrounding embryonic and fetal stem cell research.
- **Ability to Mass Produce.** Through our proprietary manufacturing methods, we can grow mesenchymal stem cells ("MSC") in a controlled fashion to produce up to 10,000 treatments of our biologic drug candidates from a single bone marrow donation. Our ability to produce a large quantity of treatments from one donation provides us with manufacturing efficiencies and product consistency that are essential to commercialization.
- **Universal Compatibility.** Many stem cell therapies under development can elicit a rejection response in the recipient and therefore require donor-to-recipient matching or potentially harmful immunosuppression. This greatly reduces manufacturing efficiencies and creates a risk of mismatch which can result in an acute inflammatory response and, potentially, in death. Based on our clinical experience, we believe that our biologic drug candidates are not rejected by the patient's immune system and so, like type O negative blood, do not require donor-to-recipient matching. This universal compatibility allows us to produce a standardized product available to all patients in almost any medical setting.
- **Treatment on Demand.** Our biologic drug candidates can be stored frozen at end-user medical facilities until they are needed. We anticipate that medical facilities will be able to prescribe and dispense these products in much the same way as conventional drugs. In contrast, other stem cell technologies under development require weeks to prepare after a patient's need is identified. This is a key feature of our technology, as many patients in the critical care setting require prompt treatment.

In April 2008, we committed to a plan to sell our assets related to Osteocel, a product that we had produced and marketed since July 2005, for regenerating bone in orthopedic indications. On May 8, 2008, we entered into an agreement to sell our entire Osteocel and Osteocel XO product line to NuVasive, Inc. The first of two scheduled closings in connection with this transaction, the "technology assets closing", occurred on July 24, 2008, at which time we received an initial payment of \$35.0 million. The second and final closing, the "manufacturing assets closing," occurred on April 9, 2009. As of December 31, 2009, we had received the full \$85.0 million proceeds from the sale of our

Osteocel business. As a result, all of the activities related to our Osteocel product line have been reported as "discontinued operations" in the accompanying financial statements.

In the third fiscal quarter of 2009, we created our Biosurgery segment focused on developing, manufacturing and distributing high-end biologic products for use in surgical procedures. We commenced the manufacturing of our first biologic product of the Biosurgery segment in the first quarter of 2010 and launched the product for limited commercial distribution and evaluation during third quarter of fiscal 2010. We recognized sales of \$183,000 during 2010 and \$1.3 million during fiscal 2011.

Financial Operations Overview

Revenue

In 2008, we entered into a Collaboration Agreement with Genzyme, then an independent and now a Sanofi company ("Genzyme"), for the development and commercialization of Prochymal and Chondrogen. Under the Collaboration Agreement we received non-contingent, non-refundable up front payments of \$130.0 million, and are entitled to receive contingent milestone payments and royalties in the event of sales by Genzyme thereunder. This Collaboration Agreement has multiple deliverables, and consistent with our accounting policy for such transactions, we amortize these amounts into revenue on a straight-line basis over the estimated completion period of the deliverables, which extend through the first quarter of 2012. We recognized \$40.0 million of revenue in each of fiscal 2011, 2010 and 2009 related to this agreement.

In February 2012, Sanofi issued a press release which included an update on their R&D pipeline, stating that it has "discontinued" its project with Prochymal for GvHD. The statement issued by Sanofi was made without consultation with or knowledge by us. Through our legal counsel, we have advised Sanofi that we are treating these public statements as Sanofi's election to terminate the collaboration agreement. The agreement provides for voluntary termination by Sanofi and that, upon such voluntary termination, all rights to Prochymal revert back to us, and we are free to commercialize or enter into commercialization agreements for Prochymal with other parties without restriction. While we have been proceeding on the basis that Sanofi has terminated the collaboration agreement, Sanofi has since advised us that it disagrees with our characterization of their press release. We have requested an explanation from Sanofi with respect to their statements regarding Prochymal. There can be no assurances as to the outcome of these matters. However, we continue to proceed with our Prochymal regulatory approval efforts and, if successful, commercialization, alone or with another collaborator.

In 2007, we also partnered with Genzyme to develop Prochymal as a medical countermeasure to nuclear terrorism and other radiological emergencies. In the first quarter of 2008, we were awarded a contract from the United States Department of Defense ("DoD") pursuant to which we, in partnership with Genzyme, are seeking to develop and stockpile Prochymal for the repair of gastrointestinal injury resulting from acute radiation exposure. Under the terms of the contract, the DoD will provide funding to us, and if we are successful in obtaining FDA approval for acute radiation syndrome, the contract provides for the purchase of up to 20,000 doses of Prochymal, at \$10,000 per dose. Under the terms of this contract, we recognized \$470,000 in revenue in fiscal 2010, and \$2.9 million in revenue in fiscal 2009.

In prior years, we have entered into strategic agreements with other companies for the development and commercialization of select stem cell biologic drug candidates for specific indications and geographic markets. In 2007, we entered into a collaborative agreement with the Juvenile Diabetes Research Foundation to conduct a Phase 2 clinical trial evaluating Prochymal as a treatment for type 1 diabetes mellitus. This collaborative agreement provides for JDRF to provide \$4.0 million of contingent milestone funding to support the development of Prochymal for the preservation of insulin production in patients with newly diagnosed type 1 diabetes mellitus. The contingent milestone payments under the agreement are amortized into revenue on a straight line basis over the duration of our obligations

under the collaborative agreement as they are earned. As of December 31, 2011, we had achieved all \$4.0 million of the milestones available under the contract and recognized the entire funding as revenue. In fiscal 2011, we recognized \$960,000 in revenue, in fiscal 2010, we received the final \$500,000 milestone and recognized \$1.2 million in revenue. We received \$1.5 million in milestone payments from JDRF in fiscal 2009 and recognized \$1.2 million in revenue.

In 2003, we entered into an agreement with JCR Pharmaceuticals, granting it exclusive rights to Prochymal for the treatment of GvHD and other hematological malignancies in Japan. During the first quarter of 2010, we achieved a \$1.0 million milestone from JCR for development progress in Japan. The collaboration with JCR also provides for additional milestone payments of up to \$5.5 million for regulatory and sales milestones, as well as royalty payments on sales of the drug in Japan.

Research and Development Costs

Our research and development costs consist of expenses incurred in identifying, developing and testing biologic drug candidates and biologic tissue based products. These expenses consist primarily of salaries and related expenses for personnel, fees paid to professional service providers for independent monitoring and analysis of our clinical trials, costs of contract research and manufacturing, costs of facilities, and the costs of manufacturing clinical batches of biologic drug candidates, quality control supplies and material to expand biologic drug candidates.

Consistent with our focus on the development of biologic drug candidates with potential uses in multiple indications, many of our costs are not attributable to a specifically identified product. We use our employee and infrastructure resources across several projects. Accordingly, we do not account for internal research and development costs on a project-by-project basis. From inception in December 1992 through December 31, 2011, we incurred aggregate research and development costs of approximately \$410 million.

Prior to 2010, internal resources were applied interchangeably across several product candidates due to the potential applicability of our biologic drug candidates for multiple indications. Therefore, it was not possible to allocate internal R&D costs on either a project-by-project or product-by-product basis in 2009.

Beginning in 2010, with the creation of our Biosurgery segment, we began to separately track research and development costs by segment. During fiscal 2011, we incurred \$15.8 million of research and development costs in our Therapeutics segment and \$3.3 million in our Biosurgery segment. For 2010, our total research and development costs were \$19.1 million for our Therapeutics segment and \$4.4 million for our Biosurgery segment. As described above, we do not track internal development costs by project within the Therapeutics segment. We do, however, track external research and development costs on a project basis. During fiscal 2011, we incurred \$6.3 million in external research and development costs, including third party contract costs, supply and lab costs, and other miscellaneous external costs on our acute myocardial infarction clinical trial, \$1.4 million on our Refractory Crohn's disease clinical trial, \$830,000 on Treatment-resistant GvHD and \$400,000 on smaller projects. For 2010, our external research and development costs, were approximately \$2.8 million for Prochymal to treat first line and steroid refractory acute GvHD, \$905,000 for Prochymal to treat Crohn's disease, \$4.1 million for Prochymal to repair heart tissue following a heart attack, \$1.7 million for Prochymal for the protection of pancreatic islet cells in patients with type 1 diabetes, \$700,000 for Prochymal to treat COPD, and approximately \$225,000 for smaller projects.

We expect our research and development expenses to continue to be substantial in the future, as we continue our clinical trial activity for our existing biologic drug candidates as they advance through the development cycle, and as we invest in additional product opportunities and research programs. Clinical trials and preclinical studies are time-consuming and expensive. Our expenditures on current and future preclinical and clinical development programs are subject to many uncertainties. We test our products in several preclinical studies, and we then conduct clinical trials for those biologic drug

candidates that we determine to be the most promising. As we obtain results from clinical trials, we may elect to discontinue or delay trials for some biologic drug candidates in order to focus our resources on more promising biologic drug candidates. Completion of clinical trials may take several years or more, but the length of time generally varies substantially according to the type, size of trial and intended use of a biologic drug candidate. The cost of clinical trials may vary significantly over the life of a project as a result of a variety of factors, including:

- the number of patients who participate in the trials;
- the number of sites included in the trials;
- the length of time required to enroll trial participants;
- the duration of patient treatment and follow-up;
- the costs of producing supplies of the biologic drug candidates needed for clinical trials and regulatory submissions;
- the efficacy and safety profile of the biologic drug candidate; and
- the costs and timing of, and the ability to secure, regulatory approvals.

As a result of these uncertainties, we are unable to determine with any significant degree of certainty the duration and completion costs of our research and development projects or when and to what extent we will generate revenues from the commercialization and sale of any of our biologic drug candidates.

General and Administrative Expenses

General and administrative expenses consist primarily of the costs associated with our general management, including salaries, allocations of facilities and related costs, and professional fees such as legal and accounting expenses. We have increased our general and administrative expense for legal and accounting compliance costs, investor relations and other activities associated with operating as a publicly traded company and strengthened our administrative capabilities as we approach the commercial launch of Prochymal for an initial indication. Continued increases will also likely result from the hiring of additional operational, financial, accounting, facilities engineering and information systems personnel.

Other Income (Expense), Net

Other income (expense) consists of interest earned on our cash and investments available for sale and realized gains and losses incurred on the sale of these investments. Interest expense consists of interest incurred on capital leases and other debt financings. We do not expect to incur material interest expense in the future as we had extinguished all of our outstanding debt prior to fiscal 2009.

Income Taxes

Until fiscal 2010, we have not recognized any net deferred tax assets or liabilities in our financial statements since we cannot assure their future realization. Because realization of deferred tax assets is dependent upon future earnings, a full valuation allowance has been recorded on the net deferred tax assets, which relate primarily to net operating loss and research and development carry-forwards. In the event that we become profitable within the next several years, we have net deferred tax assets (before a 100% valuation allowance) of approximately \$80.9 million that may be utilized prior to us having to recognize any income tax expense or make payments to the taxing authorities other than the alternative minimum tax. The income from the upfront fees we received from Genzyme Corporation is required to be recognized over several years from 2008 through 2012 for financial statement reporting purposes. For income tax purposes, the income was required to be fully recognized in 2009 and 2010. This resulted in our releasing \$3.2 million of the valuation allowance on our net deferred tax assets in fiscal

2010. We recognized \$1.0 million of the resulting deferred tax asset in 2011, and expect to recognize the remaining \$2.2 million deferred tax asset in 2012.

In fiscal 2010, we recorded a provision for income taxes to recognize the U.S. Federal alternative minimum tax on our taxable income. In fiscal 2011, we recorded a provision for income taxes of \$43,000 to recognize a true-up of the 2010 payables account that was identified when we filed our 2010 Federal income tax return. The effective tax rate of .3%, as compared to a U.S. statutory rate of 35%, reflects this adjustment. We do not expect to be subject to the U.S. Federal alternative minimum tax in fiscal 2011. The tax provision for 2010 reflects an effective tax rate for continuing operations of 1.8% compared to a U.S. statutory tax rate of 35%. The effective tax rate reflects our estimated annual effective tax rate, which reflects our expectation that a portion of our income will be subject to the Federal alternative minimum tax in 2010, which is almost entirely offset by a release of valuation allowance discussed above.

Critical Accounting Policies

General

Our discussion and analysis of our financial condition and results of operations are based on our financial statements, which we have prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates, including those related to revenue recognition, inventory valuation, deferred tax assets, share-based compensation, and contingencies. We base our estimates on historical experience and on various other assumptions that we believe are reasonable. These results form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

We believe that the following critical accounting policies reflect our more significant judgments and estimates used in the preparation of our financial statements.

Revenue Recognition

We generate revenues primarily from collaborative agreements, research licenses, and a government contract. We evaluate revenues from agreements that have multiple elements to determine whether the components of the arrangement represent separate units of accounting. To recognize a delivered item in a multiple element arrangement, the delivered items must have value on a stand alone basis, there must be objective and reliable evidence of fair value of the undelivered items, and the delivery or performance must be probable and within our control for any delivered items that have a right of return. The determination of whether multiple elements of a collaboration agreement meet the criteria for separate units of accounting requires us to exercise judgment.

Revenues from research licenses and government contracts are recognized as earned upon either the incurring of reimbursable expenses directly related to the particular research plan or the completion of certain development milestones as defined within the terms of the agreement. Payments received in advance of research performed are designated as deferred revenue. Non-refundable upfront license fees and certain other related fees are recognized on a straight-line basis over the development periods of the contract deliverables. Fees associated with substantive at risk performance based milestones are recognized as revenue upon their completion, as defined in the respective agreements. Incidental assignment of technology rights is recognized as revenue as it is earned and received.

In October 2008, we entered into a Collaboration Agreement with Genzyme for the development and commercialization of Prochymal and Chondrogen. Under this agreement, Genzyme paid to us non-contingent, non-refundable cash payments totaling \$130.0 million. The agreement provided

Genzyme with certain rights to intellectual property developed by us, and required that we continue to perform certain development work related to the subject biologic drug candidates. We have evaluated the deliverables related to these payments, and concluded that the various deliverables represent a single unit of accounting. For this reason, we have deferred the recognition of revenue related to the upfront payments, and are amortizing these amounts to revenue on a straight-line basis over the estimated delivery period of the required development services, which extend through January 2012. Accordingly, we recognized \$40.0 million of revenue in each of the years ended December 31, 2011, 2010 and 2009 related to the amortization of the upfront payments. The balance of these payments has been recorded as \$3.3 million of current deferred revenue as of December 31, 2011.

In February 2012, Sanofi issued a press release which included an update on their R&D pipeline, stating that it has "discontinued" its project with Prochymal for GvHD. The statement issued by Sanofi was made without consultation with or knowledge by us. Through our legal counsel, we have advised Sanofi that we are treating these public statements as Sanofi's election to terminate the collaboration agreement. The agreement provides for voluntary termination by Sanofi and that, upon such voluntary termination, all rights to Prochymal revert back to us, and we are free to commercialize or enter into commercialization agreements for Prochymal with other parties without restriction. While we have been proceeding on the basis that Sanofi has terminated the collaboration agreement, Sanofi has since advised us that it disagrees with our characterization of their press release. We have requested an explanation from Sanofi with respect to their statements regarding Prochymal. There can be no assurances as to the outcome of these matters. However, we continue to proceed with our Prochymal regulatory approval efforts and, if successful, commercialization, alone or with another collaborator.

In 2007, we also partnered with Genzyme to develop Prochymal as a medical countermeasure to nuclear terrorism and other radiological emergencies. In January 2008, we were awarded a contract from the United States Department of Defense ("DoD") pursuant to which we, in partnership with Genzyme, are seeking to develop and stockpile Prochymal for the repair of gastrointestinal injury resulting from acute radiation exposure. We began recognizing revenue under this contract during the first quarter of 2008. Contract revenue is recognized as the related costs are incurred, in accordance with the terms of the contract. We recognized approximately \$470,000, and \$3.0 million in revenue from the DoD contract during 2010, and 2009, respectively. We did not work on nuclear countermeasures during fiscal 2011 and are not pursuing any additional government contracts for this indication. Our agreement with Genzyme for nuclear countermeasures expired, in accordance with the terms of the contract in fiscal 2010.

In October 2007, we entered into a collaborative agreement with the Juvenile Diabetes Research Foundation ("JDRF") to conduct a Phase 2 clinical trial evaluating Prochymal as a treatment for type 1 diabetes mellitus. This collaborative agreement provides for JDRF to provide up to \$4.0 million of contingent milestone funding to support the development of Prochymal for the preservation of insulin production in patients with newly diagnosed type 1 diabetes mellitus. The contingent milestone payments under the agreement are amortized to revenue on a straight line basis over the duration of our obligations under the collaborative agreement as they are earned. As of December 31, 2011, we had achieved all \$4.0 million of the contingent milestones under the contract, and we have recognized all \$4.0 million as revenue. We began amortizing the each payment as it was received, resulting in \$960,000 of revenue during fiscal 2011 and \$1.2 million of revenue during both 2010 and 2009 under the agreement with JDRF.

We have also entered into strategic agreements with other pharmaceutical companies focusing on the development and commercialization of our stem cell drug products. For example, in 2003, we entered into an agreement with JCR Pharmaceuticals Co., Ltd. ("JCR") pertaining to hematologic malignancies (GvHD) drugs for distribution in Japan. Under such agreements, we receive fees for licensing the use of our technology. We recognized \$1.0 million of revenue during the first fiscal quarter of 2010 from JCR upon the achievement of a milestone event specified in the agreement.

We also earn royalties on the sale of human mesenchymal stem cells sold for research purposes and recognize the revenue on these sales as the sales are made. Revenues include approximately \$65,000 of royalty revenue during fiscal 2011 and \$300,000 during each of the years 2010 and 2009.

In the third quarter of 2009, we created a new Biosurgery segment, focused on developing high-end biologic products for use in surgical procedures. We commenced manufacturing our first Biosurgery product during the first quarter of 2010 and began distributing the product only for initial clinical evaluation. We launched the product for limited commercial distribution in the third quarter of 2010 and have recognized revenues of \$183,000 during fiscal 2010. During fiscal 2011, we recognized \$1.3 million of Biosurgery revenue.

Legal title passes to the customers when the product leaves our shipping dock and we recognize revenue upon shipping the product. Due to the nature of the products and the manufacturing process, we do not allow refunds or returns.

Investments Available for Sale and Other Comprehensive Income

Investments available for sale consist primarily of marketable securities with maturities less than one year. Investments available for sale are valued at their fair value, with unrealized gains and losses reported as a separate component of stockholders' equity in accumulated other comprehensive income. All realized gains and losses on our investments available for sale are recognized in results of operations as investment income, a component of "Other income (expense), net".

Investments available for sale are evaluated periodically to determine whether a decline in their value is "other than temporary." Management reviews criteria such as the magnitude and duration of the decline, as well as the reasons for the decline, to predict whether the loss in value is other than temporary. If a decline in value is determined to be other than temporary, the value of the security is reduced and a corresponding charge to earnings is recognized.

Accounts Receivable

Accounts receivable are reported at their net realizable value. We charge off uncollectible receivables when the likelihood of collection is remote. We consider receivables outstanding more than 45-days to be past due. As of December 31, 2011 and 2010, there was no allowance for doubtful accounts related to accounts receivable, as we believe the reported amounts are fully collectible. Accounts receivable balances are not collateralized. We have incurred bad debt expense of \$3,000 related to our Biosurgery operations during fiscal 2011 and no bad debts expense during the two years ended December 31, 2010.

Inventory

We commenced limited distribution of our Biosurgery products during the third quarter of 2010, and began carrying inventory on our balance sheet thereafter. Inventory consists of raw materials, biologic products in process, and products available for distribution. We determine our inventory values using the first-in, first-out method. Inventory is valued at the lower of cost or market, and excludes units that we anticipate distributing for clinical evaluation.

We do not carry any inventory for our Therapeutics products, as none of the products from this segment are currently available for commercial sale. Its operations have focused on clinical trials and discovery efforts to identify additional medical indications. Accordingly, manufactured clinical doses of our drug candidates are expensed as incurred, consistent with our accounting for all other research and development costs.

Valuation of Long-lived Assets

We review long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset or group of assets may not be fully recoverable. These events or changes in circumstances may include a significant deterioration of operating results, changes in business plans, or changes in anticipated future cash flows. If an impairment indicator is present, we evaluate recoverability by a comparison of the carrying amount of the assets to future undiscounted net cash flows expected to be generated by the assets. Assets are grouped at the lowest level for which there is identifiable cash flows that are largely independent of the cash flows generated by other asset groups. If the total of the expected undiscounted future cash flows is less than the carrying amount of the asset, an impairment loss is recognized for the difference between the fair value and carrying value of assets. Fair value is generally determined by estimates of discounted cash flows. The discount rate used in any estimate of discounted cash flows would be the rate required for a similar investment of like risk. There were no impairment losses recognized during the fiscal years 2011, 2010 or 2009.

Research and Development Costs

We expense internal and external research and development ("R&D") costs, including costs of funded R&D arrangements and the manufacture of clinical batches of our biologic drug candidates used in clinical trials, in the period incurred.

Prior to 2010, internal resources were applied interchangeably across several product candidates due to the potential applicability of our biologic drug candidates for multiple indications. Therefore, it is not possible to allocate internal R&D costs on either a project-by-project or product-by-product basis in 2009.

Beginning in 2010, with the creation of our Biosurgery segment, we began to separately track research and development costs by segment. During fiscal 2011, our total research and development expenses were \$15.8 million for our Therapeutics segment and \$3.3 million for our Biosurgery segment. For 2010, our total research and development costs were \$19.1 million for our Therapeutics segment and \$4.4 million for our Biosurgery segment. As described above, we do not track internal development costs by project within the Therapeutics segment. We do, however, track external research and development costs on a project basis. During fiscal 2011, our external research and development expenses, including third party contract costs, supply and lab costs and other miscellaneous external costs were approximately \$6.3 million for acute myocardial infarction, \$1.4 million for steroid refractory Crohn's disease, \$830,000 for treatment resistant GvHD and \$400,000 for other therapeutic programs.

For 2010, our external research and development costs, including third party contract costs, supply and lab costs, and other miscellaneous external costs, were approximately \$4.1 million for Prochymal to repair heart tissue following a heart attack, \$2.8 million for treatment resistant GvHD, \$1.7 million for Prochymal for the protection of pancreatic islet cells in patients with type 1 diabetes, \$700,000 for Prochymal to treat COPD, and approximately \$155,000 for other therapeutic programs..

Income Taxes

Deferred tax liabilities and assets are recognized for the estimated future tax consequences of temporary differences, income tax credits and net operating loss carry-forwards. Temporary differences are primarily the result of the differences between the tax bases of assets and liabilities and their financial reporting values. Deferred tax liabilities and assets are measured by applying the enacted statutory tax rates applicable to the future years in which deferred tax liabilities or assets are expected to be settled or realized. Valuation allowances are established when necessary to reduce deferred tax assets to the amount expected to be realized. Income tax expense, if any, consists of the taxes payable for the current period and the change during the period in deferred tax assets and liabilities.

We recognize in our financial statements the impact of a tax position, if that position is more likely than not to be sustained upon an examination, based on the technical merits of the position. Interest and penalties related to income tax matters are recorded as income tax expense. At December 31, 2011 and 2010, we had no accruals for interest or penalties related to income tax matters.

Share-Based Compensation

We account for share-based payments using the fair value method.

We recognize all share-based payments to employees and non-employee directors in our financial statements based on their grant date fair values, calculated using the Black-Scholes option pricing model. Compensation expense related to share-based awards is recognized on a straight-line basis based on the value of share awards that are expected to vest during the requisite service period on the grant date, which is revised for forfeitures.

Recent Accounting Guidance Not Yet Adopted at December 31, 2011

In May 2011, ASU 2011-4, *Fair Value Measurement* (Topic 820)— *Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRSs* ("ASU 2011-4") was issued to standardize requirements for measuring and disclosing fair value information under U.S. GAAP and IFRS. This guidance primarily changes the wording used to describe disclosure requirements under U.S. GAAP, but is not intended to change the application of those requirements. ASU 2011-4 is effective for interim or annual periods beginning after December 15, 2011 with early adoption not permitted. Since ASU 2011-4 changes the wording used to describe the fair value disclosure requirements, but does not materially change the actual requirements, the adoption of ASU 2011-4 will not have a material impact on our financial statements.

In June 2011, ASU 2011-5, *Comprehensive Income* (Topic 220)— *Presentation of Comprehensive Income* ("ASU 2011-5") was issued to increase the prominence of items reported in other comprehensive income. Specifically, this guidance requires entities to report all non owner changes in stockholders' equity in either a single continuous statement of comprehensive income or in two separate, but consecutive, statements. This guidance eliminates the current financial reporting option for an entity to report the components of other comprehensive income as a part of the statement in changes in stockholders' equity. Further, this guidance requires presentation of all reclassification adjustments between net income and other comprehensive income on the face of the financial statements. ASU 2011-5 is effective for interim or annual periods beginning after December 15, 2011, with early adoption permitted. We will be required to change the format of our financial statements when this guidance becomes effective, and are currently evaluating which of the two permissible formats to use. The adoption of ASU 2011-5 will not have a material impact on our financial position or results of operations.

In July 2011, ASU 2011-7, *Health Care Entities* (Topic 954)— *Presentation and Disclosure of Patient Service Revenue, Provision for Bad Debts, and Allowance for Doubtful Accounts for Certain Health Care Entities* ("ASU 2011-7") was issued to increase the transparency of net patient service revenue and the related allowance for doubtful accounts for health care entities. Specifically, this guidance requires entities to report the provision for bad debts associated with patient service revenue as a deduction from patient service revenues as opposed to as an operating expense. This guidance also requires enhanced disclosures regarding the accounting policies for revenues and assessing bad debts. ASU 2011-7 is effective for interim or annual periods beginning after December 15, 2011, with early adoption permitted. The adoption of ASU 2011-7 will not have a material impact on our financial position or results of operations.

Results of Operations

Year ended December 31, 2011 compared to December 31, 2010

Revenues from Collaborative Research Agreements, Government Contract and Royalties

Revenues from collaborative research agreements and royalties were \$41.1 million during fiscal 2011 compared to \$43.0 million during fiscal 2010. During fiscal 2011, we recognized \$40.0 million in revenue from the collaborative agreement with Genzyme, \$960,000 from our collaboration with JDRF, \$115,000 from our compassionate use protocol for treatment resistant GvHD in adults and \$65,000 in royalties. Our revenues for fiscal 2010 also included \$40.0 million from the Genzyme agreements, \$1.2 million from the JDRF collaboration, \$1.0 million milestone payment from the license agreement with JCR Pharmaceuticals and \$470,000 for the government contract with the United States Department of Defense.

Biosurgery Product Revenues & Gross Profit

We began developing an internal distribution network during fiscal 2011 and are increasing our network of distributors for our Biosurgery products. During fiscal 2011, we recognized revenues of \$1.3 million compared to \$183,000 during fiscal 2010. We are continuing to distribute some Biosurgery products for clinical evaluation and expect to commence a reimbursement clinical trial during fiscal 2012. Our gross profit on Biosurgery products was \$732,000 during fiscal 2011, which represents approximately 58% of revenues. Our gross profit in 2010 was approximately 66% of revenues. We expect our gross profit to vary while we continue to increase distribution and more fully utilize our production facilities in a consistently efficient manner.

Research and Development Expenses

Research and development expenses during fiscal 2011 were \$19.2 million compared to \$23.5 million during fiscal 2010. Research and development expenses for 2011 include \$15.8 million incurred in our Therapeutics segment and \$3.3 million in our Biosurgery segment, compared to \$19.1 million of Therapeutics research and development costs and \$4.4 of Biosurgery R&D during fiscal 2010. The decline in Therapeutics R&D expenses during fiscal 2011 of approximately \$3.3 million is principally related to the completion of the majority of patient treatment costs in our Phase 2 cardiac trial.

General and Administrative Expenses

General and administrative expenses during fiscal 2011 were \$5.9 million compared to \$6.3 million during fiscal 2010. The change between fiscal years is not material.

Other Income, net

Other income, net consists of our net realized investment income earned on our investments available for sale. Other income, net was \$100,000 during fiscal 2011 and \$175,000 during fiscal 2010. The decrease between years reflects the reductions in our investments available for sale to fund our operations combined with the very low yields offered on investment grade securities during fiscal 2011.

Income taxes

Income taxes of \$43,000 was recognized in fiscal 2011 and resulted from the true-up of our tax asset accounts in connection with the filing of our 2010 income tax returns. Income taxes of \$241,000 was recognized during fiscal 2010 and consists of Federal income tax of \$2.7 million, state income tax of \$1.2 million, net of the release of valuation allowance release of \$3.2 million and the true of our

income tax payable account to the 2009 income tax returns. We do not expect to be liable for the alternative minimum tax for fiscal 2011.

Fees Paid to Related Parties, Including Share-Based Payments

Share-based payments to members of our Board of Directors were \$1.9 million during fiscal 2011 compared to \$74,000 during fiscal 2010. The fiscal 2011 charge includes a one-time non cash charge of approximately \$1.7 million related to the extension of the expiration date of a warrant held by the chairman of our board of directors. This transaction was approved by our stockholders at our 2011 annual meeting. Non-employee members of our board of directors are compensated by an annual award of stock that is paid in either unrestricted shares of our common stock or cash, or a combination of stock and cash. During fiscal 2011, we issued 25,000 shares of common stock and paid \$36,000 cash to our non-employee directors. During fiscal 2010, we issued 11,500 shares of common stock and paid \$74,000 cash to our non-employee directors.

Year ended December 31, 2010 compared to December 31, 2009

Revenues from Collaborative Research Agreements, Government Contract and Royalties

Revenues from collaborative research agreements, government contract and royalties were \$43.0 million during fiscal 2010 compared to \$44.5 million in fiscal 2009. During 2010, we recognized \$40.0 million in revenue from our collaborative agreement with Genzyme, \$1.0 million from our collaboration with JCR, and \$1.2 million from our collaborative agreement with JDRF. Our revenues for 2010 also include \$470,000 from our contract with the DoD to develop Prochymal for the treatment of acute radiation syndrome, plus royalties on MSCs sold for research purposes. Revenues for 2009 were comprised primarily of \$40.0 million in revenue from the Genzyme Collaboration Agreement, \$3.0 million from our contract with DoD and \$1.2 million from the JDRF agreement.

Biosurgery Product Revenues

During 2010, we launched limited commercial distribution of wound care products manufactured by our Biosurgery segment and recognized \$183,000 in revenue and gross profit of \$121,000. During 2010, we distributed the majority of these products for clinical evaluation and expect commercial distribution to increase slowly until we obtain reimbursement approvals.

Research and Development Expenses

Research and development expenses for fiscal 2010 were \$23.5 million as compared to research and development expenses of \$63.3 million for 2009. Research and development expenses for 2010 include \$4.4 million of development and initial manufacturing costs associated with our Biosurgery segment. The reduction in research and development expenses during 2010 when compared to the prior year reflects the completion of enrollment in several of our Phase 3 clinical trials and the associated reduction in site and patient costs. The reduction also reflects a \$21.7 million reduction in our contract manufacturing activities as a result of the need for fewer clinical batches of Prochymal. We also incur research and development expenses in connection with the preparation of our applications for marketing approval as we work towards the commercialization of Prochymal for an initial indication.

General and Administrative Expenses

General and administrative expenses were \$6.5 million in fiscal 2010 compared to \$8.8 million in fiscal 2009. The decrease in general and administrative expenses is primarily attributable to reductions in our average number of employees during the year, incentive compensation, non cash share-based compensation expense and reductions in our legal and accounting fees, including expenses related to our intellectual property. The non cash charge for share-based compensation, including share grants to

members of our Board of Directors, allocated to general and administrative expenses during 2010 was approximately \$800,000 as compared to \$1.5 million in 2009. Approximately \$400,000 of the remaining decrease was due to a reduction in legal, accounting and public company fees.

Board Compensation

We pay fees to members of our Board of Directors through awards of our common stock and/or a combination of stock and cash, valued at the then current closing price of our stock on the NASDAQ Global Market. In 2010, the total compensation expense for services rendered by our Board was \$161,000 compared to \$495,000 in 2009.

Other Income, net

Other income, net was \$175,000 during 2010, compared to \$1.3 million in fiscal 2009. Other income in 2010 consisted primarily of interest income on our investments available for sale, which consists of relatively short-term, investment grade securities with a focus on avoiding market risk. Other income in 2009 includes approximately \$900,000 of realized gains on the sale of shares of NuVasive common stock that we received in conjunction with the sale of our Osteocel operations. Interest expense was immaterial in both periods.

Income Tax (Expense) Benefit

Income tax expense in 2010 was \$241,000, and consists of the Federal Alternative Minimum Tax on our taxable income of \$661,000, net of the true-up of the income tax payable accounts to our 2009 income tax returns. During 2010, we released \$3.2 of our valuation allowance related to the differences between income tax accounting and financial reporting for our deferred revenues related to our collaboration agreement with Genzyme. In 2009, we recorded \$1.6 million of income tax expense which consisted of the Federal Alternative Minimum Tax on our taxable income. We recognized an income tax benefit of \$2.7 million on continuing operations and income tax expense of \$4.3 million on discontinued operations in 2009.

Income from Discontinued Operations

Our Osteocel operations were sold in an installment sale during fiscal 2008 and 2009 for a total of \$85.0 million, as follows:

<u>Payments</u>	<u>Amount</u> <u>(\$000)</u>	<u>Payment Date</u>
Initial cash payment	\$ 35,000	July 2008
Cumulative sales to NuVasive of 75,000 ccs of Osteocel, paid in cash	5,000	January 2009
Accelerated Manufacturing Assets Closing, paid in cash	5,000	March 2009
Installment paid in stock	12,500	June 2009
Installment paid in stock	12,500	September 2009
Milestone payment due upon NuVasive achieving at least \$35.0 million in cumulative sales of Osteocel, paid in stock	15,000	November 2009
Total sales price	<u>\$ 85,000</u>	

We recognized income of \$38.1 million from discontinued operations during fiscal 2009. We did not recognize any income or expense from discontinued operations during fiscal 2010.

Liquidity and Capital Resources

Liquidity

At December 31, 2011, we had \$1.7 million in cash and \$45.6 million in investments available for sale. In addition, we have not had any outstanding debt at any time since fiscal 2008.

During the fiscal year ended December 31, 2008, we generated cash from operating activities for the first time since our inception, as a result of the \$75.0 million portion of the up front fees received under the Collaboration Agreement with Genzyme. We generated a further \$55.0 million of cash in up front fees during fiscal 2009. We used a portion of these proceeds to completely extinguish our debt during 2008, and have since consistently made purchases of investments available for sale with our excess cash. We have used these receipts to fund our operations since fiscal 2008. Although there can be no assurances, we believe that we have sufficient liquidity on hand as of December 31, 2011 to fund our operations through the anticipated date of commercialization of our first biological drug candidate.

Cash Flow

The following table sets forth a summary of our cash flows for each of our three most recently completed fiscal years:

	Years Ended December 31,		
	2011	2010	2009
	(amounts in thousands)		
Net cash used in operating activities	\$ (20,436)	\$ (33,189)	\$ (12,113)
Net cash provided by investing activities	20,504	33,180	12,447
Net cash provided by financing activities	151	145	32

Net cash used in operating activities during fiscal 2011 was \$20.4 million, and primarily reflects the amortization of deferred revenue related to the Genzyme collaboration agreement, partially offset by our net income of \$14.9 million and non cash expenses of \$4.2 million.

Net cash used in operating activities was \$33.2 million for the twelve months ended December 31, 2010, primarily reflecting the amortization of the deferred revenue received from Genzyme, partially offset by our net income.

We had a net use of cash by our operating activities during fiscal 2009 of \$12.1 million, primarily as the result of our receiving an aggregate of \$40.0 million from the sale of our Osteocel asset group through the delivery of shares of NuVasive common stock, as provided for under the Asset Purchase Agreement. Comprising this amount, payments of \$12.5 million were made to us on June 30, 2009 and September 30, 2009, and a payment of \$15.0 million was made to us in October 2009, all through the delivery of shares of NuVasive common stock having equivalent value. The cash proceeds from these shares are reported as cash generated by our financing activities. Had these payments been received in cash instead of shares of stock to be subsequently sold, the cash flow would have been reported as cash provided by operating activities, resulting in net cash provided by operating activities during 2009.

During fiscal 2009, our continuing operations used \$5.5 million of cash, primarily reflecting our loss from continuing operations and cash used to fund operating assets, which was partially offset by the \$55.0 million installment of up front payments received from Genzyme on July 1, 2009. Net cash used by discontinued operations was \$6.6 million for the year ended December 31, 2009, which was the result of \$40.0 million of the payments for the sale of our Osteocel line of business being received in shares of stock as discussed above.

Net cash provided by investing activities during fiscal 2011 was \$20.5 million and primarily reflects proceeds from the sales of our investments to fund our operations. Net cash provided by investing activities was \$33.2 million for the twelve months ended December 31, 2010, virtually all of which was

the result of our sale of investments available for sale to fund operations. Net cash provided by investing activities was \$12.4 million for the twelve months ended December 31, 2009, all of which was attributable to our continuing operations. During that period, we generated \$9.7 million of cash from the sale of our Osteocel asset group and had \$54.2 million of proceeds from the sale of investments available for sale, primarily representing the sale of the NuVasive shares of common stock we received as partial payment for the Osteocel line of business, as described above. These cash inflows were partially offset by \$50.2 million of purchases of investments available for sale with our excess cash on hand during the year.

Net cash provided by financing activities was insignificant in each of the three years ended December 31, 2011.

Capital Resources.

Our future capital requirements will depend on many factors, including:

- the scope and results of our research and preclinical development programs;
- the scope and results of our clinical trials, particularly regarding the number of patients required for our Phase 3 trials;
- the timing of and the costs involved in obtaining regulatory approvals for our biologic drug candidates, which could be more lengthy or complex than obtaining approval for a new conventional drug, given the FDA's limited experience with late-stage clinical trials and marketing approval for stem cell therapeutics;
- the resolution (or not) of the uncertainty regarding the status of the Genzyme collaboration agreement, and the cost involved in pursuing such resolution;
- the costs of maintaining, expanding and protecting our intellectual property portfolio, including possible litigation costs and liabilities; and
- the costs of enlarging our work force consistent with expanding our business and operations and distribution of our Biosurgery products and if approved for sale, our biological drug product.

We did not have any outstanding debt at any time during 2011. As a result of our financial position and forecasts as of December 31, 2011, we believe that we have sufficient liquidity on hand as of that date to fund our operations through the expected date of initial commercialization of our biological drug candidate.

Off-Balance Sheet Arrangements.

We have no off-balance sheet financing arrangements and we have not entered into any transactions involving unconsolidated subsidiaries or special purpose entities.

Future Contractual Obligations

The following table sets forth our estimates as to the amounts and timing of contractual payments for our most significant contractual obligations at December 31, 2011. The information in the table reflects future unconditional payments and is based on the terms of the relevant agreements,

appropriate classification of item under accounting principles generally accepted in the United States and certain assumptions. Future events could cause actual payments to differ from these amounts.

<u>Contractual Obligations</u>	<u>Payment Due by Fiscal Year</u>				
	<u>Total</u>	<u>Less Than 1-Year</u>	<u>Years 1-3</u>	<u>Years 4-5</u>	<u>More Than 5-Years</u>
	(amounts in thousands)				
Operating lease—facilities	\$ 5,211	\$ 1,109	\$ 2,302	\$ 1,800	\$ —
Contract Research Organizations	6,240	6,240	—	—	—
Total contractual cash obligations	\$ 11,451	\$ 7,349	\$ 2,302	\$ 1,800	\$ —

Contract Research Organizations. We contract with independent contract research organizations, or CROs, to perform many of the tasks required under our clinical trials of our biological drug candidates, and we utilize their testing expertise to ensure the objectivity of the clinical results. Under the terms of these agreements, we design the protocol regarding the testing to be performed, and the CRO assists in the enrollment of the patients and testing sites, administers the trial, performs statistical analysis of the results, and compiles the final report.

We pay fees directly to the CROs for their professional services, which may be payable upon specified trial milestones or as they provide services, depending on the structure of the contract. We are also responsible for reimbursing the CROs for certain pass thru expenses they incur in administering the trial. The timing of our payments to the CROs is dependent upon the progress of the various trials, which is highly variable dependent upon the speed with which the CROs are able to enroll patients and testing sites. As such, we are unable to specifically predict the timing of future payments to CROs.

As of December 31, 2011, we had active contracts with CROs related to three on-going clinical trials which were in varying stages of completion. The total contracted payments to CROs under these agreements were \$24.3 million, of which we had incurred approximately \$18.1 million as of that date. Although we cannot directly control the timing of the remaining payments, based on our estimates and assumptions as of December 31, 2011, we expect to pay our remaining obligations of \$6.2 million to these CROs during 2012.

Subsequent to December 31, 2011, we contracted with a CRO to perform a clinical trial for our Biosurgery segment. This contract provides for total costs of approximately \$4.5 million over a period of approximately 2.5 years. Since the CRO has not yet begun work under this contract, we are presently unable to accurately predict the timing of these payments.

Leases. During 2006, we entered into a sublease agreement for approximately 61,000 square feet of laboratory, production, warehouse and office space in Columbia, Maryland. We have also entered into a direct lease with the owner of this facility that was effective as of June 1, 2009 upon the expiration of the sublease and expires in July 2016. During 2009, following the expiration of the sublease agreement, we increased an outstanding letter of credit, which was used in lieu of a security deposit for this lease, to \$591,000 according to the terms of the direct lease with the owner of the facility. At each of July 1, 2011 and 2010, the security deposit required under this lease decreased to \$372,000 and \$446,000, respectively. We reduced our outstanding letter of credit accordingly, and the reduced letter of credit of \$372,000 remained outstanding as of December 31, 2011, and has been fully collateralized by restricted cash.

Effect of Inflation.

Inflation and changing prices are not generally a material factor affecting our business. General operating expenses such as salaries, employee benefits and lease costs are, however, subject to normal inflationary pressures.

ITEM 7A. Quantitative and Qualitative Disclosures about Market Risk.

Interest Rate Risk

Due to the short duration of our investment portfolio and the high quality of our investments, an immediate 10% change in interest rates would not have a material effect on the value of our portfolio. Therefore, we would not expect our operating results or cash flows to be affected to any material degree by the effect of a sudden change in market interest rates on our securities portfolio.

We believe that the interest rate risk related to our accounts receivable is not significant. We manage the risk associated with these accounts through periodic reviews of the carrying value for non-collectability and establishment of appropriate allowances in connection with our internal controls and policies.

Foreign Current Exchange Rate Risk

We conduct clinical trial activities in areas that operate in a functional currency other than the United States dollar (USD). As a result, when the USD rises and falls against the functional currencies of these other nations, our costs will either increase or decrease by the relative change in the exchange rate. Foreign currency gains and losses were not material during the three years ended December 31, 2011, and at the present time, we have elected not to hedge our exposure to foreign currency fluctuations.

Derivative Instruments

We do not enter into hedging or derivative instrument arrangements.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

OSIRIS THERAPEUTICS, INC.

FINANCIAL STATEMENTS

INDEX

	<u>Page</u>
Management's Report on Internal Control Over Financial Reporting	74
Reports of Independent Registered Public Accounting Firm	75
Balance Sheets at December 31, 2011 and 2010	77
Statements of Operations for the years ended December 31, 2011, 2010 and 2009	78
Statements of Stockholders' Equity (Deficit) for the years ended December 31, 2011, 2010 and 2009	79
Statements of Cash Flows for the years ended December 31, 2011, 2010 and 2009	80
Notes to Financial Statements	81
FINANCIAL STATEMENT SCHEDULES*	
<u>SCHEDULE II—Valuation and Qualifying Accounts</u>	107

* All other information and financial statement schedules are omitted because they are not applicable, or required, or because the required information is included in the consolidated financial statements or notes thereto.

REPORT OF MANAGEMENT

Management's Report on Financial Statements

Our management is responsible for the preparation, integrity and fair presentation of information in our financial statements, including estimates and judgments. The financial statements presented in this Annual Report on Form 10-K have been prepared in accordance with accounting principles generally accepted in the United States of America. Our management believes the financial statements and other financial information included in this Annual Report on Form 10-K fairly present, in all material respects, our financial condition, results of operations and cash flows as of and for the periods presented in this Annual Report on Form 10-K. The financial statements included herein have been audited by Grant Thornton LLP, an independent registered public accounting firm, as stated in their report .

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America.

Our internal control over financial reporting includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect our transactions and dispositions of our assets;
- provide reasonable assurance that our transactions are recorded as necessary to permit preparation of our financial statements in accordance with accounting principles generally accepted in the United States of America, and that our receipts and expenditures are being made only in accordance with authorization of our management and our directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of our assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting can provide only reasonable assurance and may not prevent or detect misstatements. Also, projections of any evaluation of the effectiveness of such controls in future periods are subject to the risk that the controls may become inadequate because of changes in conditions or that the degree of compliance with the policies and procedures may deteriorate.

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2011. In making this assessment, our management used the criteria set forth in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on its assessment, our management concluded that, as of December 31, 2011, our internal control over financial reporting was effective based on those criteria.

Grant Thornton LLP has issued an attestation report on our internal control over financial reporting. This report is included in the Report of Independent Registered Public Accounting Firm on the following page.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Shareholders of
Osiris Therapeutics, Inc.

We have audited Osiris Therapeutics, Inc.'s (a Maryland Corporation) internal control over financial reporting as of December 31, 2011, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Osiris Therapeutics, Inc.'s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on Osiris Therapeutic, Inc.'s internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, Osiris Therapeutics, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2011, based on criteria established in Internal Control—Integrated Framework issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the balance sheets of Osiris Therapeutics, Inc. as of December 31, 2011 and 2010, and the related statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2011 and our report dated March 14, 2012 expressed an unqualified opinion on those financial statements.

/s/ Grant Thornton LLP

Baltimore, Maryland
March 14, 2012

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Shareholders of
Osiris Therapeutics, Inc.

We have audited the accompanying balance sheets of Osiris Therapeutics, Inc. (a Maryland corporation) (the "Company") as of December 31, 2011 and 2010, and the related statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2011. Our audits of the basic financial statements included the financial statement schedule listed in the index appearing under Item 15(a)(2). These financial statements and financial statement schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and financial statement schedule based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Osiris Therapeutics, Inc. as of December 31, 2011 and 2010, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2011 in conformity with accounting principles generally accepted in the United States of America. Also, in our opinion, the related financial statement schedule, when considered in relation to the basic financial statements taken as a whole, presents fairly, in all material respects, the information set forth therein.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the Company's internal control over financial reporting as of December 31, 2011, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) and our report dated March 14, 2012 expressed an unqualified opinion.

/s/ Grant Thornton LLP

Baltimore, Maryland
March 14, 2012

OSIRIS THERAPEUTICS, INC.

BALANCE SHEETS

(amounts in thousands, except per share amounts)

	December 31,	
	2011	2010
Assets		
Current assets:		
Cash	\$ 1,661	\$ 1,442
Investments available for sale	45,604	66,166
Accounts receivable	728	1,928
Inventory	767	510
Deferred tax asset	2,188	3,170
Prepaid expenses and other current assets	470	736
Total current assets	<u>51,418</u>	<u>73,952</u>
Property and equipment, net	2,463	3,127
Restricted cash	392	521
Other assets	—	184
Total assets	<u>\$ 54,273</u>	<u>\$ 77,784</u>
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable and accrued expenses	\$ 4,692	\$ 5,569
Deferred revenue, current portion	3,333	40,960
Total current liabilities	<u>8,025</u>	<u>46,529</u>
Deferred revenue, net of current portion	—	3,333
Other long-term liabilities	430	465
Total liabilities	<u>8,455</u>	<u>50,327</u>
Stockholders' equity		
Common stock, \$.001 par value, 90,000 shares authorized, 32,828 shares outstanding—2011, 32,794 shares outstanding—2010	33	33
Additional paid-in-capital	278,092	274,646
Accumulated other comprehensive income (loss)	20	(3)
Accumulated deficit	(232,327)	(247,219)
Total stockholders' equity	<u>45,818</u>	<u>27,457</u>
Total liabilities and stockholders' equity	<u>\$ 54,273</u>	<u>\$ 77,784</u>

The accompanying notes are an integral part of these financial statements.

OSIRIS THERAPEUTICS, INC.
STATEMENTS OF OPERATIONS
(amounts in thousands, except per share data)

	Year Ended December 31,		
	2011	2010	2009
Product revenues	\$ 1,263	\$ 183	\$ —
Cost of product revenues	531	62	—
Gross profit	732	121	—
Revenue from collaborative research agreements, government contract and royalties	41,140	43,021	44,533
Operating expenses:			
Research and development	19,156	23,501	63,266
General and administrative	5,927	6,289	8,312
Fees paid to related parties	36	87	95
Share-based payments to related parties	1,918	74	400
	27,037	29,951	72,073
Income (loss) from operations	14,835	13,191	(27,540)
Other income, net	100	175	1,277
Income (loss) from continuing operations, before income taxes	14,935	13,366	(26,263)
Income tax (expense) benefit	(43)	(241)	2,699
Income (loss) from continuing operations	14,892	13,125	(23,564)
Discontinued operations:			
Income from operations of discontinued operations, net of income taxes of \$120 in 2009	—	—	1,084
Gain from sale of discontinued operations, net of income taxes of \$4,121 in 2009	—	—	37,052
Income from discontinued operations	—	—	38,136
Net income	<u>\$ 14,892</u>	<u>\$ 13,125</u>	<u>\$ 14,572</u>
Basic income per share			
Income (loss) from continuing operations	\$ 0.45	\$ 0.40	\$ (0.72)
Income from discontinued operations	—	—	1.16
Basic earnings per share	<u>\$ 0.45</u>	<u>\$ 0.40</u>	<u>\$ 0.45</u>
Diluted income per share			
Income (loss) from continuing operations	\$ 0.45	\$ 0.40	\$ (0.72)
Income from discontinued operations	—	—	1.16
Diluted earnings per share	<u>\$ 0.45</u>	<u>\$ 0.40</u>	<u>\$ 0.45</u>
Weighted Average Common Shares (basic)	<u>32,820</u>	<u>32,784</u>	<u>32,742</u>
Weighted Average Common Shares (diluted)	<u>33,118</u>	<u>33,097</u>	<u>32,742</u>

The accompanying notes are an integral part of these financial statements.

OSIRIS THERAPEUTICS, INC.

STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT)

(amounts in thousands, except for share and per share data)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount				
Balance at January 1, 2009	32,675,920	\$ 33	\$ 269,830	\$ 33	\$ (274,916)	\$ (5,020)
Exercise of options to purchase common stock (\$.40-\$13.33 per share)	75,911	—	575	—	—	575
Share-based payment-director services (\$18.50 per share)	21,500	—	400	—	—	400
Share-based payment- employee compensation	—	—	2,154	—	—	2,154
Comprehensive income:						
Net income	—	—	—	—	14,572	14,572
Unrealized loss on investments available for sale	—	—	—	(121)	—	(121)
Total comprehensive income						14,451
Balance at December 31, 2009	32,773,331	\$ 33	\$ 272,959	\$ (88)	\$ (260,344)	\$ 12,560
Exercise of options to purchase common stock (\$.40 per share)	8,626	—	3	—	—	3
Share-based payment-director services (\$6.46 per share)	11,500	—	74	—	—	74
Share-based payment- employee compensation	—	—	1,610	—	—	1,610
Comprehensive income:						
Net income	—	—	—	—	13,125	13,125
Unrealized gain on investments available for sale	—	—	—	85	—	85
Total comprehensive income						13,210
Balance at December 31, 2010	32,793,457	\$ 33	\$ 274,646	\$ (3)	\$ (247,219)	\$ 27,457
Exercise of options to purchase common stock						

(\$.40-\$.74 per share)	9,064	—	22	—	—	22
Share-based payment-director services (\$.713 per share)	25,000	—	178	—	—	178
Share-based payment-employee compensation	—	—	1,506	—	—	1,506
Share-based payment—related party	—	—	1,740	—	—	1,740
Comprehensive income:						
Net income	—	—	—	—	14,892	14,892
Unrealized gain on investments available for sale	—	—	—	23	—	23
Total comprehensive income						14,915
Balance at December 31, 2011	<u>32,827,521</u>	<u>\$ 33</u>	<u>\$ 278,092</u>	<u>\$ 20</u>	<u>\$ (232,327)</u>	<u>\$ 45,818</u>

The accompanying notes are an integral part of these financial statements.

OSIRIS THERAPEUTICS, INC.
STATEMENTS OF CASH FLOWS
(amount in thousands)

	<u>Year ended December 31,</u>		
	<u>2011</u>	<u>2010</u>	<u>2009</u>
Cash flows from operating activities:			
Continuing operations			
Income (loss) from continuing operations	\$ 14,892	\$ 13,125	\$ (23,564)
Adjustments to reconcile income (loss) from continuing operations to net cash used in operations:			
Depreciation and amortization	745	755	665
Non cash share-based payments	1,684	1,684	2,456
Provision for bad debts	3	—	—
Deferred tax benefit	—	(3,170)	—
Non cash expense-extension of expiration date of warrant to related party	1,740	—	—
Changes in operating assets and liabilities:			
Accounts receivable	1,197	(790)	55,149
Inventory, prepaid expenses, and other current assets	991	(298)	1,112
Other assets	184	211	220
Accounts payable and accrued expenses	(912)	(3,403)	(1,950)
Deferred revenue	(40,960)	(40,891)	(39,562)
Net cash used in continuing operations	<u>(20,436)</u>	<u>(32,777)</u>	<u>(5,474)</u>
Discontinued operations			
Income from discontinued operations	—	—	38,136
Adjustments to reconcile income from discontinued operations to net cash used in discontinued operations:			
Non cash impact of the sale of discontinued operations	—	—	(44,788)
Depreciation and amortization	—	—	210
Provision for bad debts	—	—	45
Non cash share-based payments	—	—	98
Changes in operating assets and liabilities:			
Accounts receivable	—	—	1,516
Inventory and other current assets	—	—	1,707
Accounts payable and accrued expenses	—	(412)	(3,563)
Net cash used in discontinued operations	<u>—</u>	<u>(412)</u>	<u>(6,639)</u>
Net cash used in operating activities	<u>(20,436)</u>	<u>(33,189)</u>	<u>(12,113)</u>
Cash flows from investing activities:			
Purchases of property and equipment	(81)	(148)	(304)
Proceeds from the sale of property and equipment	—	—	17
Proceeds from sale of discontinued operations, net	—	—	9,736
Proceeds from sale of investments available for sale	20,805	33,598	54,185
Purchases of investments available for sale	(220)	(270)	(51,187)
Net cash provided by investing activities	<u>20,504</u>	<u>33,180</u>	<u>12,447</u>
Cash flows from financing activities:			
Principal payments on capital lease obligations and notes payable	—	(3)	(7)
Restricted cash	129	145	(536)
Proceeds from convertible and short-term notes payable	—	—	—
Proceeds from the issuance of preferred and common stock, net	22	3	575
Net cash provided by financing activities	<u>151</u>	<u>145</u>	<u>32</u>
Net increase in cash	<u>219</u>	<u>136</u>	<u>366</u>
Cash at beginning of period	1,442	1,306	940
Cash at end of period	<u>\$ 1,661</u>	<u>\$ 1,442</u>	<u>\$ 1,306</u>
Supplemental disclosure of cash flows information:			
Cash paid for interest	\$ —	\$ —	\$ 8
Cash paid for income taxes	—	4,281	1,257
Supplemental schedule of non cash investing and financing activities:			
Transfer of fixed assets from discontinued operations	—	—	3,580

The accompanying notes are an integral part of these financial statements.

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

1. Description of Business and Significant Accounting Policies

Description of Business

Osiris Therapeutics, Inc. ("we," "us," "our," or the "Company") is a Maryland corporation headquartered in Columbia, Maryland. We began operations on December 23, 1992 and were a Delaware corporation until, with approval of our stockholders, we reincorporated as a Maryland corporation on May 31, 2010. We are a leading stem cell company focused on developing and marketing products to treat serious medical conditions in the inflammatory and cardiovascular disease areas, and wound healing. Our biologic drug candidates utilize adult human mesenchymal stem cells, or MSCs, which can selectively differentiate, based on the tissue environment, into various tissue lineages, such as muscle, bone, cartilage, marrow stroma, tendon or fat. In addition, MSCs have anti-inflammatory properties and can prevent fibrosis or scarring, which gives MSCs the potential to treat a wide variety of medical conditions. Historically, our operations have consisted primarily of research, development and clinical activities under several research collaboration agreements to bring our biologic drug candidates to the marketplace. During 2009, we created a Biosurgery business, which in 2010 we began operating as a segment separate from our Therapeutics segment. Our Therapeutics segment is focused on developing and marketing products to treat medical conditions in the inflammatory and cardiovascular disease areas; and our Biosurgery segment focuses on products for wound healing and use in surgical procedures by harnessing the ability of cells and novel constructs to promote the body's natural healing.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Due to the inherent uncertainty involved in making those assumptions, actual results could differ from those estimates. We believe that the most significant estimates that affect our financial statements are those that relate to revenue recognition associated with our collaborative agreements, deferred tax assets, inventory valuation, share-based compensation, and the non cash charge associated with the extension of the expiration date of an outstanding warrant discussed below in Note 8.

Cash and Cash Equivalents

Amounts listed as cash on our balance sheets are maintained in depository accounts at a commercial bank. Cash and cash equivalents, which include highly liquid investments with maturities of three months or less when purchased, held in our brokerage investment accounts are classified as investments available for sale, as the amounts represent investments that have matured and are anticipated to be reinvested in debt securities in the near future, and are disclosed at fair value, which approximates cost.

Investments Available for Sale

Investments available for sale consist primarily of marketable securities with maturities less than one year. Investments available for sale are valued at their fair value, with unrealized gains and losses reported as a separate component of stockholders' equity in accumulated other comprehensive income.

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

1. Description of Business and Significant Accounting Policies (Continued)

All realized gains and losses on our investments available for sale are recognized in results of operations as other income.

Investments available for sale are evaluated periodically to determine whether a decline in their value is "other than temporary." The term "other than temporary" is not intended to indicate a permanent decline in value. Rather, it means that the prospects for near term recovery of value are not necessarily favorable, or that there is a lack of evidence to support fair values equal to, or greater than, the carrying value of the security. We review criteria such as the magnitude and duration of the decline, as well as the reasons for the decline, to predict whether the loss in value is other than temporary. If a decline in value is determined to be other than temporary, the carrying value of the security is reduced and a corresponding charge to earnings is recognized.

Restricted Cash

We periodically are required under the terms of various agreements to provide letters of credit which are collateralized by cash deposits. The majority of the restricted cash balance relates to a letter of credit that we caused to be issued in lieu of a security deposit under the operating lease for our Columbia, Maryland facility.

Accounts Receivable

Accounts receivable are reported at their net realizable value. We charge off uncollectible receivables when the likelihood of collection is remote. We set credit terms with individual customers, and consider receivables outstanding longer than the time specified in the respective customer's contract, typically 45-days, to be past due. As of December 31, 2011 and 2010, there was no allowance for doubtful accounts related to accounts receivable, as we believe the reported amounts are fully collectible. Accounts receivable balances are not collateralized. We have incurred bad debt expense of \$3,000 related to our biosurgery operations during fiscal 2011 and no bad debts expense during the two years ended December 31, 2010.

Inventory

We commenced limited commercial distribution of our Biosurgery products during the third quarter of 2010, and began carrying inventory on our balance sheet thereafter. Inventory consists of raw materials, biologic products in process, and products available for distribution. We determine our inventory values using the first-in, first-out method. Inventory is valued at the lower of cost or market, and excludes units that we anticipate distributing for clinical evaluation.

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

1. Description of Business and Significant Accounting Policies (Continued)

As of December 31, 2011 and 2010, inventory for our Biosurgery segment consists of the following:

	December 31,	
	2011	2010
	(\$000)	(\$000)
Inventory		
Raw materials and supplies	\$ 184	\$ 144
Finished goods	583	366
Total Biosurgery inventory	<u>\$ 767</u>	<u>\$ 510</u>

We do not carry any inventory for our Therapeutics products, as none of the products from this segment are currently available for commercial sale. Its operations have focused on clinical trials and discovery efforts to identify additional medical indications. Accordingly, manufactured clinical doses of our drug candidates are expensed as incurred, consistent with our accounting for all other research and development costs.

Property and Equipment

Property and equipment, including improvements that extend useful lives, are valued at cost, while maintenance and repairs are charged to operations as incurred. Depreciation is calculated using the straight-line method based on estimated useful lives ranging from three to seven years for furniture, equipment and internal use software. Leasehold improvements and assets under capital leases are amortized over the shorter of the estimated useful life of the asset or the original term of the lease.

Valuation of Long-lived Assets

We review long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset or group of assets may not be fully recoverable. These events or changes in circumstances may include a significant deterioration of operating results, changes in business plans, or changes in anticipated future cash flows. If an impairment indicator is present, we evaluate recoverability by a comparison of the carrying amount of the assets to future undiscounted net cash flows expected to be generated by the assets. Assets are grouped at the lowest level for which there is identifiable cash flows that are largely independent of the cash flows generated by other asset groups. If the total of the expected undiscounted future cash flows is less than the carrying amount of the asset, an impairment loss is recognized for the difference between the fair value and carrying value of assets. Fair value is generally determined by estimates of discounted cash flows. The discount rate used in any estimate of discounted cash flows would be the rate required for a similar investment of like risk. There were no impairment losses recognized during fiscal years 2011, 2010 or 2009.

Revenue Recognition

Our Therapeutics segment generates revenues from collaborative agreements, research licenses, and a government contract. We evaluate revenues from agreements that have multiple elements to determine whether the components of the arrangement represent separate units of accounting. To recognize a delivered item in a multiple element arrangement, the delivered items must have value on

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

1. Description of Business and Significant Accounting Policies (Continued)

a standalone basis and the delivery or performance must be probable and within our control for any delivered items that have a right of return. The determination of whether multiple elements of a collaboration agreement meet the criteria for separate units of accounting requires us to exercise judgment.

Revenues from research licenses and government contracts are recognized as earned upon either the incurring of reimbursable expenses directly related to the particular research plan or the completion of certain development milestones as defined within the terms of the agreement. Payments received in advance of research performance are designated as deferred revenue. Non-refundable upfront license fees and certain other related fees are recognized on a straight-line basis over the development periods of the contract deliverables. Fees associated with substantive at risk performance based milestones are recognized as revenue upon their completion, as defined in the respective agreements. Incidental assignment of technology rights is recognized as revenue as it is earned and received.

In October 2008, we entered into a Collaboration Agreement with Genzyme Corporation, then an independent and now a Sanofi company ("Genzyme"), for the development and commercialization of our biologic drug candidates, Prochymal® and Chondrogen®. Under this agreement, Genzyme made non-contingent, non-refundable cash payments to us, totaling \$130.0 million. The agreement provided Genzyme with certain rights to intellectual property developed by us, and required that we continue to perform certain development work related to the subject biologic drug candidates. As discussed in Note 15, Subsequent Events below, in February 2012, Sanofi issued a press release which included an update on their R&D pipeline, stating that it has "discontinued" its project with Prochymal for GvHD. The statement issued by Sanofi was made without consultation with or knowledge by us. Through our legal counsel, we have advised Sanofi that we are treating these public statements as Sanofi's election to terminate the collaboration agreement. The agreement provides for voluntary termination by Sanofi and that, upon such voluntary termination, all rights to Prochymal revert back to us, and we are free to commercialize or enter into commercialization agreements for Prochymal with other parties without restriction. While we have been proceeding on the basis that Sanofi has terminated the collaboration agreement, Sanofi has since advised us that it disagrees with our characterization of their press release. We have requested an explanation from Sanofi with respect to their statements regarding Prochymal. There can be no assurances as to the outcome of these matters. However, we continue to proceed with our Prochymal regulatory approval efforts and, if successful, commercialization, alone or with another collaborator.

We evaluated the deliverables related to the upfront payments made to us under the Genzyme collaboration agreement, and concluded that the various deliverables represent a single unit of accounting. For this reason, we have deferred the recognition of revenue related to the upfront payments, and are amortizing these amounts to revenue on a straight-line basis over the estimated delivery period of the required development services, which extend through January 2012.

Accordingly, we recognized \$40.0 million of revenue in each of the years ended December 31, 2011, 2010, and 2009 related to the amortization of the upfront payments. The balance of these payments has been recorded as \$3.3 million of current deferred revenue as of December 31, 2011, that was recognized in January 2012.

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

1. Description of Business and Significant Accounting Policies (Continued)

In 2007, we also partnered with Genzyme to develop Prochymal as a medical countermeasure to nuclear terrorism and other radiological emergencies. In January 2008, we were awarded a contract from the United States Department of Defense ("DoD") pursuant to which we are seeking, in partnership with Genzyme, to develop and stockpile Prochymal for the repair of gastrointestinal injury resulting from acute radiation exposure. We began recognizing revenue under this contract in 2008, and completed our work under the contract during 2010. We have not recognized any revenue associated with this contract during fiscal 2011. Contract revenue was recognized as the related costs are incurred, in accordance with the terms of the contract. We recognized approximately \$500,000 and \$3.0 million in revenue from the DoD contract during 2010 and 2009, respectively.

In October 2007, we entered into a collaborative agreement with the Juvenile Diabetes Research Foundation ("JDRF") to conduct a Phase 2 clinical trial evaluating Prochymal as a treatment for type 1 diabetes mellitus. This collaborative agreement provides for JDRF to provide up to \$4.0 million of contingent milestone funding to support the development of Prochymal for the preservation of insulin production in patients with newly diagnosed type 1 diabetes mellitus. The contingent milestone payments under the agreement are amortized to revenue on a straight line basis over the duration of our obligations under the collaborative agreement as they are received and earned. We have received all \$4.0 million of the contingent milestones, and are amortizing the funding received over the duration of our obligations. We began amortizing each payment as it was received, resulting in \$1.0 million in revenue during 2011 and \$1.2 million of revenue during both 2010 and 2009. We have completed our work under the agreement as of December 31, 2011.

We have also entered into strategic agreements with other pharmaceutical companies focusing on the development and commercialization of our stem cell drug candidates. For example, in 2003, we entered into an agreement with JCR Pharmaceuticals Co., Ltd. ("JCR") pertaining to hematologic malignancies (GvHD) drugs for distribution in Japan. Under such agreements, we receive fees for licensing the use of our technology. We recognized \$1.0 million of revenue during the first fiscal quarter of 2010 from JCR upon the achievement of a milestone event specified in the agreement.

Our Therapeutics segment also earns royalty revenues and cost reimbursement under our adult expanded access program. Royalties are earned on the sale of human mesenchymal stem cells sold for research purposes. We recognize this revenue as sales are made. Revenues include approximately \$65,000 of royalty revenue in 2011 and \$300,000 of royalty revenue during each of the years 2010 and 2009.

As discussed in Note 4— *Segment Reporting* below, in 2010 we began operations of our Biosurgery segment, focused on developing high-end biologic products for use in wound healing and surgical procedures. We commenced the manufacturing of our first Biosurgery product, Grafix®, a regenerative wound care product, during the first quarter of 2010. During the first and second quarters of 2010, we distributed the product only for initial clinical evaluation. We launched the product for limited commercial distribution during the third quarter of 2010. We began distribution of a second Biosurgery product, Ovation® in early fiscal 2011. We recognized revenues of \$1,263,000 on distribution of our Biosurgery products in 2011 and \$183,000 subsequent to commercial launch in fiscal 2010.

Due to the conditions required to preserve these products, customers may elect to have the product shipped to them, or we offer the customers use of our specially designed freezers. Legal title

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

1. Description of Business and Significant Accounting Policies (Continued)

passes to the customers when the product either leaves our shipping dock, if the customer has elected to have the product shipped to them, or when it is placed by us in a specifically designated storage unit located at our facility, if they have elected to have us store the product for them. On product stored at our facility, we delay recognition of revenue until such product is shipped to the customer. Due to the nature of the products and the manufacturing process, we do not allow refunds or returns.

Research and Development Costs

We expense internal and external research and development ("R&D") costs, including costs of funded R&D arrangements and the manufacture of clinical batches of our biologic drug candidates used in clinical trials, in the period incurred.

Prior to 2010, internal resources were applied interchangeably across several product candidates due to the potential applicability of our biologic drug candidates for multiple indications. Therefore, it was not possible to allocate internal R&D costs on either a project-by-project or product-by-product basis in 2009.

Beginning in 2010 after the creation of our Biosurgery segment, we began to separately track research and development costs by segment. Total research and development costs for each of our operating segments are as follows:

	Year Ended December 31, 2011 (\$000s)			Year Ended December 31, 2010 (\$000s)		
	Therapeutics	Biosurgery	Total	Therapeutics	Biosurgery	Total
Research and development costs	\$ 15,829	\$ 3,327	\$ 19,156	\$ 19,102	\$ 4,399	\$ 23,501

As described above, we do not track internal development costs by project within the Therapeutics segment. We do, however, track external research and development costs on a project basis. Our external research and development costs, including third party contract costs, supply and lab costs, and other miscellaneous external costs, for the years ended December 31, 2011 and 2010 are as follows:

External R&D Costs By Indication	Year Ended December 31,	
	2011 (\$000s)	2010 (\$000s)
Acute myocardial infarction	\$ 6,254	\$ 4,082
Treatment-resistant GvHD	830	2,759
Refractory Crohn's disease	1,437	905
Other therapeutic programs	400	2,580
Therapeutics external R&D costs—	8,921	10,326
Biosurgery external R&D costs—	1,151	1,779
Total External R&D Costs—	\$ 10,072	\$ 12,105

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

1. Description of Business and Significant Accounting Policies (Continued)

Income Taxes

Deferred tax liabilities and assets are recognized for the estimated future tax consequences of temporary differences, income tax credits and net operating loss carry-forwards. Temporary differences are primarily the result of the differences between the tax bases of assets and liabilities and their financial reporting values. Deferred tax liabilities and assets are measured by applying the enacted statutory tax rates applicable to the future years in which deferred tax liabilities or assets are expected to be settled or realized. Valuation allowances are established when necessary to reduce deferred tax assets to the amount expected to be realized. Income tax expense, if any, consists of the taxes payable for the current period and the change during the period in deferred tax assets and liabilities.

We recognize in our financial statements the impact of a tax position, if that position is more likely than not to be sustained upon an examination, based on the technical merits of the position. Interest and penalties related to income tax matters are recorded as income tax expense. At December 31, 2011 and 2010, we had no accruals for interest or penalties related to income tax matters.

Income per Common Share

Basic income per common share is calculated by dividing net income by the weighted average number of common shares outstanding during the period. Diluted income per common share adjusts basic income per share for the potentially dilutive effects of common share equivalents, using the treasury stock method, and includes the incremental effect of shares that would be issued upon the assumed exercise of stock options and warrants.

Potentially dilutive effects of common share equivalents are calculated based upon the income (loss) from continuing operations.

Diluted income per common share for 2011 excludes 1,311,686 "out-of-the money" stock options and the 1,000,000 shares issuable upon the assumed exercise of our outstanding warrant, discussed in Note 8 below, as their effect is anti-dilutive. Similarly, diluted income per common share for 2010 excludes 824,909 "out-of-the money" stock options and the 1,000,000 shares issuable upon the assumed exercise of our outstanding warrant.

A reconciliation of basic to diluted weighted average common shares outstanding for 2011 and 2010 is as follows:

	Year Ended December 31,	
	2011	2010
	(000s)	(000s)
Basic weighted average common shares outstanding	32,820	32,784
Dilutive weighted average options outstanding	298	313
Dilutive weighted average warrants outstanding	—	—
Diluted weighted average common shares outstanding	<u>33,118</u>	<u>33,097</u>

Diluted income per common share excludes all 1,000,762, outstanding stock options for the years ended December 31, 2009, as their effect is anti-dilutive. Similarly, the 1,000,000 shares issuable upon

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

1. Description of Business and Significant Accounting Policies (Continued)

the assumed exercise of outstanding warrant have also been excluded from the calculation as the effect is anti-dilutive. As a result of the anti-dilutive nature of the options and outstanding warrant, basic and diluted income per share are identical for 2009.

Share-Based Compensation

We account for share-based payments using the fair value method.

We recognize all share-based payments to employees and non-employee directors in our financial statements based on their grant date fair values, calculated using the Black-Scholes option pricing model. Compensation expense related to share-based awards is recognized on a straight-line basis for each vesting tranche based on the value of share awards that are expected to vest on the grant date, which is revised if actual forfeitures differ materially from original expectations.

Comprehensive Income

Comprehensive income consists of net income and all changes in equity from non-stockholder sources, which consist of changes in unrealized gains and losses on investments.

Concentration of Risk

We maintain cash and short-term investment balances in accounts that exceed federally insured limits, although we have not experienced any losses on such accounts. We also invest excess cash in investment grade securities, generally with maturities of one year or less.

We have historically provided credit in the normal course of business to contract counterparties and to the distributors of our product. Accounts receivable in the accompanying balance sheets consist primarily of amounts due from distributors of our Biosurgery products. We expect all of our reported receivables to be fully collected. As discussed under " *Accounts Receivable* " above, we have not incurred material bad debt expense for the three years ended December 31, 2011.

Recent Accounting Guidance Not Yet Adopted at December 31, 2011

In May 2011, ASU 2011-4, *Fair Value Measurement* (Topic 820)— *Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRSs* ("ASU 2011-4") was issued to standardize requirements for measuring and disclosing fair value information under U.S. GAAP and IFRS. This guidance primarily changes the wording used to describe disclosure requirements under U.S. GAAP, but is not intended to change the application of those requirements. ASU 2011-4 is effective for interim or annual periods beginning after December 15, 2011 with early adoption not permitted. Since ASU 2011-4 changes the wording used to describe the fair value disclosure requirements, but does not materially change the actual requirements, the adoption of ASU 2011-4 will not have a material impact on our financial statements.

In June 2011, ASU 2011-5, *Comprehensive Income* (Topic 220)— *Presentation of Comprehensive Income* ("ASU 2011-5") was issued to increase the prominence of items reported in other comprehensive income. Specifically, this guidance requires entities to report all non owner changes in stockholders' equity in either a single continuous statement of comprehensive income or in two

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

1. Description of Business and Significant Accounting Policies (Continued)

separate, but consecutive, statements This guidance eliminates the current financial reporting option for an entity to report the components of other comprehensive income as a part of the statement in changes in stockholders' equity. Further, this guidance requires presentation of all reclassification adjustments between net income and other comprehensive income on the face of the financial statements. ASU 2011-5 is effective for interim or annual periods beginning after December 15, 2011, with early adoption permitted. We will be required to change the format of our financial statements when this guidance becomes effective, and are currently evaluating which of the two permissible formats to use. The adoption of ASU 2011-5 will not have a material impact on our financial position or results of operations.

In July 2011, ASU 2011-7, *Health Care Entities* (Topic 954)— *Presentation and Disclosure of Patient Service Revenue, Provision for Bad Debts, and Allowance for Doubtful Accounts for Certain Health Care Entities* ("ASU 2011-7") was issued to increase the transparency of net patient service revenue and the related allowance for doubtful accounts for health care entities. Specifically, this guidance requires entities to report the provision for bad debts associated with patient service revenue as a deduction from patient service revenues as opposed to as an operating expense. This guidance also requires enhanced disclosures regarding the accounting policies for revenues and assessing bad debts. ASU 2011-7 is effective for interim or annual periods beginning after December 15, 2011, with early adoption permitted. The adoption of ASU 2011-7 will not have a material impact on our financial position or results of operations.

2. Collaboration Agreements and Government Contract

Following is a detailed discussion of each of our material collaborative agreements and contracts. The accounting policies related to each of these contracts, including material impact on our financial statements, is included above under the " *Revenue Recognition* " section of Note 1, Description of Business and Significant Accounting Policies.

Collaboration Agreement with Genzyme Corporation. On October 31, 2008, we entered into a Collaboration Agreement with Genzyme for the development and commercialization of Prochymal and Chondrogen. As discussed under Note 15, Subsequent Events below, we have advised Genzyme that we are treating their public statements as election to terminate the Collaboration Agreement. The Collaboration Agreement provides for voluntary termination by Sanofi upon ninety (90) days notice and that, upon such voluntary termination, all rights to Prochymal revert back to Osiris, and Osiris is free to commercialize or enter into commercialization agreements for Prochymal with other parties. As consideration for the rights originally granted to Genzyme under the Collaboration Agreement, they paid us non-contingent, non-refundable cash payments totaling \$130.0 million.

Genzyme Partnership and the United States Department of Defense Contract. In 2007, we also partnered with Genzyme to develop Prochymal as a medical countermeasure to nuclear terrorism and other radiological emergencies. In January 2008, we were awarded a contract from the DoD pursuant to which we, in partnership with Genzyme, are seeking to develop and stockpile Prochymal for the repair of gastrointestinal injury resulting from acute radiation exposure. Under the terms of the contract, the DoD will provide funding to us for the development of Prochymal for acute radiation syndrome ("ARS"). This agreement with Genzyme expired in July 2010.

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

2. Collaboration Agreements and Government Contract (Continued)

Juvenile Diabetes Research Foundation Agreement. In 2007, we entered into a collaborative agreement with the JDRF which provides funding to support the development of Prochymal as a treatment for the preservation of insulin production in patients with newly diagnosed type 1 diabetes mellitus. This collaborative agreement provides for JDRF to provide \$4.0 million of contingent milestone funding. We initiated a Phase 2 clinical trial evaluating Prochymal as a treatment for type 1 diabetes in the fourth quarter of 2007, and achieved \$2.0 million of the contingent milestones during 2008, \$1.5 million in 2009, and the remaining \$0.5 million in 2010. Consistent with our revenue recognition policies for such contingent milestones, we began amortizing each milestone payment as it was received and will continue to amortize the payments over the remaining term of our obligations under the agreement.

JCR Pharmaceuticals Agreement. In 2003, we entered into a strategic alliance with JCR Pharmaceuticals Co. Ltd. ("JCR"). Under the JCR agreement, we have granted to JCR the exclusive right in Japan to use our technology in conjunction with the treatment of hematologic malignancies using hematopoietic stem cell transplants. The JCR agreement entitles us to a licensing fee and to royalties on any resulting revenue. Upon commencement of the agreement, JCR purchased 545,454 shares of our Series B Convertible Preferred Stock for \$3.0 million. These shares were converted into 136,363 shares of our common stock concurrent with our initial public offering in August 2006. They have also paid us a total of \$5.0 million in licensing fees under the agreement, \$1.0 million in 2010 and \$4.0 million of which was prior to 2008. The JCR agreement also provides for additional contingent milestone payments totaling \$5.5 million, which will be recorded as revenue if and when the milestone events occur, and as well as royalty payments on sales of the drug in Japan.

3. Discontinued Operations & Gain on Sale of Discontinued Operations

In July 2005, we began the manufacture and distribution of Osteocel®, which is used by orthopedic surgeons for focal bone repair. In April 2008, we committed to a plan to sell our biologic tissue product segment, including our entire product line relating to the processing, manufacturing, marketing and selling of Osteocel and Osteocel® XO, an allograft material containing cancellous bone, used in spinal fusion and other surgical procedures. We refer to these assets as our Osteocel asset disposal group, and in May 2008, we entered into an Asset Purchase Agreement to sell these assets to NuVasive, Inc., a Delaware corporation. Not included among the Osteocel asset disposal group is Osteocel® XC, our second generation product candidate under development for bone repair, utilizing culture expanded mesenchymal stem cells to create a synthetic version of Osteocel.

We eliminated the Osteocel asset disposal group from our ongoing operations as a result of the disposal transaction and have presented the results of the group's operations as a discontinued operation for all periods presented.

The Asset Purchase Agreement to sell the Osteocel asset disposal group to NuVasive provided for two closings—a technology assets closing, at which technology and certain other business assets were transferred, and a manufacturing assets closing, at which manufacturing assets and facilities were to be transferred. In July 2008, we held a Special Meeting of Stockholders at which our stockholders overwhelmingly approved the sale of the Osteocel business. The technology assets closing also occurred on that date, at which time we received an initial payment of \$35.0 million. Concurrent with the

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

3. Discontinued Operations & Gain on Sale of Discontinued Operations (Continued)

technology assets closing, we entered into a Manufacturing Agreement with NuVasive, under which we continued to manufacture Osteocel and sold 100% of the product to NuVasive at specified prices.

In March 2009, we entered into further amendments to the Asset Purchase Agreement and the related Manufacturing Agreement, as a result of which the manufacturing assets closing was accelerated and all performance conditions to receipt, by us, of \$30.0 million of contingent milestone payments were removed. As a result, those payments became payable at specified dates, without regard to other conditions, either in cash or in shares of NuVasive stock, at the option of NuVasive.

The Asset Purchase Agreement, as amended, provided for up to \$85.0 million of total purchase price, as follows:

<u>Payments</u>	<u>Amount</u>	<u>Payment Date</u>
Initial cash payment	\$ 35,000	July 2008
Cumulative sales to NuVasive of 75,000 ccs of Osteocel, paid in cash	5,000	January 2009
Accelerated Manufacturing Assets Closing, paid in cash	5,000	March 2009
Installment paid in stock	12,500	June 2009
Installment paid in stock	12,500	September 2009
Milestone payment due upon NuVasive achieving at least \$35.0 million in cumulative sales of Osteocel, paid in stock	15,000	November 2009
Total sales price	<u>\$ 85,000</u>	

The \$30.0 million of payments that became payable at specified dates (March, June and September 2009, respectively) as a result of the March 2009 amendments, net of direct expenses of approximately \$0.2 million, were recorded as a component of the gain on the sale of discontinued operations in the first quarter of 2009. The \$12.5 million payments due June 30, 2009 and September 30, 2009, as well as the final \$15.0 million milestone achieved in October 2009, were paid in shares of common stock issued by NuVasive. Cumulatively, we received 1,001,422 shares of NuVasive common stock, of which we had sold 986,122 for total cash proceeds of approximately \$40.3 million at December 31, 2009. At December 31, 2009, we had the remaining 15,300 shares, with a fair value of \$489,000, included on our balance sheet as a component of Investments Available for Sale. We sold these shares in 2010 for additional cash proceeds of approximately \$598,000, which included a realized gain of approximately \$24,000. Title to the fixed assets passed to NuVasive on April 9, 2009.

As stipulated under the March 2009 amendments, we ceased manufacturing Osteocel on March 28, 2009. As a result of this cessation of manufacturing, we committed to a workforce reduction of the approximately 80 employees involved in the Osteocel business. Employees directly affected by the workforce reduction received notification on March 30, 2009, and the workforce reduction was substantially completed in the second quarter of 2009. All of the affected employees received severance benefits, comprised principally of severance, benefits continuation costs and outplacement services. Total one-time termination benefits for the reduction in force totaled approximately \$1.4 million, which was recorded as a component of the gain on the sale of discontinued operations in the first quarter of 2009.

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

3. Discontinued Operations & Gain on Sale of Discontinued Operations (Continued)

Also in connection with the March 2009 amendments, we relieved NuVasive of its obligation to assume the lease for our Columbia, Maryland facility. As a result of the combination of our cessation of Osteocel manufacturing and retaining the lease obligations for the Columbia, Maryland facility, we conducted an analysis of our future minimum lease payments for the facility, related to unutilized space, and recorded an impairment charge of approximately \$3.2 million related to our future minimum lease payments. Additionally, we recorded an impairment of the leasehold improvements specifically related to Osteocel production of approximately \$3.0 million.

As discussed below in Note 4— *Segment Reporting* , we created a new Biosurgery segment at the end of the third quarter of 2009, which utilizes the facilities previously used to manufacture Osteocel. As a result, we updated our analysis of the lease impairment charge and reversed the \$2.8 million impairment that remained unamortized at that time. Both of these impairments charges were recorded as components of the gain on the sale of discontinued operations in 2009.

Also as a result of acceleration of the manufacturing assets closing, during the first quarter of 2009 we reversed approximately \$2.5 million of concessionary pricing reserves for future Osteocel production that had been established under the original Manufacturing Agreement.

The fair value of the property that we transferred on the date of the manufacturing assets closing in April 2009, including both the manufacturing assets transferred to NuVasive and the inventory transferred to AlloSource, was approximately \$5.1 million.

Since the transaction was completed as of December 31, 2009 the Osteocel asset disposal group did not have an impact on our statement of operations during fiscal 2011 or 2010.

We recognized a gain of approximately \$37.1 million, net of income taxes, on the sale of discontinued operations for the year ended December 31, 2009, summarized as follows:

	(\$000)
Initial purchase price and milestone payments earned under the Asset Purchase Agreement	\$ 45,000
Direct expenses related to the sale	(259)
Concessionary pricing and inventory adjustments	2,549
Employee related costs	(1,397)
Impairment of long lived assets and manufacturing facilities	(4,720)
Pretax gain on sale	41,173
Income tax expense	(4,121)
Gain from sale of discontinued operations, net	<u>\$ 37,052</u>

The only assets allocable to the Osteocel asset disposal group at December 31, 2009 were \$412,000 of current liabilities, all of which were settled during the first quarter of 2010.

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

3. Discontinued Operations & Gain on Sale of Discontinued Operations (Continued)

Summarized operating results of the Osteocel asset disposal group for the years ended December 31, 2009 are as follows:

	(\$000)
Product revenues	\$ 6,295
Cost of product revenues	4,967
Gross profit	<u>1,328</u>
Operating expenses	124
Income from operations of discontinued operations, before income taxes	1,204
Income tax expense	120
Income from operations of discontinued operations	<u><u>\$ 1,084</u></u>

Revenues on Osteocel products were recognized when legal title passed to the customer. Costs related to the Osteocel product consist primarily of the costs to obtain the tissue and other chemicals and supplies, quality and sterility testing, plus labor and allocated overhead costs and the costs of operating the clean-room facilities.

4. Segment Reporting

At the end of the third quarter of 2009, we created the Biosurgery division, focused on developing high-end biologic products for use in surgical procedures.

In 2010, we began to manage our business in two reportable operating segments: the Therapeutics segment and the Biosurgery segment. Our Therapeutics segment focuses on developing and marketing products to treat medical conditions in the inflammatory, autoimmune, orthopedic and cardiovascular areas. Its operations have focused on clinical trials and discovery efforts to identify additional medical indications. Our Therapeutics segment does not presently have any products approved for sale and its revenues consist of collaborative research agreements, a government contract and royalties as described in Note 1— *Description of Business and Significant Accounting Policies* .

Our Biosurgery segment is focused on the development, manufacture and distribution of biologic products for wound healing and use in surgical procedures by harnessing the ability of cells and novel constructs to promote the body's natural healing. We commenced the manufacturing of our first Biosurgery product, a regenerative wound care product, during the first quarter of 2010. During the first and second quarters of 2010, we distributed the product only for initial clinical evaluation. Accordingly, we incurred research, development, manufacturing, general, and administrative costs related to the Biosurgery segment throughout 2010, but did not recognize revenue from these products until beginning in the third quarter of 2010. As a result of these start up costs, 2010 operating results from our Biosurgery segment do not reflect the segment's recurring operations.

Substantially all of our revenues and assets are attributed to and are received from entities located in the United States.

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

4. Segment Reporting (Continued)

At this time only revenues, costs of goods sold, and operating expenses are allocated by segment. The costs specifically attributable to each of our segments for the years ended December 31, 2011 and 2010 are as follows:

	Years Ended December 31, 2011 (\$000s)			Years Ended December 31, 2010 (\$000s)		
	Therapeutics	Biosurgery	Total	Therapeutics	Biosurgery	Total
Product revenues	\$ —	\$ 1,263	\$ 1,263	\$ —	\$ 183	\$ 183
Cost of product revenues	—	531	531	—	62	62
Gross profit	—	732	732	—	121	121
Revenue from collaborative research agreements, government contract and royalties	41,140	—	41,140	43,021	—	43,021
Operating expenses:						
Research and development	15,829	3,327	19,156	19,102	4,399	23,501
General and administrative expenses and fees	7,080	801	7,881	5,809	641	6,450
	22,910	4,127	27,037	24,911	5,040	29,951
Income (loss) from operations	\$ 18,230	\$ (3,395)	\$ 14,835	\$ 18,110	\$ (4,919)	\$ 13,191

In general, our total assets, including long-lived assets such as property and equipment, and our capital expenditures are not specifically allocated to any particular operating segment. Accordingly, capital expenditures and total asset information by reportable segment is not presented. The only assets that are allocated to the individual segments are the inventory and accounts receivable specifically related to each segment.

The assets specifically attributable to each of our segments as of December 31, 2011 and 2010 are as follows:

	2011 (\$000s)			2010 (\$000s)		
	Therapeutics	Biosurgery	Total	Therapeutics	Biosurgery	Total
Segment assets:						
Accounts Receivable	\$ 37	\$ 691	\$ 728	\$ 1,757	\$ 171	\$ 1,928
Inventory	—	767	767	—	510	510
Total segment assets	\$ 37	\$ 1,458	\$ 1,495	\$ 1,757	\$ 681	\$ 2,438

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

5. Property and Equipment

Property and equipment at December 31, 2011 and 2010 are as follows:

	2011 (\$000)	2010 (\$000)
Laboratory and manufacturing equipment	\$ 427	\$ 421
Computer hardware, furniture and fixtures	546	500
Leased assets	26	26
Leasehold improvements	4,233	4,204
	5,232	5,151
Accumulated depreciation and amortization	(2,769)	(2,024)
Property and equipment, net	<u>\$ 2,463</u>	<u>\$ 3,127</u>

6. Share-Based Compensation

In April 2006, we adopted our 2006 Omnibus Plan. We amended and restated this plan in 2008 and again in 2010 to, among other things, increase the number of shares available for grant. In addition, we had previously established our Amended and Restated 1994 Stock Incentive Plan. Both Plans authorize the issuance of various forms of stock-based awards, including incentive and non-qualified stock options, stock purchase rights, stock appreciation rights and restricted and unrestricted stock awards. A total of 1,950,000 shares of our common stock have been reserved for issuance under the Amended and Restated 2006 Omnibus Plan, and 736,378 shares were reserved under our Amended and Restated 1994 Stock Incentive Plan. We ceased all grants under the Amended and Restated 1994 Stock Incentive Plan concurrent with our initial public offering in August 2006. As a result, no shares are currently available for future awards under the Amended and Restated 1994 Stock Incentive Plan. At December 31, 2011, there were 420,948 shares available for future awards under the Amended and Restated 2006 Omnibus Plan.

We generally issue stock option awards that vest over four years and have a ten-year contractual life. We estimate the fair value of stock options using the Black-Scholes option-pricing model. Estimates of fair value are not intended to predict actual future events or the value ultimately realized by persons who receive equity awards. The fair value of stock options granted during each of the periods was estimated using the following assumptions:

	Years ended December 31,		
	2011	2010	2009
Assumptions:			
Weighted average risk-free interest rate	2.00%	2.50%	2.20%
Dividend yield	0.0%	0.0%	0.0%
Expected life of option grants	5.5-years	5.0-years	5.0-years
Weighted average expected stock price volatility	53-55%	56-57%	55-59%

The expected life of stock options granted was based on our historical option exercise experience and post vesting forfeiture experience using the historical expected term from the vesting date. The expected volatility of the options granted was determined using historical volatilities based on

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

6. Share-Based Compensation (Continued)

stock prices over a look-back period corresponding to the expected life. The risk-free interest rate was determined using the yield available for zero-coupon United States government issues with a remaining term approximating the expected life of the options. The forfeiture rate was determined based on historical pre-vesting forfeitures. We have never paid a dividend, and as such, the dividend yield is zero.

In connection with the stock options exercised during the year ended December 31, 2011, we received cash proceeds of \$22,000. At December 31, 2011, there was \$1.3 million of total unrecognized compensation costs related to non-vested stock options, which is expected to be recognized over a weighted average period of 0.75 years.

A summary of stock option activity for the years ended December 31, 2011, 2010 and 2009 is as follows:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life	Aggregate Intrinsic Value (in thousands)
Outstanding at January 1, 2009	1,211,177	\$ 10.66	8.0-years	
Granted	164,750	\$ 17.75		
Exercised	(75,911)	\$ (7.57)		\$ 497
Forfeited or canceled	(299,254)	\$ (14.96)		
Balance, December 31, 2009	1,000,762	\$ 10.78	7.0-years	
Granted	406,500	\$ 7.37		
Exercised	(8,626)	\$ (0.40)		\$ 58
Forfeited or canceled	(49,375)	\$ (12.53)		
Balance, December 31, 2010	1,349,261	\$ 9.75	6.9-years	
Granted	450,000	\$ 6.82		
Exercised	(9,064)	\$ (2.42)		\$ 36
Forfeited or canceled	(88,125)	\$ (8.89)		
Balance, December 31, 2011	1,702,072	\$ 9.06	6.8-years	\$ 1,533
Exercisable at December 31, 2011	883,322	\$ 9.67	5.1-years	\$ 1,522

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

6. Share-Based Compensation (Continued)

A summary of stock options outstanding at December 31, 2011, by price range is as follows:

Range of Exercise Prices	Options Outstanding			Options Exercisable	
	Number Outstanding	Weighted-Average Contractual Life (in years)	Weighted-Average Exercise Price	Number Outstanding	Weighted-Average Exercise Price
\$ 0.40 to \$ 1.00	307,572	3.1	\$ 0.40	307,572	\$ 0.40
1.01 to 6.75	241,750	8.9	6.26	26,625	6.45
6.76 to 10.00	576,000	8.4	7.38	101,875	7.41
10.01 to 12.50	217,625	5.9	12.07	176,750	12.08
12.51 to 15.00	54,875	6.2	13.58	42,375	13.72
15.01 to 17.50	59,000	6.5	17.01	45,000	17.01
17.51 to 20.00	124,750	7.1	18.58	62,525	18.59
\$20.01 to \$24.00	120,500	5.0	23.59	120,500	23.59
	<u>1,702,072</u>	6.8	\$ 9.06	<u>883,322</u>	9.67

The weighted fair value of options granted during the years ended December 31, 2011, 2010, and 2009 were \$3.50, \$3.77, and \$9.26, respectively.

The table below reflects the total share-based compensation expense (including share-based payments to our non-employee directors, but excluding the non cash expense related to the extension of the expiration date of an outstanding warrant as discussed in Note 8 below) recognized in our income statements for the years ended December 31, 2010, 2009 and 2008. For the years ended December 31, 2011, 2010, and 2009, share-based compensation expense is based on awards ultimately expected to vest.

	Year ended December 31,		
	2011 (\$000)	2010 (\$000)	2009 (\$000)
Research and development	\$ 814	\$ 896	\$ 959
General and administrative	692	788	1,497
Discontinued operations	—	—	98
Share-based compensation	<u>\$ 1,684</u>	<u>\$ 1,684</u>	<u>\$ 2,554</u>

7. Related Party Transactions

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.

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

7. Related Party Transactions (Continued)

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.

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

8. Warrants

As discussed in Note 7 above, at December 31, 2011, we had an outstanding warrant to purchase 1,000,000 shares of our common stock at an exercise price of \$11.00 per share. As of December 31, 2011, a summary of the status of the warrant is as follows:

<u>Warrant Price</u>	<u>Common Shares</u>	<u>Weighted Average Remaining Contractual Life</u>	<u>Intrinsic Value</u>	<u>Expiration Date</u>
\$11.00	1,000,000	3.5 years	\$ —	May 24, 2015

The warrant was issued during 2006 prior to our IPO, at exercise price of \$11.00, and the expiration date was extended during 2011 as discussed above. 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 share based payments to related parties in the statement of operations. 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%.

9. Income Taxes

For income tax reporting purposes, we incurred a loss in fiscal 2011 primarily because we recognized the entire \$130.0 million up-front payment made to us by Genzyme as of the end of fiscal 2010 for tax purposes. For financial reporting purposes, we recognized \$40.0 million in revenue from the Genzyme payments during fiscal 2011. The \$43,000 provision for income taxes during fiscal 2011 resulted from the true-up of our tax asset accounts upon filing our 2010 income tax returns.

The provision for income taxes in 2010 represents the U.S. Federal income tax of \$2.7 million, Maryland state income taxes of \$1.2, net of the valuation allowance release of \$3.2 million and the true-up of our income tax payable account to the 2009 income tax returns and is \$241,000. The provision for income taxes in 2009 represents the U.S. Federal alternative minimum tax of \$1.6 million on our taxable income. Our 2009 total tax expense comprises of the income tax benefit of \$2.7 million from our continuing operations and the tax expense of \$4.3 million on the gain from the discontinued operations.

The effective tax rate varies from the U.S. Federal Statutory tax rate principally due to the following:

	<u>2011</u>	<u>2010</u>	<u>2009</u>
U.S. Federal Statutory tax rate	35.0%	35.0%	35.0%
State taxes, net of federal benefits	5.4	5.4	5.4
Non-deductible expenses	9.7	1.2	45.3
Change in valuation allowance	(50.0)	(36.6)	(75.7)
Other	0.3	(3.2)	—
Effective tax rate	<u>0.3%</u>	<u>1.8%</u>	<u>10.0%</u>

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

9. Income Taxes (Continued)

Non-deductible expenses represent primarily research and development expenses for which we claimed the orphan drug credit and non-cash share based compensation for each of the three years ended December 31, 2011.

The components of our net deferred tax assets and liabilities at December 31 are as follows:

	2011 (\$000)	2010 (\$000)
Deferred Tax Assets:		
Net operating loss carry-forwards	\$ 3,409	\$ —
Research and orphan drug credit carry-forwards	76,253	78,638
Alternative minimum tax credit carry-forwards	1,194	1,849
	<u>80,856</u>	<u>80,487</u>
Valuation allowance	(78,668)	(77,317)
Net deferred tax assets	<u>\$ 2,188</u>	<u>\$ 3,170</u>
Deferred Tax Liabilities:		
Deferred revenue	<u>\$ —</u>	<u>\$ —</u>

During 2011, we recognized \$2.2 million of our net deferred tax assets related to timing differences in the recognition of deferred revenue related to our collaboration agreement with Genzyme for financial reporting and income tax purposes. We expect to realize this deferred tax asset during 2012. We presently have available for federal income tax purposes, approximately \$76.3 million of research and experimentation credit carry-forwards, which expire beginning in 2026 through 2031. In addition, we expect to have approximately \$3.4 million of federal net operating loss carryforwards as of December 31, 2011, which will begin to expire in 2031. In 2010, we were subject to the alternative minimum tax. In 2011, we were not subject to the alternative minimum tax due to having a net loss for tax purposes. In the future, we may be subject to the alternative minimum tax regardless of our net operating loss carry-forwards.

Generally, corporations with tax attribute carryovers such as net operating losses and tax credits ("Loss Corporations") may become subject to an annual limitation as to the amount of tax attributes that may be available for use for federal income tax purposes. In general, Sections 382 and 383 of the Internal Revenue Code generally limit the annual amount of net operating loss and credit carryovers of Loss Corporations when such Loss Corporations experience an ownership change. An ownership change occurs if one or more "5-percent shareholders" increase their ownership in the Loss Corporation stock, in the aggregate, by more than 50 percentage points during a 3-year "testing period." The regulations governing the determination of a corporation's 5-percent shareholders attempt to identify the individuals who, directly or pursuant to certain attribution rules, are the beneficial owners of the Loss Corporation stock and, correspondingly, benefit from the use its tax attribute carryovers. Generally, the annual limitations are determined with reference to the value of the underlying corporation.

We performed a limited period analysis from February 21, 2003 to December 31, 2008 and determined that we had experienced three ownership changes during this period. Accordingly, the

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

9. Income Taxes (Continued)

majority of our net operating losses and all of our tax credits that were generated from our inception through February 11, 2005, the date of the last ownership change, are expected to expire unused.

Effective January 1, 2007, we adopted the provisions of the accounting pronouncement clarifying the accounting for uncertain tax positions. The pronouncement prescribes a recognition threshold and measurement attribute criteria for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. The pronouncement also provides guidance on de-recognition, classification, interest and penalties, accounting in interim periods, disclosure and transition. We have evaluated our tax positions in the tax returns filed, as well as un-filed tax positions and the amounts comprising our deferred tax assets. We have determined that the pronouncement does not have a material impact on our financial condition, results of operations or cash flows

10. Defined Contribution Plan

We have a 401(k) plan that is available to all employees. Employee contributions are voluntary and are determined on an individual basis up to the amount allowable under federal regulations. Employer contributions to the plan are at the discretion of the Board of Directors and vest over a seven year period beginning after the third year of eligibility. No employer contributions have been made to date.

11. Commitments and Contingencies

Contract Research Organizations. We utilize independent contract research organizations ("CROs") to perform many of the tasks required under our clinical trials of our biological drug candidates. We rely on CROs for their testing expertise and to ensure the objectivity of our clinical results. Under the terms of these agreements, we design the protocol regarding the testing to be performed, and the CRO assists in the enrollment of the patients and testing sites, administers the trial, performs statistical analysis of the results, and compiles the final report.

We pay fees directly to the CROs for their professional services, which may be payable upon specified trial milestones or as they provide services, depending on the structure of the contract. We are also responsible for reimbursing the CROs for certain pass thru expenses they incur in administering the trial. The timing of our payments to the CROs is dependent upon the progress of the various trials, which is highly variable dependent upon the speed with which the CROs are able to enroll patients and testing sites. As such, we are unable to specifically predict the timing of future payments to CROs.

As of December 31, 2011, we had active contracts with CROs related to three on-going clinical trials which were in varying stages of completion. The total contracted payments to CROs under these agreements were \$24.3 million, of which we had incurred approximately \$18.1 million as of that date. Although we cannot directly control the timing of the remaining payments, based on our estimates and assumptions as of December 31, 2011, we expect to pay our remaining obligations of \$6.2 million to these CROs during 2012.

Subsequent to December 31, 2011, we have contracted with a CRO to perform a clinical trial for our Biosurgery segment. This contract provides for total costs of approximately \$4.5 million over a period of approximately 2.5 years. Since the CRO has not yet begun work under this contract, we are unable to accurately predict the timing of these payments at this time.

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

11. Commitments and Contingencies (Continued)

Leases. During 2006, we entered into a sublease agreement for approximately 61,000 square feet of laboratory, production, warehouse and office space in Columbia, Maryland. We have also entered into a direct lease with the owner of this facility that was effective as of June 1, 2009 upon the expiration of the sublease and expires in July 2016. During 2009, following the expiration of the sublease agreement, we increased an outstanding letter of credit, which was used in lieu of a security deposit for this lease, to \$591,000 according to the terms of the direct lease with the owner of the facility. At each of July 1, 2011 and 2010, the security deposit required under this lease decreased to \$372,000 and \$446,000, respectively. We reduced our outstanding letter of credit accordingly, and the reduced letter of credit of \$372,000 remained outstanding as of December 31, 2011, and has been fully collateralized by restricted cash.

The future minimum lease payments due under the operating lease for this facility are as follows:

	Columbia Facility (\$000)
2012	\$ 1,109
2013	1,137
2014	1,165
2015	1,194
2016	606
	<u>\$ 5,211</u>

Our expenses under this lease were \$1.2 million, \$1.3 million, and \$957,000, during 2011, 2010, and 2009, respectively.

Historically, we also have entered into various financing arrangements to lease laboratory and other equipment. The terms of these facilities and equipment leases are considered capitalized leases, and accordingly \$26,000 of equipment acquired under these agreements, which had been fully depreciated as of December 31, 2010, is included in our balance sheets at both December 31, 2011 and 2010.

There are no remaining minimum lease payments under these capitalized facilities and equipment arrangements as of December 31, 2011.

Technology Transfer and License Agreement. In 1994, we entered into a Technology Transfer and License Agreement with Case Western Reserve University ("CWRU") under which we purchased rights to certain mesenchymal stem cell and related technology and patents. We are required to pay royalties on revenues related to CWRU developed technology, with minimum royalties of \$50,000 per year. We paid CWRU \$50,000 in each of the years 2011, 2010, and 2009, under this agreement.

Legal. We are subject to certain litigation, claims and assessments which occur in the normal course of business. Based on consultation with our legal counsel, management is of the opinion that such matters, when resolved, will not have a material impact on our consolidated results of operations, financial position or cash flows.

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

12. Investments Available for Sale

Investments available for sale consisted of the following as of December 31, 2011 and 2010:

	December 31, 2011				December 31, 2010			
	Cost	Unrealized \$000		Fair Value	Cost	Unrealized \$000		Fair Value
Gain		Loss	Gain			Loss		
Cash equivalents:								
Money market funds & certificates of deposit	\$ 527	—	\$ —	\$ 527	\$ 10,299	\$ 1	\$ —	\$ 10,300
Commercial paper	15,411	4	(1)	15,414	18,589	—	—	18,590
	<u>15,937</u>	<u>4</u>	<u>(1)</u>	<u>15,940</u>	<u>28,888</u>	<u>1</u>	<u>—</u>	<u>28,889</u>
Short term investments:								
Common stock and municipal securities	1,612		(1)	1,611				
Corporate notes and bonds	26,834	16	(0)	26,850	36,081	7	(12)	36,076
US & International government agencies	1,201	2	—	1,203	1,200	1	—	1,201
	<u>29,647</u>	<u>18</u>	<u>(1)</u>	<u>29,664</u>	<u>37,281</u>	<u>8</u>	<u>(12)</u>	<u>37,277</u>
Investments available for sale	<u>\$ 45,584</u>	<u>\$ 22</u>	<u>\$ (2)</u>	<u>\$ 45,604</u>	<u>\$ 66,169</u>	<u>\$ 9</u>	<u>\$ (12)</u>	<u>\$ 66,166</u>

The following table summarizes maturities of our investments available for sale as of December 31, 2010 and 2009:

	December 31, 2011		December 31, 2010	
	Cost	Fair Value	Cost	Fair Value
Maturities:				
Within 3-months	\$ 42,612	\$ 42,627	\$ 52,607	\$ 52,601
Between 3-12 months	—	—	4,870	4,870
Between 1-2 years	2,971	2,977	8,692	8,695
Investments available for sale	<u>\$ 45,584</u>	<u>\$ 45,604</u>	<u>\$ 66,169</u>	<u>\$ 66,166</u>

Realized gains and investment income earned on investments available for sale for the years ended December 31, 2011, 2010, and 2009 were \$100,000, \$175,000 and \$1,277,000, respectively, and have been included as a component of "Other income, net" in the accompanying financial statements. The realized gains for fiscal 2009 included approximately \$900,000 on the sale of NuVasive stock received as part of the sale of our Osteocel operations, as described in Note 3 above.

13. Fair Value

Fair value is defined as the price at which an asset could be exchanged or a liability transferred (an exit price) in an orderly transaction between knowledgeable, willing parties in the principal or most advantageous market for the asset or liability. Where available, fair value is based on observable market prices or parameters or derived from such prices or parameters. Where observable prices or inputs are not available, valuation models are applied.

Financial assets recorded at fair value in the accompanying financial statements are categorized based upon the level of judgment associated with the inputs used to measure their fair value. The levels

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

13. Fair Value (Continued)

are directly related to the amount of subjectivity associated with the inputs to fair valuation of these assets and liabilities, and are as follows:

Level 1 Inputs are unadjusted, quoted prices in active markets for identical assets at the reporting date. Active markets are those in which transactions for the asset or liability occur in sufficient frequency and volume to provide pricing information on an ongoing basis.

The fair valued assets we hold that are generally included in this category are money market securities where fair value is based on publicly quoted prices.

Level 2 Inputs are other than quoted prices included in Level 1, which are either directly or indirectly observable for the asset or liability through correlation with market data at the reporting date and for the duration of the instrument's anticipated life.

The fair valued assets we hold that are generally included in this category are investment grade short-term securities.

Level 3 Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities and which reflect management's best estimate of what market participants would use in pricing the asset or liability at the reporting date. Consideration is given to the risk inherent in the valuation technique and the risk inherent in the inputs to the model.

We carry no investments classified as Level 3.

When quoted prices in active markets for identical assets are available, we use these quoted market prices to determine the fair value of financial assets and classify these assets as Level 1. In other cases where a quoted market price for identical assets in an active market is either not available or not observable, we obtain the fair value from a third party vendor that uses pricing models, such as matrix pricing, to determine fair value. These financial assets would then be classified as Level 2. In the event quoted market prices were not available, we would determine fair value using broker quotes or an internal analysis of each investment's financial statements and cash flow projections. In these instances, financial assets would be classified based upon the lowest level of input that is significant to the valuation. Thus, financial assets might be classified in Level 3 even though there could be some significant inputs that may be readily available. To date, we have never had any assets that were required to be classified as Level 3.

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

13. Fair Value (Continued)

Assets and liabilities measured at fair value on a recurring basis are summarized below as of December 31, 2011 and 2010:

	December 31, 2011			
	(\$000s)			
	Level I	Level II	Level III	Total
Assets				
Cash Equivalents	\$ 27	\$ —	\$ —	\$ 27
Government Obligations	1,203	—	—	1,203
Certificates of Deposit	—	500	—	500
Agency Obligations	—	26,850	—	26,850
Corporate Debt Securities & Commercial Paper	—	15,413	—	15,413
Foreign Bonds	—	1,611	—	1,611
Investments Available for Sale	<u>\$ 1,230</u>	<u>\$ 44,374</u>	<u>\$ —</u>	<u>\$ 45,604</u>

	December 31, 2010			
	(\$000s)			
	Level I	Level II	Level III	Total
Assets				
Cash Equivalents	\$ 9,449	\$ —	\$ —	\$ 9,449
Government Obligations	1,201	—	—	1,201
Certificates of Deposit	—	851	—	851
Agency Obligations	—	27,545	—	27,545
Corporate Debt Securities & Commercial Paper	—	26,201	—	26,201
Foreign Bonds	—	919	—	919
Investments Available for Sale	<u>\$ 10,650</u>	<u>\$ 55,516</u>	<u>\$ —</u>	<u>\$ 66,166</u>

OSIRIS THERAPEUTICS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

YEARS ENDED DECEMBER 31, 2011, 2010 AND 2009

14. Quarterly Financial Data (Unaudited)

Following is a summary of our unaudited quarterly results for the years ended December 31, 2011 and 2010:

	<u>First Quarter</u>	<u>Second Quarter</u>	<u>Third Quarter</u>	<u>Fourth Quarter</u>
	(\$000)	(\$000)	(\$000)	(\$000)
2011				
Revenues	\$ 10,432	\$ 10,354	\$ 10,573	\$ 11,044
Research and development expenses	4,711	5,209	5,018	4,218
General and administrative expenses and fees	1,696	3,280	1,429	1,476
Net income	4,039	1,792	4,013	5,048
**Net income per share, basic and diluted	0.12	0.05	0.12	0.15
2010				
Revenues	\$ 11,377	\$ 10,304	\$ 10,758	\$ 10,765
Research and development expenses	6,560	6,456	5,460	5,025
General and administrative expenses and fees	1,807	1,602	1,268	1,773
Net income	2,416	1,747	4,548	4,414
**Net income per share, basic and diluted	0.07	0.05	0.14	0.13

** Income (loss) per share is calculated on a quarterly basis and may not be additive to year-to-date amounts.

15. Subsequent Events

On February 9, 2012, we issued a Current Report on Form 8-K updating the status of our Collaboration Agreement with Genzyme Corporation, now a wholly owned subsidiary of Sanofi (NYSE: SYN), for the development and commercialization of our biologic drug candidates, Prochymal® and Chondrogen®. Under the Collaboration Agreement, non-contingent, non-refundable cash payments, totaling \$130.0 million, have been made to us since October 2008.

In February 2012, Sanofi issued a press release which included an update on their R&D pipeline, stating that it has "discontinued" its project with Prochymal for GvHD. The statement issued by Sanofi was made without consultation with or knowledge by us. Through our legal counsel, we have advised Sanofi that we are treating these public statements as Sanofi's election to terminate the collaboration agreement. The agreement provides for voluntary termination by Sanofi and that, upon such voluntary termination, all rights to Prochymal revert back to us, and we are free to commercialize or enter into commercialization agreements for Prochymal with other parties without restriction. While we have been proceeding on the basis that Sanofi has terminated the collaboration agreement, Sanofi has since advised us that it disagrees with our characterization of their press release. We have requested an explanation from Sanofi with respect to their statements regarding Prochymal. There can be no assurances as to the outcome of these matters. However, we continue to proceed with our Prochymal regulatory approval efforts and, if successful, commercialization, alone or with another collaborator.

We evaluated our December 31, 2011 financial statements for subsequent events through the date the financial statements were available for issuance. Other than the termination of our Collaboration Agreement, we are not aware of any subsequent events which would require recognition or disclosure in the financial statements.

OSIRIS THERAPEUTICS, INC.

SCHEDULE II—Valuation and Qualifying Accounts

For the Years Ended December 31, 2011, 2010 and 2009

(in thousands)

	Balance at Beginning of Year	Additions	Deductions	Balance at End of Year
Inventory Reserve:				
2011	\$ 300	\$ —	\$ (26)	\$ 274
2010	—	300	—	300
2009	—	—	—	—
Net Deferred Tax Asset Valuation Allowance:				
2011	\$ 77,317	\$ 1,351	\$ —	\$ 78,668
2010	78,600	1,887	(3,170)	77,317
2009	84,724	—	(6,124)	78,600

ITEM 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

ITEM 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures. An evaluation of the effectiveness of the design and operation of our "disclosure controls and procedures" (as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934, as amended), as of the end of the period covered by this Annual Report on Form 10-K was made under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer. Based upon this evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures (a) are effective to ensure that information required to be disclosed by us in reports filed or submitted under the Securities Exchange Act of 1934 is timely recorded, processed, summarized and reported and (b) include, without limitation, controls and procedures designed to ensure that information required to be disclosed by us in reports filed or submitted under the Securities Exchange Act of 1934 is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Management's Report on Internal Control over Financial Reporting. Management's report on internal control over financial reporting is included in "Item 8. Financial Statements and Supplementary Data."

Changes in Internal Control over Financial Reporting. There have not been any changes in our internal control over financial reporting that occurred during the fourth quarter of the fiscal year ended December 31, 2011 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. Other Information.

None.

PART III

Certain information required in Part III is omitted from this report, but is incorporated by reference from our definitive proxy statement for the 2012 Annual Meeting of Stockholders anticipated to be filed within 120 days after the end of our fiscal year ended December 31, 2011, pursuant to Regulation 14A with the Securities and Exchange Commission.

ITEM 10. Directors, Executive Officers and Corporate Governance.

The information required by this item and not set forth below is incorporated herein by reference to the information contained in the Proxy Statement.

We have adopted the Osiris Therapeutics, Inc. Code of Business Conduct & Ethics for Members of the Board of Directors and Executive Officers and the Osiris Therapeutics, Inc. Code of Conduct which applies to all our employees and members of the Board of Directors. These policies are publicly available on our website at <http://www//investor.osiris.com/documents.cfm>.

ITEM 11. Executive Compensation.

The information required by this item is incorporated herein by reference to the information contained in the Proxy Statement.

ITEM 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The information required by this item is incorporated herein by reference to the information contained in the Proxy Statement.

ITEM 13. Certain Relationships and Related Transactions, and Director Independence.

The information required by this item is incorporated herein by reference to the information contained in the Proxy Statement.

ITEM 14. Principal Accounting Fees and Services.

The information required by this item is incorporated herein by reference to the information contained in the Proxy Statement.

PART IV

ITEM 15. Exhibits, Financial Statement Schedules.

(a) The following documents are filed as part of this report:

1. The following financial statements are included in Item 8 of this Annual Report:

Management's Report on Internal Control over Financial Reporting
Report of Independent Registered Public Accounting Firm on Fiscal 2011, 2010 and 2009
Balance Sheets as of December 31, 2011 and 2010
Statements of Operations for the years ended December 31, 2011, 2010 and 2009
Statements of Stockholders' Equity (Deficit) for the years ended December 31, 2011, 2010 and 2009
Statements of Cash Flows for the years ended December 31, 2011, 2010 and 2009
Notes to Financial Statements

Schedules not listed above have been omitted because the information required to be set forth therein is not applicable.

2. Exhibits:

<u>Exhibit Number</u>	<u>Description of Exhibit</u>
3.1	Articles of Restatement of the Registrant as filed with the State Department of Assessments and Taxation of Maryland on June 4, 2010 (Incorporated herein by reference to Exhibit 3.1 to the Quarterly Report on Form 10-Q filed by the Registrant with the SEC on August 6, 2010).
3.2	Articles of Merger between Osiris Therapeutics, Inc., a Delaware corporation, and Osiris Maryland, Inc., a Maryland corporation, as survivor, changing the name of "Osiris Maryland, Inc." to "Osiris Therapeutics, Inc." as filed with the State Department of Assessments and Taxation of Maryland on May 27, 2010, and effective May 31, 2010 (Incorporated herein by reference to Exhibit 3.2 to the Current Report on Form 8-K filed by the Registrant with the SEC on June 2, 2010).
3.3	Bylaws of the Registrant (Incorporated herein by reference to Exhibit 3.3 to the Current Report on Form 8-K filed by the Registrant with the SEC on June 2, 2010).
4.1	Form of Common Stock Certificate (filed herewith).
10.1†	Amended and Restated 1994 Stock Incentive Plan, as amended.

<u>Exhibit Number</u>	<u>Description of Exhibit</u>
10.2	Amended and Restated 2006 Omnibus Plan, effective as of May 27, 2010. (Incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by the Registrant with the SEC on June 2, 2010).
10.3†	Director Compensation Policy.
10.4†	Employment Agreement by and between the Registrant and C. Randal Mills, Ph.D., dated as of May 15, 2004.
10.5†	Investor Rights Agreement by and between the Registrant and JCR Pharmaceuticals, Inc. dated August 26, 2003.
10.6†*	License Agreement by and between the Registrant and JCR Pharmaceuticals, Inc. dated August 26, 2003.
10.7†	Technology Transfer and License Agreement by and between the Registrant and Case Western University, dated as of January 1, 1993, as amended.
10.8	Common Stock Warrant No. CS-3 amended and restated as of April 1, 2011, and effective upon approval of the stockholders of the Registrant on May 26, 2011, by and between the Registrant and Peter Friedli (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q filed by the Registrant with the SEC on August 9, 2011).
10.9†	Employment Agreement, dated July 31, 2006, by and between the Registrant and Lode Debrabandere.
10.10	Award/Contract, dated January 3, 2008, issued by the U.S. Army Space & Missile Defense Command to the Registrant (Incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by the Registrant with the SEC on January 4, 2008).
10.11	Asset Purchase Agreement, dated May 8, 2008, by and between the Registrant and NuVasive, Inc. (Incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by the Registrant with the SEC on May 12, 2008).
10.12**	Manufacturing Agreement, dated as of July 24, 2008, by and between the Registrant and NuVasive, Inc. (Incorporated herein by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q filed by the Registrant with the SEC on November 10, 2008).
10.13**	Amendment to Asset Purchase Agreement, dated as of September 30, 2008, by and between Registrant and NuVasive, Inc. (Incorporated herein by reference to Exhibit 10.3 to the Quarterly Report on Form 10-Q filed by the Registrant with the SEC on November 10, 2008).
10.14***	Collaboration Agreement, dated October 31, 2008, by and between the Registrant and Genzyme Corporation (Incorporated herein by reference to Exhibit 10.56 to Annual Report on Form 10-K filed by the Registrant with the SEC on March 16, 2009).
10.15	Amendment No. 3 to Manufacturing Agreement, dated as of March 25, 2009, by and between Osiris Therapeutics, Inc. and NuVasive, Inc. (Incorporated herein by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q filed by the Registrant with the SEC on May 11, 2009).
10.16	Amendment No. 2 to Asset Purchase Agreement, dated as of March 25, 2009, by and between Osiris Therapeutics, Inc. and NuVasive, Inc. (Incorporated herein by reference to Exhibit 10.2 to Quarterly Report on Form 10-Q filed by the Registrant with the SEC on May 11, 2009).

Exhibit Number	Description of Exhibit
10.17 [†]	Lease Agreement by and between Gateway S-8, LLLP and Nova Telecommunications, Inc., dated August 11, 1998, as amended.
10.18 [†]	Agreement of Lease by and between the Registrant and Columbia Gateway S-28, L.L.C., dated June 6, 2006.
10.19	Employment Agreement by and between Osiris Therapeutics, Inc. and Stephen W. Potter entered into as of February 7, 2011 (Incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by the Registrant with the SEC on February 8, 2011).
11.1.1	Statement re: Computation of Per Share Loss (included in Note 2 to Financial Statements included in Part II Item 8 herein).
23.1.1	Consent of Grant Thornton LLP (filed herewith).
31.1.1	Rule 15d-14(a) Certification of C. Randal Mills, President and Chief Executive Officer (filed herewith).
31.2.1	Rule 15d-14(a) Certification of Philip R. Jacoby, Jr., Chief Financial Officer (filed herewith).
32.1.1	Section 1350 Certification of C. Randal Mills, Chief Executive Officer, and Philip R. Jacoby, Jr., Chief Financial Officer (filed herewith).
101	<i>The following materials from the Registrant's Annual Report on Form 10-K for the year ended December 31, 2011, formatted in Extensible Business Reporting Language (XBRL), include: (i) the Statements of Income, (ii) the Balance Sheets, (iii) the Statements of Cash Flows, and (iv) related notes (furnished herewith).</i>

[†] Incorporated herein by reference to corresponding Exhibit to the Registrant's Registration Statement on Form S-1, which was declared effective by the SEC on August 3, 2006.

* Confidential treatment has been granted for certain portions thereof pursuant to an order of the United States Securities and Exchange Commission issued in response to a Confidential Treatment Application filed by the Registrant in connection with its Registration Statement on Form S-1, declared effective on August 3, 2006.

** Confidential treatment has been granted for certain portions thereof pursuant to an order of the United States Securities and Exchange Commission issued in response to a Confidential Treatment Application filed by the Registrant in connection with its Quarterly Report on Form 10-Q, for the quarterly period ended September 30, 2008.

*** Confidential treatment has been granted for certain portions thereof pursuant to an order of the United States Securities and Exchange Commission issued in response to a Confidential Treatment Application filed by the Registrant in connection with its Annual Report on Form 10-K for the annual period ended December 31, 2008.

Signatures

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

OSIRIS THERAPEUTICS, INC.

March 14, 2012

By:

/s/ C. RANDAL MILLS

C. Randal Mills, Ph.D.
President & Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

<u>/s/ C. RANDAL MILLS</u> C. Randal Mills, Ph.D.	President and Chief Executive Officer (principal executive officer)	March 14, 2012
<u>/s/ PHILIP R. JACOBY, JR.</u> Philip R. Jacoby, Jr.	Chief Financial Officer (principal financial officer)	March 14, 2012
<u>/s/ MATTHEW NEUMAYER</u> Matthew Neumayer	Corporate Controller (principal accounting officer)	March 14, 2012
<u>/s/ GREGORY H. BARNHILL</u> Gregory H. Barnhill	Director	March 14, 2012
<u>/s/ PETER FRIEDLI</u> Peter Friedli	Director	March 14, 2012
<u>/s/ FELIX GUTZWILLER</u> Felix Gutzwiller	Director	March 14, 2012
<u>/s/ JAY M. MOYES</u> Jay M. Moyes	Director	March 14, 2012

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Exhibit 23.1.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our reports dated March 14, 2012, with respect to the financial statements, financial statement schedule, and internal control over financial reporting included in the Annual Report of Osiris Therapeutics, Inc. on Form 10-K for the year ended December 31, 2011. We hereby consent to the incorporation by reference of said reports in the Registration Statements of Osiris Therapeutics, Inc. on Forms S-8 (Nos. 333-167652, 333-137952 and 333-137953) and on Form S-3 (No. 333-148750).

/s/ Grant Thornton LLP

Baltimore, Maryland
March 14, 2012

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[Exhibit 23.1.1](#)

**Certification of Principal Executive Officer
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002**

I, C. Randal Mills, certify that:

1. I have reviewed this Annual Report on Form 10-K of Osiris Therapeutics, Inc., the Registrant;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 14, 2012

/s/ C. RANDAL MILLS

C. Randal Mills, Ph.D., *Chief Executive Officer*

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[Exhibit 31.1.1](#)

**Certification of Principal Financial Officer
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002**

I, Philip R. Jacoby, Jr., certify that:

1. I have reviewed this Annual Report on Form 10-K of Osiris Therapeutics, Inc., the Registrant;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 14, 2012

/s/ PHILIP R. JACOBY, JR.

Philip R. Jacoby, Jr., *Chief Financial Officer*

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[Exhibit 31.2.1](#)

Certification
Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
(Subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code)

Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of section 1350, chapter 63 of title 18, United States Code), each of the undersigned officers of Osiris Therapeutics, Inc., (the "Company"), does hereby certify, to the best of each officer's knowledge that:

The Annual Report on Form 10-K for the year ended December 31, 2011 (the "Form 10-K") of the Company fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and the information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 14, 2012

/s/ C. RANDAL MILLS

C. Randal Mills, Ph.D.
Chief Executive Officer

Date: March 14, 2012

/s/ PHILIP R. JACOBY, JR.

Philip R. Jacoby, Jr.
Chief Financial Officer

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request. This certification "accompanies" the Form 10-K to which it relates, is not deemed filed with the SEC and is not to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.

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[Exhibit 32.1.1](#)