

IsoRay, Inc.
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PROSPECTUS SUPPLEMENT
(To Prospectus dated November 13, 2009)

2,250,000 Shares of Common Stock
And

Warrants to Purchase Up to 4,041,667 Shares of Common Stock

We, IsoRay, Inc., are offering directly to an investor 2,250,000 shares of our common stock and warrants, in four series, to purchase up to 4,041,667 shares of our common stock pursuant to this prospectus supplement and the accompanying prospectus. The common stock is being offered at a per share purchase price of \$1.00. The shares of common stock and warrants will be issued separately but can only be purchased together in this offering. The warrants will have exercise prices that will vary and exercise terms of between ninety days and five years. For a more detailed description of our warrants, see the section entitled "Description of the Warrants" beginning on page S-17. For a more detailed description of our common stock, see the section entitled "Description of Capital Stock" beginning on page 7 of the accompanying prospectus.

We have retained LifeTech Capital, a division of Aurora Capital, LLC, as our placement agent to use its commercially reasonable efforts to solicit offers to purchase our common stock and warrants in this offering. The placement agent has no obligation to buy any shares of our common stock or warrants from us or to arrange for the purchase or sale of any specific number of dollar amount of the shares of common stock or warrants. See "Plan of Distribution" in this prospectus supplement for more information regarding these arrangements.

Our common stock is traded on the NYSE Amex under the symbol "ISR." On November 19, 2010, the last reported sales price of our common stock on the NYSE Amex was \$1.55 per share.

As of November 19, 2010, the aggregate market value of our outstanding common stock held by non-affiliates was approximately \$36,509,204 based on 23,554,325 shares of outstanding common stock, of which 23,121,143 shares were held by non-affiliates, and a per share price of \$1.55 based on the closing price of our common stock as quoted on the NYSE Amex on November 19, 2010.

As of the date hereof and excluding this offering, we have not offered any securities pursuant to General Instruction I.B.6. of Form S-3 during the prior twelve calendar month period that ends on, and includes, the date of this prospectus supplement, except for 304,227 shares of common stock sold in our at-the-market offering under the same base prospectus for gross proceeds of \$368,781.

Investing in our securities involves a high degree of risk. Before buying any securities, you should read the discussion of material risks of investing in our securities referred to under the heading "Risk Factors" beginning on page S-6 of this prospectus supplement.

	Per share	Total
Public offering price	\$ 1.00	\$ 2,250,000
Placement agent fees (1)	\$ 0.05	\$ 112,500
Proceeds, before expenses, to us	\$ 0.95	\$ 2,137,500

(1) Excludes that portion of the placement agent's fees payable in warrants and payable in cash upon exercise of certain of the warrants issued to the investor in this offering. See "Plan of Distribution." Assumes all 2,250,000 shares of common stock offered under this prospectus supplement and accompanying prospectus are sold. Does not include any proceeds to be received from the exercise of the warrants, if any.

We expect the total offering expenses, excluding the placement agent's fee, to be approximately \$137,500 for all sales pursuant to this prospectus supplement and accompanying prospectus.

Delivery of the securities will be made to the purchaser on or about November 26, 2010. The shares of common stock will be delivered in book-entry form through The Depository Trust Company, New York, New York, or by the issuance of physical certificates. The warrants sold in this offering will be delivered directly to the purchaser.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus supplement is November 24, 2010.

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ABOUT THIS PROSPECTUS SUPPLEMENT

A registration statement on Form S-3 (File No. 333-162694) utilizing a shelf registration process relating to the securities described in this prospectus supplement has been filed with the Securities and Exchange Commission, or the SEC, and was declared effective on November 13, 2009. Under this shelf registration process, of which this offering is a part, we may, from time to time, sell up to \$15,000,000 of common stock and other securities.

This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of this offering of our common stock and warrants and also adds, updates and changes information contained in the accompanying prospectus and the documents incorporated by reference. The second part is the accompanying base prospectus, which gives more general information, some of which may not apply to this offering of our common stock and warrants. To the extent the information contained in this prospectus supplement differs or varies from the information contained in the accompanying prospectus or any document filed prior to the date of this prospectus

supplement and incorporated by reference, the information in this prospectus supplement will control. Generally, when we refer to this "prospectus," we are referring to both documents combined.

You should rely only on the information contained in or incorporated by reference into this prospectus supplement and the accompanying prospectus. We have not, and the placement agent has not, authorized anyone to provide you with information that is different. This prospectus supplement is not an offer to sell or solicitation of an offer to buy these securities in any circumstances under which the offer or solicitation is unlawful. You should not assume that the information we have included in this prospectus supplement or the accompanying prospectus is accurate as of any date other than the date of this prospectus supplement or the accompanying prospectus, respectively, or that any information we have incorporated by reference is accurate as of any date other than the date of the document incorporated by reference, regardless of the time of delivery of this prospectus supplement or of any of our securities. It is important for you to read and consider all information contained in this prospectus supplement and the accompanying prospectus, including the documents incorporated by reference herein and therein, in making your investment decision. You should also read and consider the information in the documents we have referred you to in "Incorporation of Certain Documents by Reference" and "Where You Can Find More Information" in this prospectus supplement.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

All statements contained in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein, other than statements of historical facts, that address future activities, events or developments are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, which we refer to as the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, which we refer to as the Exchange Act. These statements often contain the words "may," "will," "believe," "expect," "anticipate," "intends," "estimate," "forecast," "project," and similar expressions, although not all forward-looking statements contain these words. All statements other than statements of historical fact are statements that could be deemed forward-looking statements, including statements relating but not limited to:

- projections of earnings, revenues or other financial items;
- plans and objectives of management for future operations;
- proposed new products or services;
- future operations, plans, regulatory filings or approvals;
- proposed new products or services, any statements regarding pending or future mergers or acquisitions; and
- future economic conditions or performance, and any statement of assumptions underlying any of the foregoing.

These statements are based on certain assumptions and analyses made by us in light of our experience and our assessment of historical trends, current conditions and expected future developments as well as other factors we believe are appropriate under the circumstances. However, whether actual results will conform to the expectations and predictions of management is subject to a number of risks and uncertainties that may cause actual results to differ materially.

You should not place undue reliance on our forward-looking statements because the matters they describe are subject to known and unknown risks, uncertainties and other unpredictable factors, many of which are beyond our control. Our forward-looking statements are based on the information currently available to us and speak only as of the date of this prospectus supplement, the date on the cover of the accompanying prospectus, or, in the case of forward-looking statements incorporated by reference, as of the date of the filing that includes the statement. New risks and uncertainties arise from time to time, and it is impossible for us to predict these matters or how they may affect us. Over time, our actual results, performance or achievements will likely differ from the anticipated results, performance or achievements that are expressed or implied by our forward-looking statements, and such difference might be significant and materially adverse to our security holders. We do not undertake and specifically decline any obligation

to update any forward-looking statements or to publicly announce the results of any revisions to any statements to reflect new information or future events or developments.

We have identified some of the important factors that could cause future events to differ from our current expectations and they are described in this prospectus supplement and the accompanying prospectus under the caption "Risk Factors" as well as in our most recent Annual Report on Form 10-K, including without limitation under the captions "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" and in other documents that we may file with the SEC, all of which you should review carefully. Please consider our forward-looking statements in light of those risks as you read this prospectus supplement and the accompanying prospectus.

INDUSTRY AND MARKET DATA

This prospectus supplement and the accompanying prospectus contain and incorporate by reference market data, industry statistics and other data that have been obtained from, or compiled from, information made available by third parties. Although we believe these third-party sources are reliable, we have not independently verified the information. Except as may otherwise be noted, none of the sources cited in this prospectus supplement or the accompanying prospectus has consented to the inclusion of any data from its reports, nor have we sought their consent. In addition, some data are based on our good faith estimates. Such estimates are derived from publicly available information released by independent industry analysts and third-party sources, as well as our own management's experience in the industry, and are based on assumptions made by us based on such data and our knowledge of such industry and markets, which we believe to be reasonable. However, none of our estimates have been verified by any independent source. See "Special Note Regarding Forward-Looking Statements" above.

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights selected information appearing elsewhere or incorporated by reference in this prospectus supplement and accompanying prospectus and may not contain all of the information that is important to you. This prospectus supplement and the accompanying prospectus include or incorporate by reference information about the securities we are offering as well as information regarding our business and detailed financial data. After you read this summary, you should read this prospectus supplement and the accompanying prospectus in their entirety, including the information incorporated by reference in this prospectus supplement and the accompanying prospectus, especially the section entitled "Risk Factors." If you invest in our securities, you are assuming a high degree of risk.

Unless the context requires otherwise, in this prospectus, the terms "IsoRay," the "Company," "we," "us," "our" and similar terms refer to IsoRay, Inc. and its operating subsidiary IsoRay Medical, Inc., and, to the extent applicable, its non-operating subsidiary, IsoRay International LLC.

BUSINESS OVERVIEW

In 2003, IsoRay obtained clearance from the FDA for treatment for all solid tumor applications using Cesium-131 (Cs-131). Such applications include prostate cancer; ocular melanoma; head, neck and lung tumors; and breast, liver, brain and pancreatic cancer. The seed may be used in surface, interstitial and intracavity applications for tumors with known radio sensitivity. Management believes its Cs-131 technology will allow it to become a leader in the brachytherapy market. Management believes that the IsoRay Proxcelan Cesium-131 brachytherapy seed represents the first major advancement in brachytherapy technology in over 21 years with attributes that could make it the long-term "seed of choice" for internal radiation therapy procedures.

IsoRay began production and sales of Proxcelan Cesium-131 brachytherapy seeds in October 2004 for the treatment of prostate cancer after clearance of its premarket notification (510(k)) by the Food and Drug Administration (FDA). In December 2007, IsoRay began selling its Proxcelan Cs-131 seeds for the treatment of ocular melanoma. In June 2009, the Company began selling its Proxcelan Cs-131 seeds for treatment of head and neck tumors, commencing with treatment of a tumor that could not be accessed by other treatment modalities. During the fiscal year ended June 30, 2010, the Company continued to expand the number of areas of the body in which the Proxcelan Cs-131 seeds were being utilized by adding lung cancer in August 2009, colorectal cancer in October 2009, and chest wall cancer in December 2009. The Company is continuing to expand the use of the Proxcelan Cs-131 seed for other cancer treatment applications using both existing delivery systems and researching delivery systems other than those historically used by the Company.

In August 2009, IsoRay Medical received clearance from the FDA for its premarket notification (510(k)) for Proxcelan™ Cesium-131 brachytherapy seeds that are preloaded into bioabsorbable braided strands. This clearance permits the product to be commercially distributed for treatment of lung, head and neck tumors as well as tumors in other organs. While Cs-131 brachytherapy seeds themselves have been cleared for treatment in all organs since 2003, this 510(k) allows Cs-131 seeds to be delivered in a convenient and sterile format that can be implanted without additional seed loading by the facility. The 510(k) also clears the application of braided strands onto a bioabsorbable mesh matrix to further facilitate the implant procedure.

Brachytherapy seeds are small devices used in an interstitial radiation procedure. The procedure has become one of the primary treatments for prostate cancer. The brachytherapy procedure places radioactive seeds as close as possible to (in or near) the cancerous tumor (the word "brachytherapy" means close therapy). The seeds deliver therapeutic radiation thereby killing the cancerous tumor cells while minimizing exposure to adjacent healthy tissue. This

procedure allows doctors to administer a higher dose of radiation directly to the tumor. Each seed contains a radioisotope sealed within a welded titanium capsule. When brachytherapy is the only treatment (monotherapy), approximately 70 to 120 seeds are permanently implanted in the prostate in an outpatient procedure lasting less than one hour. The number of seeds used varies based on the size of the prostate and the activity level specified by the physician. When brachytherapy is combined with external beam radiation or intensity modulated radiation therapy (dual therapy), then approximately 40 to 80 seeds are used in the procedure. The isotope decays over time and eventually the seeds become inert. The seeds may be used as a primary treatment or in conjunction with other treatment modalities, such as chemotherapy, or as treatment for residual disease after excision of primary tumors. The number of seeds for other treatment sites will vary from as few as 8 to 16 to as many as 117 to 123 depending on the type of cancer, the location of the tumor being treated and the type of therapy being utilized.

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Our Strategy

The key elements of IsoRay's strategy for fiscal year 2011 include:

§ Support clinical research and sustained product development. The Company plans to structure and support clinical studies on the therapeutic benefits of Cs-131 for the treatment of solid tumors and other patient benefits. We are and will continue to support clinical studies with several leading radiation oncologists to clinically document patient outcomes, provide support for our product claims, and compare the performance of our seeds to competing seeds. IsoRay plans to sustain long-term growth by implementing research and development programs with leading medical institutions in the U.S. and other countries to identify and develop other applications for IsoRay's core radioisotope technology.

Management plans to continue to build on an increasing number of studies related to Cs-131 therapy in the management of cancer that were published in the medical literature and presented at relevant oncology society meetings in 2010. The publication and presentation of speculative and real-world data contribute to the acceptability of Cs-131 in the oncologic marketplace, and discussion in the medico-scientific community of established and novel Cs-131 applications is considered a prerequisite to expansion into untapped markets.

In calendar year 2010, eight presentations were made at the American Brachytherapy Society describing Cs-131 treatment of prostate, lung, and breast cancer. Five publications were abstracted to the MEDLINE database of citations of the medical literature that reported patients treated with Cs-131 for prostate cancer. Five additional publications mentioned Cs-131 as an accepted treatment for prostate cancer, and two publications specifically discussed the physics and dosimetric profile of Cs-131 for the treatment of prostate and eye cancers.

§ Continue to introduce the Proxcelan Cs-131 brachytherapy seed into the U.S. market for prostate cancer. Utilizing our direct sales organization, IsoRay intends to continue to seek to increase the number of centers making the use of Proxcelan Cs-131 seeds available to their patients in brachytherapy procedures for prostate cancer and by increasing the number of patients being treated at current centers using the Proxcelan Cs-131 seeds. IsoRay hopes to capture much of the incremental market growth if and when seed implant brachytherapy recovers market share from other treatments and to take market share from existing competitors.

§ Increase utilization of Cs-131 in treatment of other solid tumor applications such as head and neck, lung, chest wall, and colorectal cancers. IsoRay Medical has clearance from the FDA for its premarket notification, (510(k)) for Proxcelan™ brachytherapy seeds that are preloaded into bioabsorbable braided strands. This order cleared the product for commercial distribution for treatment of lung and head and neck tumors as well as tumors in other organs. IsoRay will continue to explore licenses or joint ventures with other companies to develop the appropriate technologies and therapeutic delivery systems for treatment of other solid tumors such as breast, liver, pancreas, and brain cancers.

§ Return GliSite® radiation therapy system to market in the United States and European Union (EU). In June of 2010, the Company acquired exclusive worldwide distribution rights to the GliSite® radiation therapy system, the only FDA-cleared balloon catheter device used in the treatment of brain cancer from Hologic, Inc. The product possesses an established reimbursement rate for both in-patient and out-patient settings. The Company intends to return the product to market in a configuration equivalent to the original FDA-cleared device. The Company is working to obtain the rights to license or acquire the Iotrex solution (Iodine-125) manufactured for use in the GliSite® radiation therapy system. The Company has developed a liquid Cesium-131 solution for use in the GliSite® radiation therapy system as either a substitute for the Iotrex or as an alternative treatment option for physicians to utilize in the system.

§ Continue to develop data on Cs-131 for treatment of ocular melanoma. The Company's first sale for ocular melanoma occurred in late 2007 and periodic sales have occurred since then. IsoRay is sponsoring a prospective review of the patients treated with Cs-131 to date. Although the ocular melanoma market is not a large one, this application of Cs-131 continues to demonstrate the potential viability for other solid tumors.

- Introduce Proxcelan Cesium-131 brachytherapy seeds to the Canadian and European Union (EU) markets. Health Canada's Therapeutic Products Directorate has approved IsoRay's Class 3 Medical Device License Applications for Model CS-1 Proxcelan™ (Cesium-131) brachytherapy seeds and the Proxcelan™ Sterile Implant Devices containing Model CS-1 Seeds. This allows IsoRay to market its brachytherapy seeds and related preloaded brachytherapy seeds throughout Canada. In November 2009, the Company entered into a distribution agreement with Inter V Medical of Montreal, Quebec, Canada for exclusive rights to sell the Proxcelan Cs-131 brachytherapy seed in Canada. Approval to market Cesium-131 seeds in Russia was also obtained in 2009; and the Company has an exclusive distribution agreement in place with a Russian distributor, UralDial LLC, to distribute Proxcelan Cs-131 brachytherapy seeds in Russia, however, the economic downturn in Russia has slowed the Company's market penetration efforts. The Company is focusing on the Canadian and European Union (EU) markets until the Russian market recovers.

§ Maintain ISO 13485 certification. In August 2008, the Company obtained its ISO 13485 certification. This was an important step to allow the Company to register and eventually sell its Proxcelan Cs-131 brachytherapy seeds in Canada, the European Union (EU) and Russia. The Company completed its registrations of Proxcelan Cs-131 brachytherapy seeds in Canada and Russia during fiscal year 2009.

OUR CORPORATE INFORMATION

Our principal executive offices are located at 350 Hills Street, Suite 106, Richland, Washington 99354, and our telephone number is (509) 375-1202. We maintain an Internet website at www.isoray.com. We have not incorporated by reference into this prospectus supplement or the accompanying prospectus the information in, or that can be accessed through, our website, and you should not consider it to be a part of this prospectus supplement or the accompanying prospectus.

Although our predecessor operating company was organized in 1998, IsoRay, Inc. was incorporated in 1983 in Minnesota and operated under the name Century Park Pictures Corporation until the merger with IsoRay Medical, Inc. on July 28, 2005.

THE OFFERING

The following is a brief summary of some of the terms of the offering and is qualified in its entirety by reference to the more detailed information appearing elsewhere in this prospectus supplement and the accompanying prospectus. For a more complete description of the terms of our common stock and the warrants, see the "Description of the Securities We Are Offering" section in this prospectus supplement.

Securities We Are Offering Shares of our common stock, par value \$0.001 per share, having an aggregate gross offering price of \$2,250,000 and four series of warrants to purchase shares of common stock as described below

Common Stock Outstanding Before This Offering 23,554,325 shares as of November 23, 2010

Common Stock To Be Outstanding After This Offering 25,804,325 shares, assuming no warrants offered hereby are exercised, and 29,845,992 shares assuming the maximum number of warrants issuable hereunder are issued and exercised and no other shares of common stock are issued

Warrants The Company will issue four series of warrants (collectively, the "Warrants") - (i) Series A Warrants in an amount equal to \$500,000 divided by the lower of \$1.50 and 90% of the average of the 3 lowest volume weighted average prices out of the 15 trading days preceding the exercise date (with a floor of \$0.75 for a maximum of 666,667 shares of common stock issuable upon exercise of the Series A Warrants); (ii) Series B Warrants exercisable for 562,500 shares of common stock; (iii) Series C Warrants exercisable for 2,812,500 shares of common stock; and (iv) Series D Warrants exercisable for 2,812,500 shares of common stock but the Series D Warrants will only be exercisable to the extent that any of the Series C Warrants may not be exercised due to NYSE AMEX shareholder approval requirements limiting the number of overall below-market securities issuable to no greater than 4,418,026 shares of common stock.

The exercise price of each of the Series A, B and C Warrants will be equal to the lower of (i) \$1.50 and (ii) 90% of the average of the 3 lowest volume weighted average prices out of the 15 trading days preceding the exercise date, but in no event will the exercise price of the Series A Warrants be less than \$0.75 per share. The Warrants will have terms varying from ninety days from the offering closing date for the Series A Warrants to six months from

the offering closing date for the Series B Warrants to five years from the initial exercisability date for the Series C and D Warrants. The Series A, B and C Warrants will be immediately exercisable following the closing of the offering. The Series D Warrants will not be exercisable until six months after the closing and will have an exercise price equal to \$1.56.

The Series A Warrants will be eligible to be exercised at the option of the Company beginning on the 75th day after issuance and ending on the 90th day after issuance subject to the exercise price being above \$0.75 for the 15 day period prior to expiration and to meeting other equity conditions.

All of the Series B Warrants and 562,500 of the Series C Warrants will be eligible to be exercised at the option of the Company at any time 20 trading days prior to the 6 month anniversary of their issuance provided the common stock is trading at or above \$2.45 for 20 cumulative trading days and to meeting other equity conditions.

Market for the Warrants There is no established public trading market for the Warrants, and we do not expect a market to develop. In addition, we do not intend to apply for listing of the Warrants on any securities exchange.

Use of Proceeds We estimate that the net proceeds to us from this offering after expenses and commissions will be approximately \$2,000,000, excluding amounts that may be received from exercise of the Warrants. We intend to use the net proceeds from the sale of our shares of common stock offered by this prospectus supplement for general corporate purposes, including without limitation, capital expenditures and working capital needs. See "Use of Proceeds."

Risk Factors See "Risk Factors" and other information included in this prospectus supplement, or incorporated herein by reference, for a discussion of factors you should carefully consider before deciding to invest in the common stock and Warrants offered hereby (the "Securities").

Dividends We have not paid any cash dividends on our common stock and currently intend to retain any earnings to fund our working capital needs and growth opportunities.

NYSE Amex Symbol ISR

Except as otherwise provided for herein, the information contained in this prospectus supplement assumes the sale of all of the Securities offered hereby and that none of the Warrants sold hereunder have been exercised.

The number of shares of our common stock outstanding before this offering is based on approximately 23,554,225 shares outstanding as of November 23, 2010 and excludes:

- 2,964,424 shares of common stock issuable upon the exercise of warrants outstanding at November 23, 2010 at a weighted average exercise price of \$5.60 per share;
- 59,065 shares of common stock issuable upon the conversion of preferred stock outstanding at November 23, 2010;
- 2,151,372 shares of common stock issuable upon the exercise of options outstanding at November 23, 2010 at a weighted average exercise price of \$1.87 per share; and

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1,675,179 shares of common stock reserved for future stock option grants as of November 23, 2010 under our equity compensation plans.

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RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the risks listed below and other information included and incorporated by reference in this prospectus supplement and accompanying prospectus. There may also be risks of which we are currently unaware, or that we currently regard as immaterial based on the information available to us that later prove to be material. If any of these risks occur, our business, operating results and financial condition could be seriously harmed, the trading price of our common stock could decline, and you could lose some or all of your investment.

Risks Related to this Offering

Our Stock Price Is Likely To Be Volatile. There is generally significant volatility in the market prices and limited liquidity of securities of early stage companies, and particularly of early stage medical product companies. Contributing to this volatility are various events that can affect our stock price in a positive or negative manner. These events include, but are not limited to: governmental approvals of or refusals to approve regulations or actions; market acceptance and sales growth of our products; litigation involving the Company or our industry; developments or disputes concerning our patents or other proprietary rights; changes in the structure of healthcare payment systems; departure of key personnel; future sales of our securities; fluctuations in our financial results or those of companies that are perceived to be similar to us; swings in seasonal demands of purchasers; investors' general perception of us; and general economic, industry and market conditions. If any of these events occur, it could cause our stock price to fall.

The Price Of Our Common Stock May Be Adversely Affected By The Future Issuance And Sale Of Shares Of Our Common Stock Or Other Equity Securities, Including Pursuant To The Sales Agreement, Or By Our Announcement That Such Issuances And Sales May Occur. We cannot predict the size of future issuances or sales of our common stock or other equity securities, including those made pursuant to the Company's securities purchase agreement with an investor who purchased 2.25 million shares and warrants to purchase up to 4,041,667 shares of common stock, those made pursuant to the Company's Sales Agreement with C.K. Cooper & Company, Inc., future acquisitions or capital raising activities, or the effect, if any, that such issuances or sales may have on the market price of our common stock. The issuance and sale of substantial amounts of common stock or other equity securities, including the issuances and sales pursuant to this offering, or announcement that such issuances and sales may occur, could adversely affect the market price of our common stock.

Our Reduced Stock Price May Adversely Affect Our Liquidity. Our common stock has been trading at less than \$1.00 per share periodically in the last year. Many market makers are reluctant to make a market in stock with a trading price of less than \$1.00 per share. To the extent that we have fewer market makers for our common stock, our volume and liquidity will likely decline, which could further depress our stock price.

Future Sales By Shareholders, Or The Perception That Such Sales May Occur, May Depress The Price Of Our Common Stock. The sale or availability for sale of substantial amounts of our shares in the public market, including shares issuable upon conversion of outstanding preferred stock or exercise of common stock warrants and options, or the perception that such sales could occur, could adversely affect the market price of our common stock and also could impair our ability to raise capital through future offerings of our shares. As of November 23, 2010, we had 23,554,225 outstanding shares of common stock, and the following additional shares were reserved for issuance: 2,151,372 shares upon exercise of outstanding options, 2,964,424 shares upon exercise of outstanding warrants, and 59,065 shares upon conversion of preferred stock. Any decline in the price of our common stock may encourage short sales, which could place further downward pressure on the price of our common stock and may impair our ability to raise additional capital through the sale of equity securities.

The Issuance Of Shares Upon Exercise Of Derivative Securities May Cause Immediate And Substantial Dilution To Our Existing Shareholders. The issuance of shares upon conversion of the preferred stock and the exercise of common stock warrants and options may result in substantial dilution to the interests of other shareholders since these selling shareholders may ultimately convert or exercise and sell all or a portion of the full amount issuable upon exercise. If all derivative securities were converted or exercised into shares of common stock, including the maximum number of Warrants issuable in this offering, there would be approximately an additional 9,216,000 shares of common stock outstanding as a result. The issuance of these shares will have the effect of further diluting the proportionate equity interest and voting power of holders of our common stock.

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Failure to Comply with NYSE Amex Listing Standards And Any Resulting Delisting Could Adversely Affect The Market For Our Common Stock. Our common stock is presently listed on the NYSE Amex. The NYSE Amex will consider delisting a company's securities if, among other things, the company fails to maintain minimum stockholder's equity or the company has sustained losses which are so substantial in relation to its overall operations or its existing financial resources, or its financial condition has become so impaired that it appears questionable, in the opinion of the NYSE Amex, as to whether such issuer will be able to continue operations and/or meet its obligations as they mature. As of the quarter ended September 30, 2010, IsoRay fell below the minimum stockholder's equity requirement of \$6 million needed to maintain its listing. Management is actively pursuing this offering to increase its stockholder's equity above \$6 million and believes that the purchase of the \$2.25 million of common stock by the investor will be sufficient through fiscal 2011. There can be no assurance that we will be able to continue to raise sufficient capital to maintain our listing on the NYSE Amex. In the event that our common stock is delisted from the NYSE Amex, trading, if any, in the common stock would be conducted in the over-the-counter market. As a result, our shareholders would likely find it more difficult to dispose of, or to obtain accurate quotations as to the market value of, our common stock.

There Is No Public Market For The Warrants To Purchase Common Stock In This Offering. There is no established public trading market for the Warrants being offered in this offering, and we do not expect a market to develop. In addition, we do not intend to apply for listing the Warrants on any securities exchange or for quotation on the any securities market. Without an active market, the liquidity of the Warrants will be limited.

We Do Not Expect To Pay Any Dividends For The Foreseeable Future. We do not anticipate paying any dividends to our shareholders for the foreseeable future except for dividends on the Series B Preferred Stock which we intend to pay on or before December 31, 2010 if required to comply with the Form S-3 eligibility requirements. The terms of certain of our and our subsidiary's outstanding indebtedness substantially restrict the ability of either company to pay dividends. Accordingly, shareholders must be prepared to rely on sales of their common stock after price appreciation to earn an investment return, which may never occur. Any determination to pay dividends in the future will be made at the discretion of our Board of Directors and will depend on our results of operations, financial conditions, contractual restrictions, restrictions imposed by applicable laws and other factors our Board deems relevant.

Since We Have Broad Discretion In How We Use The Proceeds From This Offering, We May Use The Proceeds In Ways In Which You Disagree. Our management will have significant flexibility in applying the net proceeds of this offering. You will be relying on the judgment of our management with regard to the use of these net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. It is possible that the net proceeds will be invested in a way that does not yield a favorable, or any, return for our company. The failure of our management to use such funds effectively could have a material adverse effect on our business, financial condition, operating results and cash flow.

Purchasers Of The Shares And Purchasers Of The Warrants Who Exercise Their Warrants Will Incur Immediate Dilution. Purchasers of shares of common stock in this offering and purchasers who convert their Warrants into shares of common stock will experience immediate and substantial dilution because the purchase price of the common stock will be and the per share exercise price of the Warrants will likely be higher than the net tangible book value per share of the outstanding common stock immediately after this offering. In addition, purchasers will experience dilution, which may be substantial, when we issue additional shares of common stock that we are permitted or required to issue under options, warrants, our stock option plans or other employee or director compensation plans.

Holders Of The Warrants Will Have No Rights As Common Shareholders Until They Exercise Their Warrants But Will Receive Any Dividends. Until holders of the Warrants offered hereby acquire shares of our common stock upon exercise of the Warrants, they will have no rights with respect to our common stock but will be paid dividends upon exercise if any dividends are paid to shareholders of common stock. Upon exercise of the Warrants, holders will be entitled to exercise the rights of a common stockholder only as to matters for which the record date occurs after the exercise date.

Risks Related To Our Business

Our Revenues Depend Upon One Product. Until such time as we develop additional products, our revenues depend upon the successful production, marketing, and sales of the Proxcelan Cs-131 brachytherapy seed. The rate and level of market acceptance of this product may vary depending on the perception by physicians and other members of the healthcare community of its safety and efficacy as compared to that of competing products, if any; the clinical outcomes of the patients treated; the effectiveness of our sales and marketing efforts in the United States, Canada, the European Union (EU) and Russia; any unfavorable publicity concerning our product or similar products; our product's price relative to other products or competing treatments; any decrease in current reimbursement rates from the Centers for Medicare and Medicaid Services or third-party payers; regulatory developments related to the manufacture or continued use of the product; availability of sufficient supplies of enriched barium (now coming from Russia) for Cs-131 seed production; ability to produce sufficient quantities of this product; the ability of physicians to properly utilize the device and avoid excessive levels of radiation to patients, and the ability to use this product to treat multiple types of cancers in various organs. Because of our reliance on this product as the sole source of our revenue, any material adverse developments with respect to the commercialization of this product may cause us to continue to incur losses rather than profits in the future.

Although Cleared To Treat Any Malignant Tissue, Our Sole Product Is Currently Used To Treat Primarily One Type Of Cancer. Currently, the Proxcelan Cs-131 seed is used almost exclusively for the treatment of prostate cancer (over ninety-six percent of our sales). We are just beginning to treat other types of cancer including lung cancer (approximately 3% of our sales) and ocular melanoma, head and neck, colorectal and chest wall that together constitute less than one percent of our sales. Management believes the Proxcelan Cs-131 seed will continue to be used to treat other types of cancers as the Company identifies existing delivery systems that it can be utilized or develops new delivery methods for the product, however these delivery systems may not prove as effective as anticipated. Management believes that clinical data gathered by select groups of physicians under treatment protocols specific to other organs will be needed prior to widespread acceptance of our product for treating other cancer sites. If our current and future products do not become accepted in treating cancers of other sites, our sales will depend solely on treatment of prostate cancer, a market with increasing competition and ongoing loss of market share by all brachytherapy products.

We Have Ongoing Cash Requirements. IsoRay has generated material operating losses since inception. We expect to continue to experience significant net operating losses. Due to recent capital investments and substantial cost reductions, management believes cash and cash equivalents on hand upon receiving the net proceeds of approximately \$2 million in this offering will be sufficient to meet our anticipated cash requirements for operations, debt service, and capital expenditure requirements through December 31, 2011. Management now estimates that operational cashflow breakeven will be achieved at approximately \$700,000 in monthly revenue. However, there is no assurance as to when break-even will occur. If we are unable to generate profits and unable to obtain additional financing to meet our working capital requirements, we may have to curtail our business.

We Rely Heavily On A Limited Number Of Suppliers. Some materials used in our products are currently available only from a limited number of suppliers. In fiscal 2010, approximately sixty-eight percent (68%) of our Cs-131 was supplied through UralDial from reactors located in Russia. Unless the Company substantially increases its purchase

requirements resulting from significant increases in demand for its product, the cost of Cs-131 in Russia could increase from current pricing. Our current contract with UralDial terminates on December 31, 2010 and is in the process of being renegotiated. Management will seek to negotiate favorable pricing but there is no assurance as to the outcome of these negotiations.

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If the development of barium enrichment capabilities is successful, the Company plans to expand Cs-131 manufacturing capability at the MURR reactor in the United States. Reliance on any single supplier increases the risks associated with concentrating isotope production at a single reactor facility which can be subject to unanticipated shutdowns. Failure to obtain deliveries of Cs-131 from multiple sources could have a material adverse effect on seed production and there may be a delay before we could locate alternative suppliers beyond the three currently used.

We may not be able to locate additional suppliers outside of Russia capable of producing the level of output of cesium at the quality standards we require. Additional factors that could cause interruptions or delays in our source of materials include limitations on the availability of raw materials or manufacturing performance experienced by our suppliers and a breakdown in our commercial relations with one or more suppliers. Some of these factors may be completely out of our and our suppliers' control.

Virtually all titanium tubing used in brachytherapy seed manufacture comes from a single source, Accellent Corporation. We currently obtain a key component of our seed core from another single supplier. We do not have formal written agreements with Accellent Corporation. Any interruption or delay in the supply of materials required to produce our products could harm our business if we were unable to obtain an alternative supplier or substitute equivalent materials in a cost-effective and timely manner. To mitigate any potential interruptions, the Company continually evaluates its inventory levels and management believes that the Company maintains a sufficient quantity on hand to alleviate any potential disruptions.

Unfavorable Industry Trends in the Prostate Market. Several factors occurred in fiscal 2009 that caused our revenues to significantly decline and these factors continued into fiscal 2010 and fiscal 2011 contributing to our failure to improve sales in the prostate market. Beginning in the fall of 2008, U.S. consumers significantly curtailed all spending (even for life saving medical procedures) which impacted the brachytherapy industry as a whole. In February of 2009 noted urologists announced at a medical conference that prostate specific antigen (PSA) testing was not as necessary as previously believed. Their statements were widely publicized. Management continues to believe that many people have been influenced by these statements to cut back on PSA testing thereby decreasing in the short term the number of prostate procedures performed.

In 2010, the American Cancer Society revised their advice regarding PSA testing. In March 2010, the American Cancer Society warned that regular testing for prostate cancer is of questionable value and can do men more harm than good. The ACS suggested that an initial discussion about screening should take place at age 50 for men who are at average risk of prostate cancer and are expected to live at least 10 more years. For men at high risk of developing prostate cancer, the discussion should take place starting at age 45 for men at high risk of developing prostate cancer, this includes African American men and men who have a first-degree relative (father, brother or son) diagnosed with prostate cancer at an early age (younger than age 65). For men at even higher risk such as those with several first-degree relatives who had prostate cancer at an early age, this discussion should take place at age 40. After this discussion, those men who want to be screened should be tested with the prostate specific antigen (PSA) blood test. The digital rectal exam (DRE) may also be done as a part of screening but is no longer recommended.

Also the emergence of IMRT as the preferred treatment alternative as a result of a much higher reimbursement rate to physicians compared to brachytherapy treatments has resulted in declining market share for brachytherapy treatment. In fiscal 2011, each of these factors continued to impact the performance of the Company in the prostate market and the industry as a whole and there is no assurance that they will not continue to impact sales of the Company in the prostate market through fiscal 2011.

Future Production Increases Will Depend on Our Ability to Acquire Larger Quantities of Cs-131 and Hire More Employees. IsoRay currently obtains Cs-131 through its contract with UralDial and through reactor irradiation of natural barium and subsequent separation of Cs-131 from the irradiated barium targets. The amount of Cs-131 that

can be produced from a given reactor source is limited by the power level and volume available within the reactor for irradiating targets. This limitation can be overcome by utilizing barium feedstock that is enriched in the stable isotope Ba-130. However, the number of suppliers of enriched barium is limited and they may be unable to produce this material in sufficient quantities and at a reasonable price.

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IsoRay entered into an exclusive agreement (through December 31, 2010) with UralDial in Russia to provide Cs-131 in quantities sufficient to supply a significant percentage of future demand for this isotope. Due to the purchase of enriched barium in June 2007, IsoRay has access to sufficient quantities of enriched barium that may be recycled to increase the production of Cs-131. Although the UralDial agreement provides for supplying Cs-131 in significant quantities, there is no assurance that this will result in IsoRay gaining access to a continuing sufficient supply of enriched barium feedstock. If we were unable to obtain supplies of isotopes from Russia in the future, our overall supply of Cs-131 would be reduced significantly unless the Company has a source of enriched barium for utilization in domestic reactors.

We Have Entered Into An Agreement With A Single Distributor For Our Cesium-131 From Russia. In December 2009, the Company entered into a new agreement with UralDial to purchase Cs-131 directly from UralDial through December 31, 2010 instead of directly from Institute of Nuclear Materials (INM) and Research Institute of Atomic Reactors (RIAR) as the Company had done prior to the original agreement with UralDial in December 2008. As a result, the Company continues to rely on UralDial to obtain Cs-131 from Russian sources. UralDial has agreed to maintain at least two Russian sources of its Cs-131 and through the UralDial agreement we have obtained set pricing for our Russian Cs-131 through the end of 2010. There can be no guarantee that UralDial will always be able to supply us with sufficient Cs-131 or will renew our existing contract on favorable terms in December 2010, which could be due in part to risks associated with foreign operations and beyond our and UralDial's control. If we were unable to obtain supplies of isotopes from Russia in the future, our overall supply of Cs-131 would be reduced significantly unless we have a source of enriched barium for utilization in domestic reactors.

We Are Subject To Uncertainties Regarding Reimbursement For Use Of Our Products. Hospitals and freestanding clinics may be less likely to purchase our products if they cannot be assured of receiving favorable reimbursement for treatments using our products from third-party payers, such as Medicare and private health insurance plans. Currently, Medicare reimburses hospitals at fixed rates that cover the cost of stranded and loose seeds. Clinics and physicians performing procedures in a free standing center are reimbursed at the actual cost of the seeds. It is expected that CMS will continue to reimburse providers using this same methodology in 2011.

In 2003, IsoRay applied to the CMS and received a reimbursement code for our Cs-131 seed. On July 1, 2007, CMS revised the coding system for brachytherapy seeds and separated the single code into two codes – one code for loose seeds and a second code for stranded seeds. This methodology was applied to all companies manufacturing brachytherapy seeds. Reimbursement amounts are reviewed and revised annually based upon information submitted to CMS on claims by providers. Although no changes are anticipated for 2011, adjustments can be made to reimbursement amounts or coverage policies, which could result in changes to reimbursement for brachytherapy services. These changes can positively or negatively affect market demand for our products. We monitor these changes and provide comments, as permitted, when changes are proposed, prior to implementation.

In July 2010, CMS published proposed changes for both reimbursement programs for government fiscal year 2011. No changes in reimbursement have been proposed by CMS for 2011. If the proposed changes are finalized, as expected in November 2010, there will be no changes in CMS reimbursement for 2011 but there is no assurance this will occur and is subject to revision annually.

Historically, private insurers have followed Medicare guidelines in establishing reimbursement rates. However, third-party payers are increasingly challenging the pricing of certain medical services or devices, and we cannot be sure that they will reimburse our customers at levels sufficient for us to maintain favorable sales and price levels for our products. There is no uniform policy on reimbursement among third-party payers, and we can provide no assurance that our products will continue to qualify for reimbursement from all third-party payers or that reimbursement rates will not be reduced. A reduction in or elimination of third-party reimbursement for treatments using our products would likely have a material adverse effect on our revenues.

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Furthermore, any federal and state efforts to reform government and private healthcare insurance programs, such as those passed by the federal government in 2010, could significantly affect the purchase of healthcare services and products in general and demand for our products in particular. Medicare is the payer in approximately 70% of all U.S. prostate brachytherapy cases and management anticipates this percentage to increase annually. We are unable to predict whether potential healthcare reforms will be enacted, whether other healthcare legislation or regulations affecting the business may be proposed or enacted in the future or what effect any such legislation or regulations would have on our business, financial condition or results of operations.

Our Operating Results Will Be Subject To Significant Fluctuations. Our quarterly revenues, expenses, and operating results are likely to fluctuate significantly in the future. Fluctuation may result from a variety of factors, which are discussed in detail throughout this "RISK FACTORS" section, including:

- § our achievement of product development objectives and milestones;
- § demand and pricing for the Company's products;
- § effects of aggressive competitors;
- § hospital, clinic and physician purchasing decisions;
- § research and development and manufacturing expenses;
- § patient outcomes from our therapy;
- § physician acceptance of our products;
- § government or private healthcare reimbursement policies;
- § healthcare reform;
- § our manufacturing performance and capacity;
- § incidents, if any, that could cause temporary shutdown of our manufacturing facility;
- § the amount and timing of sales orders;
- § rate and success of future product approvals;
- § timing of FDA clearance, if any, of competitive products and the rate of market penetration of competing products;
- § seasonality of purchasing behavior in our market;
- § overall economic conditions; and
- § the successful introduction or market penetration of alternative therapies.

We Have Limited Data on the Clinical Performance of Cs-131. As of June 30, 2010, the Proxcelan Cs-131 seed had been implanted in over 5,000 patients and research papers are being published on the use of the Proxcelan seed. While there is less historical statistical data for the Proxcelan seed than is available for I-125 and Pd-103 seeds during the fiscal year ended June 30, 2010, the Company reached a key milestone by collecting the first 5 year outcome data for patients that received treatment with the Proxcelan seed. In addition, during 2010 there were nine reports of the Proxcelan seed being used in the treatment of prostate and ocular melanoma published in peer-reviewed literature. There were eight presentations made at the 2010 meeting of the American Brachytherapy Society covering the application of the Proxcelan seed in prostate, lung and breast cancers. While this limited data may prevent us from drawing statistically significant conclusions, the side effects experienced by these patients were less severe than side effects observed in seed brachytherapy with I-125 and Pd-103 and in other forms of treatment such as radical prostatectomy. These early results indicate that the onset of side effects generally occurs between one and three weeks post-implant, and the side effects are resolved between five and eight weeks post-implant, more quickly than the resolution of side effects that occur with competing seeds or with other forms of treatment. These limited findings support management's belief that the Cs-131 seed will result in less severe side effects than competing treatments, but we may have to gather data on outcomes from additional patients before we can establish statistically valid conclusions regarding the incidence of side effects from our seeds.

We Are Subject To The Risk That Certain Third Parties May Mishandle Our Product. We rely on third parties, such as Federal Express, to deliver our Proxcelan Cs-131 seed, and on other third parties, including various radiopharmacies,

to package our Proxcelan Cs-131 seed in certain specialized packaging forms requested by customers. We are subject to the risk that these third parties may mishandle our product, which could result in adverse effects, particularly given the radioactive nature of our product.

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It Is Possible That Other Treatments May Be Deemed Superior To Brachytherapy. Our Proxcelan Cs-131 seed faces competition not only from companies that sell other radiation therapy products, but also from companies that are developing alternative therapies for the treatment of cancers. It is possible that advances in the pharmaceutical, biomedical, or gene therapy fields could render some or all radiation therapies, whether conventional or brachytherapy, obsolete. If alternative therapies are proven or even perceived to offer treatment options that are superior to brachytherapy, physician adoption of our product could be negatively affected and our revenues from our product could decline.

Our Industry Is Intensely Competitive. The medical device industry is intensely competitive. We compete with both public and private medical device, biotechnology and pharmaceutical companies that have been in existence longer than we have, have a greater number of products on the market, have greater financial and other resources, and have other technological or competitive advantages. In addition, centers that wish to offer the Proxcelan Cs-131 seed must comply with licensing requirements specific to the state in which they do business and these licensing requirements may take a considerable amount of time to comply with. Certain centers may choose to not offer our Proxcelan Cs-131 seed due to the time required to obtain necessary license amendments. We also compete with academic institutions, government agencies, and private research organizations in the development of technologies and processes and in acquiring key personnel. Although we have patents granted and patents applied for to protect our isotope separation processes and Cs-131 seed manufacturing technology, we cannot be certain that one or more of our competitors will not attempt to obtain patent protection that blocks or adversely affects our product development efforts. To minimize this potential, we have entered into exclusive agreements with key suppliers of isotopes and isotope precursors, which are subject to becoming non-exclusive as we have failed to meet minimum purchase requirements.

We May Be Unable To Adequately Protect Or Enforce Our Intellectual Property Rights Or Secure Rights To Third-Party Patents. Our ability and the abilities of our partners to obtain and maintain patent and other protection for our products will affect our success. We are assigned, have rights to, or have exclusive licenses to patents and patents pending in the U.S. and numerous foreign countries. The patent positions of medical device companies can be highly uncertain and involve complex legal and factual questions. Our patent rights may not be upheld in a court of law if challenged. Our patent rights may not provide competitive advantages for our products and may be challenged, infringed upon or circumvented by our competitors. We cannot patent our products in all countries or afford to litigate every potential violation worldwide.

Because of the large number of patent filings in the medical device and biotechnology field, our competitors may have filed applications or been issued patents and may obtain additional patents and proprietary rights relating to products or processes competitive with or similar to ours. We cannot be certain that U.S. or foreign patents do not exist or will not be issued that would harm our ability to commercialize our products and product candidates.

The Value Of Our Granted Patents, and Our Patents Pending, Is Uncertain. Although our management strongly believes that our patent on the process for producing Cs-131, our patents on additional methods for producing Cs-131 and other isotopes, our patent pending on the manufacture of the brachytherapy seed, and anticipated future patent applications, which have not yet been filed, have significant value, we cannot be certain that other like-kind processes may not exist or be discovered, that any of these patents is enforceable, or that any of our patent applications will result in issued patents.

Failure To Comply With Government Regulations Could Harm Our Business. As a medical device and medical isotope manufacturer, we are subject to extensive, complex, costly, and evolving governmental rules, regulations and restrictions administered by the FDA, by other federal and state agencies, and by governmental authorities in other countries. Compliance with these laws and regulations is expensive and time-consuming, and changes to or failure to comply with these laws and regulations, or adoption of new laws and regulations, could adversely affect our business.

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In the United States, as a manufacturer of medical devices and devices utilizing radioactive by-product material, we are subject to extensive regulation by federal, state, and local governmental authorities, such as the FDA and the Washington State Department of Health, to ensure such devices are safe and effective. Regulations promulgated by the FDA under the U.S. Food, Drug and Cosmetic Act, or the FDC Act, govern the design, development, testing, manufacturing, packaging, labeling, distribution, marketing and sale, post-market surveillance, repairs, replacements, and recalls of medical devices. In Washington State, the Department of Health, by agreement with the federal Nuclear Regulatory Commission (NRC), regulates the possession, use, and disposal of radioactive byproduct material as well as the manufacture of radioactive sealed sources to ensure compliance with state and federal laws and regulations. Our Proxcelan Cs-131 brachytherapy seeds constitute both medical devices and radioactive sealed sources and are subject to these regulations.

Under the FDC Act, medical devices are classified into three different categories, over which the FDA applies increasing levels of regulation: Class I, Class II, and Class III. Our Proxcelan Cs-131 seed has been classified as a Class II device and has received clearance from the FDA through the 510(k) pre-market notification process. Any modifications to the device that would significantly affect safety or effectiveness, or constitute a major change in intended use, would require a new 510(k) submission. As with any submittal to the FDA, there is no assurance that a 510(k) clearance would be granted to the Company.

In addition to FDA-required market clearances and approvals for our products, our manufacturing operations are required to comply with the FDA's Quality System Regulation, or QSR, which addresses requirements for a company's quality program such as management responsibility, good manufacturing practices, product and process design controls, and quality controls used in manufacturing. Compliance with applicable regulatory requirements is monitored through periodic inspections by the FDA Office of Regulatory Affairs (ORA). We anticipate both announced and unannounced inspections by the FDA. Such inspections could result in non-compliance reports (Form 483) which, if not adequately responded to, could lead to enforcement actions. The FDA can institute a wide variety of enforcement actions ranging from public warning letters to more severe sanctions such as fines; injunctions; civil penalties; recall of our products; operating restrictions; suspension of production; non-approval or withdrawal of pre-market clearances for new products or existing products and criminal prosecution. There can be no assurance that we will not incur significant costs to comply with these regulations in the future or that the regulations will not have a material adverse effect on our business, financial condition and results of operations.

The marketing of our products in foreign countries will, in general, be regulated by foreign governmental agencies similar to the FDA. Foreign regulatory requirements vary from country to country. The time and cost required to obtain regulatory approvals could be longer than that required for FDA clearance in the United States and the requirements for licensing a product in another country may differ significantly from FDA requirements. We will rely, in part, on foreign distributors to assist us in complying with foreign regulatory requirements. We may not be able to obtain these approvals without incurring significant expenses or at all, and the failure to obtain these approvals would prevent us from selling our products in the applicable countries. This could limit our sales and growth.

Our Business Exposes Us To Product Liability Claims. Our design, testing, development, manufacture, and marketing of products involve an inherent risk of exposure to product liability claims and related adverse publicity. Insurance coverage is expensive and difficult to obtain, and, although we currently have a five million dollar policy, in the future we may be unable to obtain or renew coverage on acceptable terms, if at all. If we are unable to obtain or renew sufficient insurance at an acceptable cost or if a successful product liability claim is made against us, whether fully covered by insurance or not, our business could be harmed.

Our Business Involves Environmental Risks. Our business involves the controlled use of hazardous materials, chemicals, biologics, and radioactive compounds. Manufacturing is extremely susceptible to product loss due to radioactive, microbial, or viral contamination; material or equipment failure; vendor or operator error; or due to the

very nature of the product's short half-life. Although we believe that our safety procedures for handling and disposing of such materials comply with state and federal standards there will always be the risk of accidental contamination or injury. In addition, radioactive, microbial, or viral contamination may cause the closure of the respective manufacturing facility for an extended period of time. By law, radioactive materials may only be disposed of at state-approved facilities. At our leased facility we use commercial disposal contractors. We may incur substantial costs related to the disposal of these materials. If we were to become liable for an accident, or if we were to suffer an extended facility shutdown, we could incur significant costs, damages, and penalties that could harm our business.

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We Rely Upon Key Personnel. Our success will depend, to a great extent, upon the experience, abilities and continued services of our executive officers, sales staff and key scientific personnel. If we lose the services of several officers, sales personnel, or key scientific personnel, our business could be harmed. Our success also will depend upon our ability to attract and retain other highly qualified scientific, managerial, sales, and manufacturing personnel and their ability to develop and maintain relationships with key individuals in the industry. Competition for these personnel and relationships is intense and we compete with numerous pharmaceutical and biotechnology companies as well as with universities and non-profit research organizations. We may not be able to continue to attract and retain qualified personnel.

Our Ability To Operate In Foreign Markets Is Uncertain. Our future growth will depend in part on our ability to establish, grow and maintain product sales in foreign markets, particularly in Canada, the European Union (EU) and Russia. However, we have limited experience in marketing and distributing products in other countries. Any foreign operations would subject us to additional risks and uncertainties, including our customers' ability to obtain reimbursement for procedures using our products in foreign markets; the burden of complying with complex and changing foreign regulatory requirements; time-sensitive delivery requirements due to the short half-life of our product; language barriers and other difficulties in providing long-distance customer service; potentially increase time to collect accounts receivable; significant currency fluctuations, which could cause third-party distributors to reduce the number of products they purchase from us because the cost of our products to them could fluctuate relative to the price they can charge their customers; reduced protection of intellectual property rights in some foreign countries; and the possibility that contractual provisions governed by foreign laws would be interpreted differently than intended in the event of a contract dispute. Any future foreign sales of our products could also be adversely affected by export license requirements, the imposition of governmental controls, political and economic instability, trade restrictions, changes in tariffs, and difficulties in staffing and managing foreign operations. Many of these factors may also affect our ability to import Cs-131 from Russia under our contract with UralDial.

Our Ability To Expand Operations And Manage Growth Is Uncertain. Our efforts to expand our operations will result in new and increased responsibilities for management personnel and will place a strain upon the entire company. To compete effectively and to accommodate growth, if any, we may be required to continue to implement and to improve our management, manufacturing, sales and marketing, operating and financial systems, procedures and controls on a timely basis and to expand, train, motivate and manage our employees. There can be no assurance that our personnel, systems, procedures, and controls will be adequate to support our future operations. If the Proxcelan Cs-131 seed were to rapidly become the "seed of choice," it is unlikely that we could meet demand. We could experience significant cash flow difficulties and may have difficulty obtaining the working capital required to manufacture our products and meet demand. This would cause customer discontent and invite competition.

Risks Related to Our Stock and Reporting Requirements

If We Are Unable To Successfully Address The Material Weakness In Our Internal Controls, Our Ability To Report Our Financial Results On A Timely And Accurate Basis May Be Adversely Affected. Effective internal controls are necessary for us to provide reliable financial reports and effectively prevent fraud. If we cannot provide reliable financial reports or prevent fraud, our reputation and operating results could be harmed. We have in the past discovered, and may in the future discover, areas of our internal controls that need improvement. In its assessment of the effectiveness in internal control over financial reporting as of June 30, 2010 and as of September 30, 2010, the Company determined that there were deficiencies that constituted a material weakness. Specifically, the Company did not maintain a sufficient complement of personnel with the appropriate level of knowledge, experience and training to analyze, review and monitor the accounting of complex financial transactions. As a result, the Company did not prepare adequate contemporaneous documentation that would provide a sufficient basis for an effective evaluation and review of the accounting for complex transactions that are significant or non-routine. This material weakness resulted in errors in the preliminary June 30, 2010 consolidated financial statements and more than a remote likelihood that a material misstatement of the Company's annual or interim financial statements would not be prevented or detected. The Company is in the process of developing and implementing a remediation plan to address the material weakness described above, along with the deficiencies also identified in the assessment, which are described in our Annual Report on Form 10-K filed with the SEC on September 28, 2010. Specifically, in April 2010, an additional accounting position at the Company's operating subsidiary was filled with a Certified Public Accountant to address issues with segregation of duties, and the Company is assessing additional steps that may be taken in fiscal year 2011 to improve internal controls. We cannot be certain that these measures will ensure that we implement and maintain adequate controls over our financial processes and reporting in the future and had not improved the process as of September 30, 2010. Any failure to implement required new or improved controls, or difficulties encountered in their implementation, could harm our operating results or cause us to fail to meet our reporting obligations. Inferior internal controls could also cause investors to lose confidence in our reported financial information, which could have a negative effect on the trading price of our stock.

Our Reporting Obligations As A Public Company Are Costly. Operating a public company involves substantial costs to comply with reporting obligations under federal securities laws that have continued to increase as provisions of the Sarbanes Oxley Act of 2002 have been implemented. As a smaller reporting company, the Company incurred costs to implement additional provisions of the Sarbanes Oxley Act during fiscal year 2010 in particular related to the implementation of Section 404(b). These Section 404(b) reporting obligations were permanently exempted through legislation passed in July 2010 and this exemption retrospectively applied to the year ended June 30, 2010 for companies classified as smaller reporting companies.

Certain Provisions of Minnesota Law and Our Charter Documents Have an Anti-Takeover Effect. There exist certain mechanisms under Minnesota law and our charter documents that may delay, defer or prevent a change of control. Anti-takeover provisions of our articles of incorporation, bylaws and Minnesota law could diminish the opportunity for shareholders to participate in acquisition proposals at a price above the then-current market price of our common stock. For example, while we have no present plans to issue any preferred stock, our Board of Directors, without further shareholder approval, may issue shares of undesignated preferred stock and fix the powers, preferences, rights and limitations of such class or series, which could adversely affect the voting power of the common shares. In addition, our bylaws provide for an advance notice procedure for nomination of candidates to our Board of Directors that could have the effect of delaying, deterring or preventing a change in control. Further, as a Minnesota corporation, we are subject to provisions of the Minnesota Business Corporation Act, or MBCA, regarding "business combinations," which can deter attempted takeovers in certain situations. Pursuant to the terms of a shareholder rights plan adopted in February 2007, each outstanding share of common stock has one attached right. The rights will cause substantial dilution of the ownership of a person or group that attempts to acquire the Company on terms not approved by the Board of Directors and may have the effect of deterring hostile takeover

attempts. We amended our shareholder rights plan to permit the issuance of the common stock and warrants to the investor and therefore the investor may acquire up to 25% of our outstanding common stock. The effect of these anti-takeover provisions may be to deter business combination transactions not approved by our Board of Directors, including acquisitions that may offer a premium over the market price to some or all shareholders. We may, in the future, consider adopting additional anti-takeover measures. The authority of our Board to issue undesignated preferred or other capital stock and the anti-takeover provisions of the MBCA, as well as other current and any future anti-takeover measures adopted by us, may, in certain circumstances, delay, deter or prevent takeover attempts and other changes in control of the Company not approved by our Board of Directors.

USE OF PROCEEDS

We estimate that the net proceeds from the sale of the securities we are offering will be approximately \$2,000,000, after deducting placement agent fees and the estimated offering expenses payable by us and assuming that we sell all of the shares and Warrants offered hereunder but none of the Warrants are exercised.

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We intend to use the net proceeds from the sale of our shares of common stock offered by this prospectus supplement for general corporate purposes, including without limitation capital expenditures and working capital needs, as described below:

Salaries, fees and expenses	\$ 500,000
Capital equipment for new applications/research and development	500,000
Working capital	1,000,000
Total	\$ 2,000,000

Although we have identified some of the potential uses of the proceeds from this offering, we have and reserve broad discretion in the application of these proceeds. Accordingly, we reserve the right to use these proceeds for different purposes or uses which we have not listed above, particularly if there is a change in demand for certain applications of our Cesium-131 seed product which may require increased investment in protocols and research studies and the hiring of additional sales staff. See "Risk Factors – Since We Have Broad Discretion In How We Use The Proceeds From This Offering, We May Use The Proceeds In Ways In Which You Disagree."

Pending any ultimate use of any portion of the proceeds from this offering, we intend to invest the proceeds in short – and medium – term interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government.

Proceeds from the exercise of the Warrants being sold through this offering are estimated to be \$4,041,667, assuming all Warrants are exercised using cash at an assumed exercise price of \$1.00 per share, and with the maximum possible number of Warrants being exercised, and may be received by the Company at any time following the offering depending on when and if the Warrants are exercised by investors. The actual proceeds received from exercise of the Warrants will vary depending on the ultimate exercise prices of the Warrants and how many Series A Warrants are ultimately issued, and will be reduced by payment of placement agent fees of 3% on the exercise prices of the Series A, B and C Warrants solely to the extent actually exercised. We will not receive any proceeds from the Warrants unless and until the Warrants are exercised for cash. These proceeds when and if received are expected to be used for general corporate purposes, including without limitation, capital expenditures and working capital needs. The amounts and timing of our use of proceeds from the Warrants will vary depending on a number of factors, including when the Warrants are exercised, the amount of cash generated or used by our operations, and the rate of growth, if any, of our business. As a result, we will retain broad discretion in the allocation of the proceeds that we receive upon exercise of the Warrants. In addition, while we have not entered into any agreements, commitments or understandings relating to any significant transaction as of the date of this prospectus supplement, we may use a portion of the proceeds to pursue acquisitions, joint ventures and other strategic transactions.

DETERMINATION OF OFFERING PRICE

We will sell our common stock in this offering at a negotiated price of \$1 per share of common stock. Each purchaser of a share of our common stock will receive four Warrants as described under "Description of the Warrants" below, with exercise prices that will vary based on the market price of the Warrants preceding their dates of exercise. Prior to this offering, there was no public market for the Warrants. The terms and conditions of the Warrants, including exercise prices, were determined by negotiation by us and the purchaser. The principal factors considered in determining the terms and conditions of the sale of our Securities hereunder include:

- the market price of our common stock;
-

the recent market prices of, and demand for, publicly traded common stock and warrants to purchase publicly traded common stock of generally comparable companies; and

- other factors deemed relevant by the purchaser and us.

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DILUTION

Our net tangible book value on September 30, 2010 was approximately \$4,894,293 or approximately \$0.21 per share. "Net tangible book value" is total assets minus the sum of liabilities and intangible assets. "Net tangible book value per share" is net tangible book value divided by the total number of shares of common stock outstanding at September 30, 2010.

Net tangible book value dilution per share to new investors represents the difference between the amount per share paid by purchasers of shares of common stock in this offering and the net tangible book value per share of our common stock immediately after completion of this offering. After giving effect to the sale of our common stock in the aggregate amount of \$2,250,000, representing 2,250,000 shares of our common stock offered at the offering price of \$1.00 per share and deducting placement agent fees and expenses of approximately \$250,000, our as adjusted net tangible book value as of September 30, 2010 would have been \$0.27 per share. This amount represents an immediate increase in net tangible book value of \$0.06 per share to existing shareholders and an immediate dilution of \$0.62 per share to purchasers of common stock in this offering, as illustrated in the following table:

Public offering price per share, net of offering costs	\$	0.89
Net tangible book value per share as of September 30, 2010	\$	0.21
Increase in net tangible book value per share attributable to this offering	\$	0.06
Pro forma net tangible book value per share as of September 30, 2010 after giving effect to this offering	\$	0.27
Dilution per share to new investors in this offering	\$	0.62

The table above excludes, as of September 30, 2010, the following securities:

- Up to 4,041,667 shares of common stock issuable upon the exercise of the warrants offered hereunder;
- 3,165,768 shares of common stock issuable upon the exercise of warrants with a weighted average exercise price of \$5.62;
 - 59,065 shares of common stock issuable upon the conversion of preferred stock;
- 2,151,372 shares of common stock issuable upon the exercise of options with a weighted average exercise price of \$1.87; and
- 1,675,179 shares of common stock reserved for future stock option grants under our equity compensation plans.

To the extent that any of these options, warrants and convertible securities are exercised or converted, there may be further dilution to new investors.

DESCRIPTION OF THE SECURITIES WE ARE OFFERING

In this offering, we are offering \$2,250,000 in aggregate value of shares of our common stock, sold at \$1.00 per share, and four series of Warrants as further described below.

Description of the Common Stock

A description of the common stock we are offering pursuant to this prospectus supplement is set forth under the heading "Description of Capital Stock," starting on page 7 of the accompanying prospectus. As of November 23,

2010, we had 23,554,325 shares of common stock outstanding.

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Description of the Warrants

The material terms and provisions of the Warrants being offered pursuant to this prospectus supplement and the accompanying prospectus are summarized below. This summary is subject to, and qualified in its entirety by, the forms of warrant filed as exhibits to our current report on Form 8-K, filed with the SEC on November 22, 2010.

The Company will issue four series of Warrants to the purchaser - (i) Series A Warrants in an amount equal to \$500,000 divided by the lower of \$1.50 and 90% of the average of the 3 lowest volume weighted average prices out of the 15 trading days preceding the exercise date (with a floor of \$0.75 for a maximum of 666,667 shares of common stock issuable upon exercise of the Series A Warrants); (ii) Series B Warrants in an amount equal to 25% of the number of shares of common stock issued at the closing, or Series B Warrants exercisable for 562,500 shares of common stock; (iii) Series C Warrants in an amount equal to 125% of the number of shares of common stock issued at the closing, or Series C Warrants exercisable for 2,812,500 shares of common stock; and (iv) Series D Warrants in an amount equal to 125% of the number of shares of common stock issued at the closing, or Series D Warrants exercisable for 2,812,500 shares of common stock but the Series D Warrants will only be exercisable to the extent that any of the Series C Warrants may not be exercised due to NYSE AMEX shareholder approval requirements limiting the number of overall below-market securities issuable to no greater than 4,418,026 shares of common stock. As a result of this limitation, the total number of Series A, B and C Warrants that may be issued will not exceed Warrants exercisable for an aggregate of 2,168,026 shares of common stock, and Series D Warrants are expected to be issued to purchase 1,873,641 shares of common stock, assuming the Series A Warrants are exercisable for the maximum number of shares of common stock.

The exercise price of each of the Series A, B and C Warrants will be equal to the lower of (i) \$1.50 and (ii) 90% of the average of the 3 lowest volume weighted average prices out of the 15 trading days preceding the exercise date, but in no event will the exercise price of the Series A Warrants be less than \$0.75 per share. The Warrants will have terms varying from ninety days from the offering closing date for the Series A Warrants to six months from the offering closing date for the Series B Warrants to five years from the initial exercisability date for the Series C and D Warrants. The Series A, B and C Warrants will be immediately exercisable following the closing of the offering. The Series D Warrants will not be exercisable until six months after the closing and will have an exercise price equal to \$1.56.

The Series A Warrants will be eligible to be exercised at the option of the Company beginning on the 75th day after issuance and ending on the 90th day after issuance subject to the exercise price being above \$0.75 for the 15 day period prior to expiration and to meeting other equity conditions.

All of the Series B Warrants and 562,500 of the Series C Warrants will be eligible to be exercised at the option of the Company at any time 20 trading days prior to the 6 month anniversary of their issuance provided the common stock is trading at or above \$2.45 for 20 cumulative trading days and to meeting other equity conditions.

Exercise. Holders of the Warrants may exercise their Warrants to purchase shares of our common stock on or before the expiration date by delivering (i) an exercise notice, appropriately completed and duly signed, and (ii) if such holder is not utilizing the cashless exercise provisions, payment of the exercise price for the number of shares with respect to which the Warrant is being exercised. Warrants may be exercised in whole or in part, but only for full shares of common stock, and any portion of a Warrant not exercised prior to the expiration date shall be and become void and of no value. We provide certain buy-in rights to a holder if we fail to deliver the shares of common stock underlying the Warrants by the third business day after the date on which delivery of such stock certificate is required by the Warrant. The buy-in rights apply if after such third business day, but prior to cure by us, the holder purchases (in an open market transaction or otherwise) shares of our common stock to deliver in satisfaction of a sale by the holder of the Warrant shares that the holder anticipated receiving from us upon exercise of the Warrant. In this event,

at the request of and in the holder's discretion, we will:

pay cash to the holder in an amount equal to (i) the buy-in price, meaning the holder's total purchase price (including brokerage commissions, if any) for the shares of common stock so purchased minus (ii) the aggregate sale price of the shares of common stock giving rise to the buy-in purchase which the holder had attempted to obtain through exercise; and

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at the holder's option, either (a) deliver to the holder a certificate or certificates representing the shares of common stock underlying the exercised Warrant or (b) reinstate the portion of the Warrant and equivalent number of shares of common stock underlying the Warrant for which such exercise was not honored.

In addition, the Warrant holders are entitled to a "cashless exercise" option if, at any time of exercise, there is no effective registration statement registering, or no current prospectus available for, the issuance or resale of the shares underlying the Warrant. This option entitles the Warrant holder to elect to receive fewer shares of common stock without paying the cash exercise price. The number of shares to be issued would be determined by a formula based on the total number of shares to which the Warrant holder is entitled, the volatility-weighted average price of the common stock on the trading day before the date of exercise and the applicable exercise price of the Warrants.

The shares of common stock issuable on exercise of the Warrants will be, when issued in accordance with the Warrants, duly and validly authorized, issued and fully paid and non-assessable. We will authorize and reserve at least that number of shares of common stock equal to the number of shares of common stock issuable upon exercise of all outstanding Warrants.

Anti-Dilution Rights. The Series A, B and C Warrants contain anti-dilution provisions which automatically adjust the exercise price of the Warrants if the Company issues or sells shares of common stock or derivatives convertible into common stock at prices or exercise prices, as applicable, below the exercise price of the Series A, B and C Warrants. As long as the exercise prices of previously issued securities are not decreased, previously issued derivative securities and stock options issued pursuant to the Company's existing stock option plans are excluded from these provisions.

Fundamental Transaction. If, at any time while the Warrant is outstanding, (1) we effect any merger or consolidation with or into another person or entity after which our shareholders as of immediately prior to the transaction own less than a majority of the outstanding stock of the surviving entity, (2) we effect any sale of all or substantially all of our assets in one or a series of related transactions, (3) any tender offer or exchange offer (whether by us or another person or entity) is completed pursuant to which holders of common stock are permitted to tender or exchange their shares for other securities, cash or property, or (4) we effect any reclassification of the common stock or any compulsory share exchange pursuant to which the common stock is effectively converted into or exchanged for other securities, cash or property (in any such case, a "Fundamental Transaction"), then the holder shall have the right thereafter to receive, upon exercise of the Warrant, the same amount and kind of securities, cash or property as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of the number of Warrant shares then issuable upon exercise of the Warrant (the "Alternate Consideration"). We shall not effect any such Fundamental Transaction unless prior to or simultaneously with the consummation thereof, any successor to us, surviving entity or the corporation purchasing or otherwise acquiring such assets shall assume the obligation to deliver to the holder such Alternate Consideration as the Holder may be entitled to purchase, and the other obligations under the Warrant.

In lieu of Alternative Consideration received in the event of a Fundamental Transaction, each of the Series A through D Warrants also contain a provision permitting the holder to elect to use the Black-Scholes valuation model to receive cash for all unexercised Warrants at the closing of the Fundamental Transaction.

Rights to Dividends. Each of the Series A through D Warrants also permit the holder to receive dividends, cash or otherwise, paid by the Company to any common stockholder at any time while the Warrants are outstanding. Dividends, cash or otherwise, are payable upon exercise of the Warrants and no dividends are paid on any unexercised Warrants.

Delivery of Certificates. Upon the holder's exercise of a Warrant, we will promptly, but in no event later than three business days after the exercise date, issue and deliver, or cause to be issued and delivered, a certificate for the shares of common stock issuable upon exercise of the Warrant or deliver the shares electronically through The Depository Trust Corporation through its Deposit Withdrawal Agent Commission System or another established clearing corporation performing similar functions.

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If we at any time on or after the issue date of the Warrant subdivide (by any stock split, stock dividend, recapitalization or otherwise) one or more classes of our outstanding shares of common stock into a greater number of shares, the exercise price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event and the number of shares issuable upon exercise of the Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged.

Blocker Provisions. Each of the Series A through D Warrants contain various "blocker provisions" whereby they are not exercisable, regardless of whether the Company may require their exercise, if the holder would own greater than 9.99% of the common stock of the Company.

Other Adjustments. The exercise price and the number of shares of common stock purchasable upon the exercise of the Warrants are subject to adjustment upon the occurrence of specific events, including stock dividends, stock splits, and combinations of our common stock. In addition, if we at any time on or after the issue date of the Warrant issue any rights, options, warrants, indebtedness or assets (including cash and dividends) to all holders of common stock to the exclusion of the holders of the Warrants, the exercise price will be subject to further adjustment.

We will provide notice to holders of the Warrants to provide such holders with a practical opportunity to exercise their Warrants and hold common stock in order to participate in or vote on the following corporate events:

- if we declare a dividend or distribution of cash, securities or other property in respect of our common stock;
- if we authorize, approve, or enter into any agreement contemplating or soliciting approval for a merger, sale or similar transaction pursuant to which common stock is converted or exchanged for cash, securities or property; or
- if we authorize a voluntary dissolution, liquidation or winding up of our affairs.

Additional Provisions. The above summary of certain terms and provisions of the Warrants is qualified in its entirety by reference to the detailed provisions of the Warrants, the forms of which have been filed as exhibits to our Current Report on Form 8-K that we have filed with the SEC in connection with this issuance. We are not required to issue fractional shares upon the exercise of the Warrants. No holders of the Warrants will possess any rights as a shareholder under those Warrants until the holder exercises those Warrants, except for the dividend rights as described above. The Warrants may be transferred independent of the common stock they were issued with, on a form of assignment, subject to all applicable laws.

PLAN OF DISTRIBUTION

We are offering the securities on a commercially reasonable efforts basis through LifeTech Capital, a Division of Aurora Capital, LLC, as placement agent. LifeTech Capital has agreed to act as the placement agent with respect to the securities sold in this offering, subject to the terms and conditions contained in that certain letter agreement dated October 27, 2010 between us and LifeTech. LifeTech is not purchasing or selling any securities under this prospectus supplement or the accompanying prospectus, nor is it required to arrange for the purchase or sale of any specific number or dollar amount of securities.

LifeTech will receive a cash fee of 5% of the gross proceeds received under the offering (excluding proceeds received on the exercise of Series C or D Warrants), and will also receive warrants to purchase 3% of the common stock sold in the offering and 3% of the Series A, B and C Warrants exercised at any time, which warrants issued to LifeTech shall not be exercisable for six months following the closing, shall have a five year term, and an exercise price of \$1.56 per

share.

	Per share	Total
Public offering price	\$ 1.00	\$ 2,250,000
Placement agent fees (1)	\$ 0.05	\$ 112,500
Proceeds, before expenses, to us	\$ 0.95	\$ 2,137,500

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(1) Excludes that portion of the placement agent's fees payable in warrants and payable in cash upon exercise of certain of the warrants issued to the investor in this offering. See "Plan of Distribution." Assumes all 2,250,000 shares of common stock offered under this prospectus supplement and accompanying prospectus are sold. Does not include any proceeds to be received from the exercise of the Warrants, if any.

The estimated offering expenses payable by us, in addition to the placement agent's fee of approximately \$112,500 (plus additional cash fees in the future based on Warrant exercises), are approximately \$137,500, which includes our legal and accounting costs, the placement agent's expenses (including legal fees) and various other fees associated with registering and listing the common shares. After deducting certain fees due to the placement agent and our estimated offering expenses, we expect the net proceeds from this offering to be approximately \$2.0 million, not including proceeds to be received in the future from Warrant exercises.

In connection with the sale of the common stock hereunder, LifeTech may be deemed to be an "underwriter" within the meaning of the Securities Act of 1933, as amended, and the compensation paid to LifeTech may be deemed to be underwriting commissions or discounts.

LifeTech may engage in transactions with, or perform other services for, us in the ordinary course of business. To the extent prohibited by Regulation M, LifeTech will not engage in any market making activities involving our common stock while the offering is ongoing under this prospectus supplement.

The transfer agent for our common shares to be issued in this offering is Computershare Trust Company. Our common shares are traded on the NYSE AMEX equities exchange under the symbol "ISR."

LEGAL MATTERS

The validity of the issuance of the securities offered by this prospectus supplement and the accompanying prospectus will be passed upon for us by Keller Rohrback, PLC, Phoenix, Arizona. Certain members of Keller Rohrback, PLC hold common stock of the Company, which in the aggregate equal less than one-quarter of a percent (0.25%) of the total issued and outstanding shares of our common stock. Greenberg Traurig P.A., Boca Raton, Florida is acting as counsel for the placement agent in connection with various matters related to the securities offered hereby. Schulte Roth & Zabel LLP, New York, New York is acting as counsel for the purchaser in connection with various matters related to the securities offered hereby.

EXPERTS

The financial statements incorporated by reference in this prospectus supplement have been so incorporated by reference in reliance upon the report of DeCoria, Maichel & Teague, P.S., independent registered public accountants, upon the authority of said firm as experts in accounting and auditing in giving said reports.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus supplement and accompanying prospectus constitute a part of a registration statement on Form S-3 that we filed with the SEC under the Securities Act of 1933, as amended. We refer you to this registration statement for further information about us, our common stock and the Warrants to purchase our common stock offered hereby.

We file annual, quarterly and special reports and other information with the SEC (Commission File Number 001-33407). These filings contain important information that does not appear in this prospectus supplement or the accompanying prospectus. For further information about us, you may read and copy any reports, statements and other information filed by us at the SEC's Public Reference Room at 100 F Street, N.E., Room 1580, Washington, D.C.

20549-0102. You may obtain further information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. Our SEC filings are also available on the SEC Internet site at <http://www.sec.gov>, which contains periodic reports and other information regarding issuers that file electronically.

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INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" into this prospectus the information we file with it. This means that we can disclose important information to you by referring you to those documents. The information we incorporate by reference is considered to be a part of this prospectus, and later information we file with the SEC will automatically update and supersede this information. The following documents filed with the SEC (in each case, under our Commission File No. 001-33407) are incorporated by reference in this prospectus:

- (a) Our Annual Report on Form 10-K for the fiscal year ended June 30, 2010 (filed September 28, 2010), which contains audited financial statements for our latest fiscal year for which such statements have been filed.
- (b) Our Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2010 (filed November 15, 2010).
- (c) Our Current Report on Form 8-K filed on July 30, 2010.
- (d) The description of our common stock contained in our Registration Statement on Form 8-A, filed with the Commission on April 12, 2007, including any amendments or reports filed for the purpose of updating such description.

We are also incorporating by reference any future filings we make with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act until this offering is completed, including those made between the date of filing of the initial registration statement and prior to effectiveness of the registration statement, except for information furnished under Item 2.02 or Item 7.01 of our Current Reports on Form 8-K which is not deemed to be filed and not incorporated by reference herein.

We will provide, without charge, to each person to whom a copy of this prospectus has been delivered, upon written or oral request of such person, a copy of any or all of the documents incorporated by reference herein (other than certain exhibits to such documents not specifically incorporated by reference). Requests for such copies should be directed to: IsoRay, Inc., 350 Hills Street, Suite 106, Richland, Washington 99354, telephone number (509) 375-1202, Attention: Brien Ragle, Controller.

ISORAY, INC.

\$15,000,000

Common Stock
Warrants

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission using a "shelf" registration process. We may offer and sell any combination of our common stock and warrants described in this prospectus, separately or as units, in one or more offerings from time to time and at prices and on terms to be determined at or prior to the time of the applicable offering. The aggregate initial offering price of all securities sold under this prospectus by us will not exceed \$15,000,000. We may offer and sell these securities to or through one or more underwriters, dealers, and agents, or directly to purchasers, on a continuous or delayed basis. If any agents or underwriters are involved in the sale of any of these securities, the applicable prospectus supplement will provide the names of the agents and underwriters and any applicable fees, commissions or discounts.

This prospectus describes the general terms of these securities. We will provide the specific terms of these securities in supplements to this prospectus. The prospectus supplement may also add, update or change information in this prospectus. You should read this prospectus and any prospectus supplement, as well as the documents incorporated by reference or deemed to be incorporated by reference into this prospectus, carefully before you invest. This prospectus may not be used to offer or sell securities unless accompanied by a prospectus supplement.

Our principal executive offices are located at 350 Hills Street, Suite 106, Richland, Washington 99354, and our telephone number is (509) 375-1202.

Our common stock is listed on the NYSE Amex Stock Exchange under the symbol "ISR." As of October 15, 2009, the aggregate market value of our outstanding Common Stock held by non-affiliates was approximately \$25,198,765, based on 22,942,088 shares of outstanding Common Stock, of which 22,500,906 shares were held by non-affiliates, and a per share price of \$1.1199 based on the closing price of our Common Stock as quoted on the NYSE Amex on October 15, 2009. As of the date hereof, we have not offered any securities pursuant to General Instruction I.B.6. of Form S-3 during the prior twelve calendar month period that ends on, and includes, the date of this prospectus. Each prospectus supplement will contain information, where applicable, as to any listing on the NYSE Amex or any other securities exchange of the securities covered by the prospectus supplement.

Investing in the securities we may offer involves various risks. See the sections entitled "Risk Factors" on page 2 and "Note Regarding Forward-Looking Statements" on page 3. Additional risks associated with an investment in us as well as with the particular types of securities will be described in the related prospectus supplement and certain of our filings with the Securities and Exchange Commission.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

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The date of this prospectus is October __, 2009.

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The registration statement, including the exhibits and the documents incorporated herein by reference, can be read on the Securities and Exchange Commission website are at the Securities and Exchange Commission offices mentioned under the heading "Where You Can Find More Information."

Until _____, all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealers' obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

ABOUT THIS PROSPECTUS

You should rely only on the information contained or incorporated by reference in this prospectus. We have not authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted. You should not assume that the information in this prospectus is accurate as of any date other than the date on the front cover of this prospectus. You should not assume that the information incorporated by reference in this prospectus is accurate as of any date other than the date the respective information was filed with the Securities and Exchange Commission. Our business, financial condition, results of operations and prospects may have changed since those dates.

This prospectus is part of a registration statement that we have filed with the Securities and Exchange Commission, or the SEC, using a "shelf" registration process. Under this shelf registration process, we may offer from time to time up to \$15,000,000 in the aggregate, inclusive of any exercise price thereof, of the following securities:

- shares of our common stock;
- warrants to purchase shares of our common stock; or
- any combination of the foregoing, separately or as units.

This prospectus provides you with a general description of the securities we may offer. Each time we offer securities, we will provide you with a prospectus supplement that describes the specific amounts, prices and terms of the securities we may offer. The prospectus supplement also may add, update or change information contained in this prospectus. You should read carefully both this prospectus and any prospectus supplement together with additional information described below under "Information Incorporated By Reference."

This prospectus does not contain all the information provided in the registration statement we filed with the SEC. For further information about us or the securities offered hereby, you should refer to that registration statement, which you can obtain from the SEC as described below under "Where You Can Find More Information."

Pursuant to General Instruction I.B.6. of Form S-3, we are permitted to use the registration statement of which this prospectus forms a part to sell, via a primary offering, a maximum amount of securities equal to one-third of the aggregate market value of our outstanding voting and non-voting common equity held by non-affiliates of our company in any twelve month period.

We may sell the securities to or through underwriters, dealers or agents or directly to purchasers. We and our agents reserve the sole right to accept or reject in whole or in part any proposed purchase of securities. The prospectus supplement, which we will provide to you each time we offer securities, will set forth the names of any underwriters, dealers or agents involved in the sale of the securities, and any applicable fee, commission or discount arrangements with them. See "Plan of Distribution."

ABOUT ISORAY

In this prospectus, the terms "IsoRay," the "Company," "we," "us," "our" and similar terms refer to IsoRay, Inc. and its operating subsidiary IsoRay, Medical, Inc. , and, to the extent applicable, its non-operating subsidiary, IsoRay International LLC.

In 2003, IsoRay obtained clearance from the FDA for treatment for all solid tumor applications using Cesium-131 (Cs-131). Such applications include prostate cancer; ocular melanoma; head, neck and lung tumors; and breast, liver, brain and pancreatic cancer. The seed may be used in surface, interstitial and intracavity applications for tumors with known radio sensitivity. Management believes its Cs-131 technology will allow it to become a leader in the brachytherapy market. Management believes that the IsoRay Proxcelan Cesium-131 brachytherapy seed represents the first major advancement in brachytherapy technology in over 21 years with attributes that could make it the long-term "seed of choice" for internal radiation therapy procedures.

IsoRay began production and sales of Proxcelan Cesium-131 brachytherapy seeds in October 2004 for the treatment of prostate cancer after clearance of its premarket notification (510(k)) by the Food and Drug Administration (FDA). In December 2007, IsoRay began selling its Proxcelan Cs-131 seeds for the treatment of ocular melanoma. On June 1, 2009, the Company again expanded its application of Cs-131 with the treatment of a head and neck tumor that could not be accessed by other treatment modalities. More recently the Company has focused on other applications which require revising the delivery system from those historically used by the Company.

In August 2009, IsoRay Medical received clearance from the FDA for its Premarket Notification (510(k)) for Proxcelan™ Cesium-131 brachytherapy seeds that are preloaded into bioabsorbable braided strands. This clearance permits the product to be commercially distributed for treatment of lung, head and neck tumors as well as tumors in other organs. While Cs-131 brachytherapy seeds themselves have been cleared for treatment in all organs since 2003, this 510(k) allows Cs-131 seeds to be delivered in a convenient and sterile format that can be implanted without additional seed loading by the facility. The 510(k) also clears the application of braided strands onto a bioabsorbable mesh matrix to further facilitate the implant procedure.

Brachytherapy seeds are small devices used in an interstitial radiation procedure. The procedure has become one of the primary treatments for prostate cancer. The brachytherapy procedure places radioactive seeds as close as possible to (in or near) the cancerous tumor (the word "brachytherapy" means close therapy). The seeds deliver therapeutic radiation thereby killing the cancerous tumor cells while minimizing exposure to adjacent healthy tissue. This procedure allows doctors to administer a higher dose of radiation directly to the tumor. Each seed contains a radioisotope sealed within a welded titanium capsule. When brachytherapy is the only treatment (monotherapy), approximately 70 to 120 seeds are permanently implanted in the prostate in an outpatient procedure lasting less than one hour. The number of seeds used varies based on the size of the prostate and the activity level specified by the physician. When brachytherapy is combined with external beam radiation or intensity modulated radiation therapy (dual therapy), then approximately 40-80 seeds are used in the procedure. The isotope decays over time and eventually the seeds become inert. The seeds may be used as a primary treatment or in conjunction with other treatment modalities, such as chemotherapy, or as treatment for residual disease after excision of primary tumors. The number of seeds for other treatment sites will vary from as few as 10-12 to as many as 80-100 depending on the location of the tumor being treated.

More comprehensive information about us is available through our Internet website at <http://www.isoray.com>. The information on our website is not incorporated by reference into this prospectus. Our executive offices are located at 350 Hills Street, Suite 106, Richland, Washington 99354, and our telephone number is (509) 375-1202.

RISK FACTORS

An investment in our securities involves a high degree of risk. Before making an investment decision, you should carefully consider the risks described under "Risk Factors" in the applicable prospectus supplement and in our most recent Annual Report on Form 10-K, or any updates in our Quarterly Reports on Form 10-Q, together with all of the other information appearing in this prospectus or incorporated by reference into this prospectus and any applicable prospectus supplement, in light of your particular investment objectives and financial circumstances. The risks so

described are not the only risks facing our company. Additional risks not presently known to us or that we currently deem immaterial may also impair our business operations. Our business, financial condition or results of operations could be materially adversely affected by any of these risks. The trading price of our securities could decline due to any of these risks, and you may lose all or part of your investment.

NOTE REGARDING FORWARD-LOOKING STATEMENTS

In addition to historical information, this prospectus, any prospectus supplement and the documents incorporated by reference herein contain certain "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995 (PSLRA). This statement is included for the express purpose of availing IsoRay, Inc. of the protections of the safe harbor provisions of the PSLRA.

All statements contained in this prospectus, any prospectus supplement and the documents incorporated by reference herein, other than statements of historical facts, that address future activities, events or developments are forward-looking statements, including, but not limited to, statements containing the words "believe," "expect," "anticipate," "intends," "estimate," "forecast," "project," and similar expressions. All statements other than statements of historical fact are statements that could be deemed forward-looking statements, including any statements of the plans, strategies and objectives of management for future operations; any statements concerning proposed new products, services, developments or industry rankings; any statements regarding future revenue, economic conditions or performance; any statements of belief; and any statements of assumptions underlying any of the foregoing. These statements are based on certain assumptions and analyses made by us in light of our experience and our assessment of historical trends, current conditions and expected future developments as well as other factors we believe are appropriate under the circumstances. However, whether actual results will conform to the expectations and predictions of management is subject to a number of risks and uncertainties that may cause actual results to differ materially.

You should not place undue reliance on our forward-looking statements because the matters they describe are subject to known and unknown risks, uncertainties and other unpredictable factors, many of which are beyond our control. Our forward-looking statements are based on the information currently available to us and speak only as of the date on the cover of this prospectus, the date of any prospectus supplement, or, in the case of forward-looking statements incorporated by reference, as of the date of the filing that includes the statement. New risks and uncertainties arise from time to time, and it is impossible for us to predict these matters or how they may affect us. Over time, our actual results, performance or achievements will likely differ from the anticipated results, performance or achievements that are expressed or implied by our forward-looking statements, and such difference might be significant and materially adverse to our security holders. We do not undertake and specifically decline any obligation to update any forward-looking statements or to publicly announce the results of any revisions to any statements to reflect new information or future events or developments.

We have identified some of the important factors that could cause future events to differ from our current expectations and they are described in this prospectus and supplements to this prospectus under the caption "Risk Factors" as well as in our most recent Annual Report on Form 10-K, including without limitation under the captions "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" and in other documents that we may file with the SEC, all of which you should review carefully. Please consider our forward-looking statements in light of those risks as you read this prospectus and any prospectus supplement.

USE OF PROCEEDS

We will retain broad discretion over the use of the net proceeds from the sale of our securities offered by us hereby. Except as described in any prospectus supplement, we currently intend to use the net proceeds from the sale of securities offered by us pursuant to this prospectus for working capital, capital expenditures, investments in our subsidiaries, and other general corporate purposes. We may also use such proceeds to fund acquisitions of businesses, technologies or product lines that complement our current business. However, we currently have no commitments or agreements for any specific acquisitions. Pending application of the net proceeds, we intend to invest the net proceeds of the offering of securities by us in investment-grade, interest-bearing securities.

GENERAL DESCRIPTION OF SECURITIES

We, directly or through agents, dealers or underwriters designated from time to time, may offer, issue and sell, together or separately, in one or more offerings, up to \$15,000,000 in the aggregate, inclusive of any exercise price thereof, of:

- shares of our common stock, par value \$0.001 per share;
- warrants to purchase shares of our common stock; or

any combination of the foregoing, either individually or as units consisting of one or more of the foregoing, each on terms to be determined at the time of sale.

The common stock and the warrants, whether issued individually or as units, are collectively referred to herein as the securities. This prospectus provides you with a general description of the securities we may offer. Each time we offer securities, we will provide you with a prospectus supplement that describes the specific amounts, prices and terms of the securities we offer. The securities involve various risks that we will describe in the section entitled "Risk Factors" that will be included in each prospectus supplement.

DESCRIPTION OF CAPITAL STOCK

The following is a summary description of the rights of our common stock and related provisions of our amended Articles of Incorporation and our Bylaws. The following description of our capital stock is intended as a summary only and is qualified in its entirety by reference to our amended Articles of Incorporation and our Bylaws, which are filed as exhibits to the registration statement of which this prospectus forms a part, and to the applicable provisions of Minnesota law.

Common Stock

Our common shares are listed on the NYSE Amex under the symbol "ISR". As of October 15, 2009, 22,942,088 shares of common stock were issued and outstanding.

The Company's Articles of Incorporation provide that the Company has the authority to issue 200 million shares of capital stock, which are currently divided into two classes as follows: 194 million shares of common stock, par value of \$0.001 per share; and 6 million shares of preferred stock, also with a par value of \$0.001 per share.

The holders of our common stock have no preemptive or other subscription rights, and there are no conversion rights or redemption or sinking fund provisions with respect to such shares. All of the outstanding shares of our common stock are, and the shares of our common stock when issued will be, fully paid and nonassessable.

Voting. Holders of the common stock are entitled to one vote per share on all matters to be voted on by the Company's shareholders. The Company's bylaws provide that a majority of the outstanding shares of the corporation entitled to vote constitute a quorum at a meeting of the shareholders.

Dividends. The Company's Board of Directors, in its sole discretion, may declare and pay dividends on the common stock, payable in cash or other consideration, out of funds legally available, if all dividends due on the preferred stock have been declared and paid. The Company has not paid any cash dividends on its common stock and does not plan to pay any cash dividends on its common stock for the foreseeable future.

Liquidation, Subdivision, or Combination. In the event of any liquidation, dissolution or winding up of the Company or upon the distribution of its assets, all assets and funds remaining after payment in full of the Company's debts and liabilities, and after the payment to holders of any then outstanding preferred stock of the full preferential amounts to which they were entitled, would be divided and distributed among holders of the common stock.

Anti-Takeover Effects Of Provisions Of The Articles Of Incorporation. The authorized but unissued shares of our common and preferred stock are available for future issuance without our shareholders' approval. These additional shares may be utilized for a variety of corporate purposes including but not limited to future public or direct offerings to raise additional capital, corporate acquisitions and employee incentive plans. The issuance of such shares may also be used to deter a potential takeover of IsoRay that may otherwise be beneficial to shareholders by diluting the shares held by a potential suitor or issuing shares to a shareholder that will vote in accordance with IsoRay's Board of Directors' desires. A takeover may be beneficial to shareholders because, among other reasons, a potential suitor may offer shareholders a premium for their shares of stock compared to the then-existing market price.

On February 1, 2007, the Board of Directors of IsoRay, Inc. declared a dividend of one preferred share purchase right (a "Right") for each outstanding Common Share of the par value of \$.001 per share (the "Common Shares") of the Company. The dividend is payable on February 16, 2007 (the "Record Date") to shareholders of record on that date.

Each Right entitles the registered holder to purchase from the Company one one-hundredth of a Series C Junior Participating Preferred Share of the par value of \$.001 per share (the "Preferred Shares") of the Company at a price of \$25 per one one-hundredth of a Preferred Share (the "Purchase Price"), subject to adjustment. The description and terms of the Rights are set forth in a Rights Agreement (the "Rights Agreement"), dated as of February 1, 2007, between the Company and Computershare Trust Company N.A., as Rights Agent (the "Rights Agent").

Initially, the Rights will attach to all certificates representing Common Shares then outstanding and no separate Right Certificates will be distributed. The Rights will separate from the Common Shares and a Distribution Date for the Rights will occur upon the earlier of:

- (i) the close of business on the fifteenth day following a public announcement that a person or group of affiliated or associated persons has become an "Acquiring Person" (i.e., has become, subject to certain exceptions, the beneficial owner of 15% or more of the voting power of the outstanding shares of voting capital stock of the Company in the election of directors), or
- (ii) the close of business on the fifteenth day following the first public announcement relating to a tender offer or exchange offer the consummation of which would result in a person or group of affiliated or associated persons becoming, subject to certain exceptions, the beneficial owner of 15% or more of the voting power of the outstanding shares of voting capital stock of the Company in the election of directors (or such later date as may be determined by the Board of Directors of the Company prior to a person or group of affiliated or associated persons becoming an Acquiring Person).

Until the Distribution Date,

- (i) the Rights will be evidenced by the Common Share certificates and will be transferred with and only with the Common Shares,
- (ii) new Common Share certificates issued after the Record Date upon transfer or new issuance of the Common Shares will contain a notation incorporating the Rights Agreement by reference, and

(iii) the surrender for transfer of any Common Share certificate, even without such notation or a copy of this Summary of Rights attached thereto, will also constitute the transfer of the Rights associated with the Common Shares represented by such certificate.

As promptly as practicable following the Distribution Date, separate certificates evidencing the Rights ("Right Certificates") will be mailed to holders of record of the Common Shares as of the close of business on the Distribution Date and such separate Right Certificates alone will evidence the Rights.

The Rights are not exercisable until the Distribution Date. The Rights will expire on February 16, 2017, unless extended or earlier redeemed or exchanged by the Company as described below.

The Purchase Price payable, and the number of Preferred Shares or other securities or property issuable, upon exercise of the Rights are subject to adjustment from time to time to prevent dilution:

- (i) in the event of a stock dividend on, or a subdivision, combination or reclassification of, the Preferred Shares,
- (ii) upon the grant to holders of the Preferred Shares of certain rights, options or warrants to subscribe for or purchase Preferred Shares or convertible securities at less than the then current market price of the Preferred Shares, or
- (iii) upon the distribution to holders of the Preferred Shares of evidences of indebtedness or assets (excluding regular periodic cash dividends or dividends payable in Preferred Shares) or of subscription rights or warrants (other than those described in clause (ii) hereof).

The number of Preferred Shares issuable upon the exercise of a Right is also subject to adjustment in the event of a dividend on Common Shares payable in Common Shares, or a subdivision, combination or consolidation of the Common Shares.

With certain exceptions, no adjustment in the Purchase Price will be required until cumulative adjustments require an adjustment of at least 1% in the Purchase Price. No fractional Preferred Shares will be issued (other than fractional shares which are integral multiples of one one-hundredth (subject to adjustment) of a Preferred Share, which may, at the election of the Company, be evidenced by depositary receipts) if in lieu thereof a payment in cash is made based on the closing price (pro-rated for the fraction) of the Preferred Shares on the last trading date prior to the date of exercise.

In the event that any person or group of affiliated or associated persons becomes an Acquiring Person, proper provision shall be made so that each holder of a Right, other than Rights that are or were beneficially owned by the Acquiring Person (which will thereafter be void), will thereafter have the right to receive upon exercise thereof at the then current exercise price of the Right that number of Common Shares having a market value of two times the exercise price of the Right, subject to certain possible adjustments.

In the event that, after the Distribution Date or within 15 days prior thereto, the Company is acquired in certain mergers or other business combination transactions or 50% or more of the assets or earning power of the Company and its subsidiaries (taken as a whole) are sold after the Distribution Date or within 15 days prior thereto, each holder of a Right (other than Rights which have become void under the terms of the Rights Agreement) will thereafter have the right to receive, upon exercise thereof at the then current exercise price of the Right, that number of common shares of the acquiring company (or, in certain cases, one of its affiliates) having a market value of two times the

exercise price of the Right.

In certain events specified in the Rights Agreement, the Company is permitted to temporarily suspend the exercisability of the Rights.

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At any time after a person or group of affiliated or associated persons becomes an Acquiring Person (subject to certain exceptions) and prior to the acquisition by a person or group of affiliated or associated persons of 50% or more of the voting power of the outstanding shares of voting capital stock of the Company in the election of directors, the Board of Directors of the Company may exchange all or part of the Rights (other than Rights which have become void under the terms of the Rights Agreement) for Common Shares or equivalent securities at an exchange ratio per Right equal to the result obtained by dividing the exercise price of a Right by the current per share market price of the Common Shares, subject to adjustment.

At any time prior to such time as a person or group of affiliated or associated persons becomes an Acquiring Person, the Board of Directors of the Company may redeem the Rights in whole, but not in part, at a price of \$.001 per Right, subject to adjustment (the "Redemption Price"), payable in cash. The period of time during which the Rights may be redeemed may be extended by the Board of Directors of the Company if no person has become an Acquiring Person. The redemption of the Rights may be made effective at such time, on such basis and with such conditions as the Board of Directors in its sole discretion may establish. The Board of Directors and the Company shall not have any liability to any person as a result of the redemption or exchange of the Rights pursuant to the provisions of the Rights Agreement.

The terms of the Rights may be amended by the Board of Directors of the Company, subject to certain limitations after such time as a person or group of affiliated or associated persons becomes an Acquiring Person, without the consent of the holders of the Rights, including an amendment prior to the date a person or group of affiliated or associated persons becomes an Acquiring Person to lower the 15% threshold for exercisability of the Rights to not less than the greater of (i) the sum of .001% and the largest percentage of the outstanding shares of voting capital stock of the Company with voting power in the election of directors then known by the Company to be beneficially owned by any person or group of affiliated or associated persons (subject to certain exceptions) or (ii) 10%.

Until a Right is exercised, the holder thereof, as such, will have no rights as a shareholder of the Company, including, without limitation, the right to vote or to receive dividends.

The foregoing description of the Rights Agreement is qualified in its entirety by reference to the full text of the Rights Agreement.

Transfer Agent and Registrar. The transfer agent and registrar for our common stock is Computershare Trust Company, N.A. The transfer agent's address is 350 Indiana Street, Golden, CO 80401, and its telephone number is (303) 262-0600.

DESCRIPTION OF THE WARRANTS

Terms of Prospective Warrant Issuances

We may issue warrants to purchase shares of our common stock in one or more series. The warrants may be issued independently or together with shares of our common stock and may be attached to or separate from the shares of our common stock. The warrants may be issued by us directly or under warrant agreements to be entered into between us and a bank or trust company, as warrant agent, all as shall be set forth in the prospectus supplement relating to warrants being offered pursuant to such prospectus supplement. The following description of the warrants will apply to the warrants offered by this prospectus unless we provide otherwise in the applicable prospectus supplement. The applicable prospectus supplement for a particular series of warrants may specify different or additional terms.

A copy of the form of warrant agreement, including the form of warrant certificate representing a series of warrants, will be filed with the SEC in connection with the offering of a particular series of warrants. The following summaries of material provisions of the warrants and the warrant agreements are subject to, and qualified in their entirety by reference to, all the provisions of the warrant agreement and warrant certificate applicable to the particular series of warrants that we may offer under this prospectus. We urge you to read the applicable prospectus supplement(s) related to the particular series of warrants that we may offer under this prospectus, as well as any prospectus supplement, and the complete warrant agreements and warrant certificates that contain the terms of the warrants.

The applicable prospectus supplement will describe the following terms of warrants offered:

- the offering price and aggregate number of warrants offered;
- if applicable, the number of warrants issued with each share of common stock;
- if applicable, the date on and after which the warrants and the related common stock will be separately transferable;
- the number of shares of common stock purchasable upon the exercise of one warrant and the price at which these shares may be purchased upon such exercise;
- the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreements and the warrants;
- the terms of any rights to redeem or call the warrants;
- any provisions for changes to or adjustments in the exercise price or number of shares of common stock issuable upon exercise of the warrants;
 - the dates on which the right to exercise the warrants will commence and expire;
 - the manner in which the warrant agreements and warrants may be modified;
 - the anti-dilutive protections given to the holders of such warrants;
- a discussion of any material or special U.S. federal income tax consequences of holding or exercising the warrants; and
 - any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

Holders of warrants will not be entitled, by virtue of being such holders, to vote, consent, receive dividends, receive notice as stockholders with respect to any meeting of stockholders for the election of our directors or any other matter, or to exercise any rights whatsoever as our stockholders.

The exercise price payable and the number of shares of our common stock purchasable upon the exercise of each warrant will be subject to adjustment in certain events, including the issuance of a stock dividend to holders of our common stock or a stock split, reverse stock split, combination, subdivision or reclassification of our common stock. In lieu of adjusting the number of shares of our common stock purchasable upon exercise of each warrant, we may elect to adjust the number of warrants. No fractional shares will be issued upon exercise of the warrants, but we will pay the cash value of any fractional shares otherwise issuable. Notwithstanding the foregoing, in case of any consolidation, merger, or sale or conveyance of our property as an entirety or substantially as an entirety, the holder of each outstanding warrant shall have the right to the kind and amount of shares of stock and other securities and property, including cash, receivable by a holder of the number of shares of our common stock into which the warrant was exercisable immediately prior to such transaction.

Each warrant will entitle the holder to purchase for cash such shares of our common stock at such exercise price as shall in each case be set forth in, or be determinable as set forth in, the prospectus supplement relating to the warrants offered thereby. Warrants may be exercised at any time up to the close of business on the expiration date set forth in the prospectus supplement relating to the warrants offered thereby. After the close of business on the expiration date,

unexercised warrants will become void.

The warrants may be exercised as set forth in the prospectus supplement relating to the warrants offered. Upon receipt of payment and the warrant certificate properly completed and duly executed at the corporate trust office of the warrant agent or any other office indicated in the prospectus supplement, we will, as soon as practicable, forward the shares of our common stock purchasable upon such exercise. If less than all of the warrants represented by such warrant certificate are exercised, a new warrant certificate will be issued for the remaining warrants.

Governing Law

Unless we provide otherwise in the applicable prospectus supplement, the warrants and warrant agreements will be governed by and construed in accordance with the laws of the State of Minnesota.

Enforceability of Rights by Holders of Warrants

Each warrant agent (if any) will act solely as our agent under the applicable warrant agreement and will not assume any obligation or relationship of agency or trust with any holder of any warrant. A single bank or trust company may act as warrant agent for more than one issue of warrants. A warrant agent will have no duty or responsibility in case of any default by us under the applicable warrant agreement or warrant, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a warrant may, without the consent of the related warrant agent or the holder of any other warrant, enforce by appropriate legal action its right to exercise, and receive the securities purchasable upon exercise of, its warrants.

DESCRIPTION OF UNITS

The following description, together with the additional information we may include in any applicable prospectus supplement, summarizes the material terms and provisions of the units that we may offer under this prospectus. While the terms we have summarized below will apply generally to any units that we may offer under this prospectus, we will describe the particular terms of any series of units in more detail in the applicable prospectus supplement. The terms of any units offered under a prospectus supplement may differ from the terms described below. However, no prospectus supplement will fundamentally change the terms that are set forth in this prospectus or offer a security that is not registered and described in this prospectus at the time of its effectiveness.

We will file with the SEC the form of unit agreement that describes the terms of the series of units we are offering, and any supplemental agreements, before the issuance of the related series of units. The following summaries of material terms and provisions of the units are subject to, and qualified in their entirety by reference to, all the provisions of the unit agreement and any supplemental agreements applicable to a particular series of units. We urge you to read the applicable prospectus supplements related to the particular series of units that we sell under this prospectus, as well as the complete unit agreement and any supplemental agreements that contain the terms of the units.

We may issue units comprised of one or more shares of common stock and warrants in any combination. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date.

We will describe in the applicable prospectus supplement the terms of the series of units, including, but not limited to:

- the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- any provisions of the governing unit agreement that differ from those described below; and
- any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units.

The provisions described in this section, as well as those described under "Description of Capital Stock" and "Description of the Warrants" will apply to each unit and to any common stock or warrant included in each unit, respectively.

We may issue units in such amounts and in numerous distinct series as we determine.

Each unit agent will act solely as our agent under the applicable unit agreement and will not assume any obligation or relationship of agency or trust with any holder of any unit. A single bank or trust company may act as unit agent for more than one series of units. A unit agent will have no duty or responsibility in case of any default by us under the applicable unit agreement or unit, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a unit may, without the consent of the related unit agent or the holder of any other unit, enforce by appropriate legal action its rights as holder under any security included in the unit.

We, the unit agents and any of their agents may treat the registered holder of any unit certificate as an absolute owner of the units evidenced by that certificate for any purpose and as the person entitled to exercise the rights attaching to the units so requested, despite any notice to the contrary.

PLAN OF DISTRIBUTION

Pursuant to General Instruction I.B.6. of Form S-3, we are permitted to use the registration statement of which this prospectus forms a part to sell, via a primary offering, a maximum amount of securities equal to one-third of the aggregate market value of our outstanding voting and non-voting common equity held by non-affiliates of our company in any twelve month period. We may, from time to time, offer and sell the securities registered hereby up to the lesser of this maximum amount or \$15,000,000.

We may sell the securities through underwriters or dealers, through agents, or directly to one or more purchasers or through a combination of these methods, or through any other method permitted by applicable law. The applicable prospectus supplement will describe the terms of the offering of the securities, including:

- the name or names of any underwriters, if any, and if required, any dealers or agents;
- the purchase price of the securities and the proceeds we will receive from the sale;
- any underwriting discounts and other items constituting underwriters' compensation;
- any discounts or concessions allowed or reallocated or paid to dealers; and
- any securities exchange or market on which the securities may be listed.

We may distribute the securities from time to time in one or more transactions at:

- a fixed price or prices, which may be changed from time to time;
- market prices prevailing at the time of sale;
- prices related to such prevailing market prices; or
- negotiated prices.

Only underwriters named in the prospectus supplement are underwriters of the securities offered by that prospectus supplement. If we utilize any underwriters in the sale of our securities in respect of which this prospectus is delivered, we will enter into an underwriting agreement with those underwriters at the time of sale to them. We will set forth the names of these underwriters and the terms of the transaction in the applicable prospectus supplement, which will be used by the underwriters to make resales of our securities in respect of which this prospectus is delivered to the public.

If we use underwriters in the sale of securities, they will acquire the securities for their own account and may resell them from time to time in one or more transactions at a fixed public offering price or at varying prices determined at the time of sale. We may offer the securities to the public through underwriting syndicates represented by managing underwriters or by underwriters without a syndicate. Any public offering price and any discounts or concessions allowed or reallocated or paid to dealers may change from time to time.

If we use a dealer in the sale of the securities being offered pursuant to this prospectus, we will sell the securities to the dealer, as principal. The dealer may then resell the securities to the public at varying prices to be determined by the dealer at the time of resale.

We may sell securities directly or through agents we designate from time to time. We will name any agent involved in the offering and sale of securities and we will describe any commissions we will pay the agent in the prospectus supplement. Unless the prospectus supplement states otherwise, our agent will act on a best-efforts basis for the period of its appointment.

We may authorize agents or underwriters to solicit offers by institutional investors to purchase securities from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. We will describe the conditions to these contracts and the commissions we must pay for solicitation of these contracts in the prospectus supplement.

In connection with the sale of the securities, underwriters, dealers or agents may receive compensation from us, or from purchasers of the securities for whom they act as agents, in the form of discounts, concessions or commissions. Underwriters may sell the securities to or through dealers, and those dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters or commissions from the purchasers for whom they may act as agents. Underwriters, dealers and agents that participate in the distribution of the securities, and any institutional investors or others that purchase securities directly and then resell the securities, may be deemed to be underwriters, and any discounts or commissions received by them from us and any profit on the resale of the securities by them may be deemed to be underwriting discounts and commissions under the Securities Act.

We may provide agents, underwriters and dealers with indemnification against particular civil liabilities, including liabilities under the Securities Act, or contribution with respect to payments that the agents, underwriters or dealers may make with respect to such liabilities. Agents, underwriters and dealers may engage in transactions with, or perform services for, us in the ordinary course of business.

In addition, we may enter into derivative transactions with third parties (including the writing of options), or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable prospectus supplement indicates, in connection with such a transaction, the third parties may, pursuant to this prospectus and the applicable prospectus supplement, sell securities covered by this prospectus and the applicable prospectus supplement. If so, the third party may use securities borrowed from us or others to settle such sales and may use securities received from us to close out any related short positions. We may also loan or pledge securities covered by this prospectus and the applicable prospectus supplement to third parties, who may sell the loaned securities or, in an event of default in the case of a pledge, sell the pledged securities pursuant to this prospectus and the applicable prospectus supplement. The third party in such sale transactions will be an underwriter and will be identified in the applicable prospectus supplement or in a post-effective amendment.

All securities we offer other than common stock will be new issues of securities with no established trading market. Any underwriters may make a market in these securities, but will not be obligated to do so and may discontinue any market making at any time without notice. We cannot guarantee the liquidity of the trading markets for any securities.

To the extent that we make sales through one or more underwriters, dealers or agents in at-the-market offerings, we will do so pursuant to the terms of a sales agency financing agreement or other at-the-market offering arrangement between us and the underwriters or agents. If we engage in at-the-market sales pursuant to any such agreement, we will issue and sell our securities through one or more underwriters, dealers or agents, which may act on an agency basis or on a principal basis. During the term of any such agreement, we may sell securities on a daily basis in exchange transactions or otherwise as we agree with the underwriters, dealers or agents. The agreement will provide that any securities sold will be sold at prices related to the then prevailing market prices for our securities. Therefore, exact figures regarding the proceeds that will be raised or commissions to be paid cannot be determined at this time. Pursuant to the terms of the agreement, we may also agree to sell, and the relevant underwriters, dealers or agents may agree to solicit offers to purchase, blocks of our common stock or other securities. The terms of each such agreement will be set forth in more detail in the applicable prospectus supplement.

Underwriters may engage in stabilizing and syndicate covering transactions in accordance with Rule 104 under the Exchange Act. Rule 104 permits stabilizing bids to purchase the securities being offered as long as the stabilizing bids do not exceed a specified maximum. Underwriters may over-allot the offered securities in connection with the offering, thus creating a short position in their account. Syndicate covering transactions involve purchases of the offered securities by underwriters in the open market after the distribution has been completed in order to cover syndicate short positions. Underwriters may also cover an over-allotment or short position by exercising their over-allotment option, if any. Stabilizing and syndicate covering transactions may cause the price of the offered securities to be higher than it would otherwise be in the absence of these transactions. These transactions, if commenced, may be discontinued at any time.

Any underwriters who are qualified market makers on the NYSE Amex Stock Exchange may engage in passive market making transactions in the common stock on the NYSE Amex Stock Exchange in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the common stock. Passive market makers must comply with the applicable volume and price limitations and must be identified as passive market makers. In general a passive market maker must display its bid at a price not in excess of the highest independent bid for such security – if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded.

Pursuant to requirements of the Financial Industry Regulatory Authority, or FINRA, the maximum commission or discount to be received by any FINRA member or independent broker dealer may not be greater than 8.0% of the gross proceeds received by us for the sale of any securities being registered pursuant to Securities Act Rule 415.

The place and time of delivery for our securities in respect of which this prospectus is delivered will be set forth in the applicable prospectus supplement.

LEGAL MATTERS

Certain legal matters with respect to the securities being offered hereby will be passed on by Keller Rohrback, PLC, Phoenix, Arizona. If securities are distributed in an underwritten offering, certain legal matters will be passed upon for the underwriters by counsel identified in the applicable prospectus supplement.

EXPERTS

DeCoria, Maichel & Teague, P.S., independent registered public accounting firm, has audited our consolidated balance sheets as of June 30, 2009 and June 30, 2008, and related consolidated statements of operations, shareholders' equity and cash flows for the years ended June 30, 2009 and 2008, included in our Annual Report on Form 10-K for the fiscal year ended June 30, 2009, as set forth in their report, which is incorporated by reference in this prospectus

and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on DeCoria, Maichel & Teague, P.S.'s report, given on the authority of said firm as experts in accounting and auditing.

INTERESTS OF NAMED EXPERTS AND COUNSEL

None.

MATERIAL CHANGES

None.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed a registration statement on Form S-3 with the SEC relating to the common stock and the warrants offered by this prospectus. This prospectus does not contain all of the information set forth in the registration statement and the exhibits and schedules thereto. We have omitted parts of the registration statement, as permitted by the rules and regulations of the SEC. Statements contained in this prospectus as to the contents of any contract or other document referred to are not necessarily complete and in each instance reference is made to the copy of such contract or other document filed as an exhibit to the registration statement, each such statement being qualified in all respects by such reference. For further information with respect to us and the common stock, and the warrants offered hereby, reference is made to such registration statement, exhibits and schedules.

We are subject to the information and periodic reporting requirements of the Exchange Act, and in accordance therewith file periodic reports, current reports, proxy statements and other information with the SEC. Such periodic reports, current reports, proxy statements, other information and a copy of this registration statement on Form S-3 may be inspected by anyone without charge and copies of these materials may be obtained upon the payment of the fees prescribed by the SEC, at the Public Reference Room maintained by the SEC at 100 F Street, N.E., 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. This registration statement on Form S-3 and the periodic reports, current reports, proxy statements and other information filed by us are also available through the Internet web site maintained by the SEC at the following address: <http://www.sec.gov>.

INCORPORATION BY REFERENCE

The SEC allows us to "incorporate by reference" into this prospectus the information we file with it. This means that we can disclose important information to you by referring you to those documents. The information we incorporate by reference is considered to be a part of this prospectus, and later information we file with the SEC will automatically update and supersede this information. The following documents filed with the SEC (in each case, under our Commission File No. 001-33407) are incorporated by reference in this prospectus:

- (a) Our Annual Report on Form 10-K for the fiscal year ended June 30, 2009 (filed September 23, 2009), which contains audited financial statements for our latest fiscal year for which such statements have been filed.
- (b) Our Current Reports on Form 8-K filed on September 24, 2009 and October 2, 2009.

(d) The description of our common stock contained in our Registration Statement on Form 8-A, filed with the Commission on April 12, 2007, including any amendments or reports filed for the purpose of updating such description.

We are also incorporating by reference any future filings we make with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act until this offering is completed, including those made between the date of filing of the initial registration statement and prior to effectiveness of the registration statement, except for information furnished under Item 2.02 or Item 7.01 of our Current Reports on Form 8-K which is not deemed to be filed and not incorporated by reference herein.

We will provide, without charge, to each person to whom a copy of this prospectus has been delivered, upon written or oral request of such person, a copy of any or all of the documents incorporated by reference herein (other than certain exhibits to such documents not specifically incorporated by reference). Requests for such copies should be directed to: IsoRay, Inc., 350 Hills Street, Suite 106, Richland, Washington 99354, telephone number (509) 375-1202, Attention: Lori Woods, Chief Operating Officer.

COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT LIABILITIES

The Company's Articles of Incorporation provide to directors and officers indemnification to the full extent provided by law, and provide that, to the extent permitted by Minnesota law, a director will not be personally liable for monetary damages to the Company or its shareholders for breach of his or her fiduciary duty as a director, except for liability for certain actions that may not be limited under Minnesota law. On July 1, 2006, the Company entered into Indemnification Agreements with each of its directors and executive officers, and the Company intends to enter into substantially identical agreements with any officers and directors who take office in the future. The purpose of the Indemnification Agreements is to provide all officers and directors with indemnification to the fullest extent permitted under the Minnesota Business Corporations Act.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable.