

NEOPROBE CORP
Form POS AM
September 30, 2010

As filed with the Securities and Exchange Commission on September 30, 2010

Registration No. 333-156810

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

Post-effective Amendment No. 3 to
Form S-1
on
Form S-3
REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

NEOPROBE CORPORATION
(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction
of incorporation or organization)

31-1080091
(I.R.S. Employer
Identification Number)

425 Metro Place North
Dublin, Ohio 43017-1367
(614) 793-7500
(Address, including zip code, and telephone number, including
area code, of registrant's principal executive offices)

Brent L. Larson
Senior Vice President and Chief Financial Officer
Neoprobe Corporation
425 Metro Place North
Dublin, Ohio 43017-1367
(614) 822-2330
(Name, address, including zip code, and telephone number,
including area code, of agent for service)

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Approximate date of commencement of proposed sale to the public: As soon as practicable after this Registration Statement is declared effective.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box:

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box:

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

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

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

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

(Do not check if a smaller reporting company)

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The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

SUBJECT TO COMPLETION, DATED SEPTEMBER 30, 2010.

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and we are not soliciting offers to buy these securities in any state where the offer or sale is not permitted.

PROSPECTUS

NEOPROBE CORPORATION

11,500,000 Shares of Common Stock

This prospectus relates to the sale of up to 11,500,000 shares of our common stock by Fusion Capital Fund II, LLC (Fusion Capital). Fusion Capital is sometimes referred to in this prospectus as the selling stockholder. The prices at which Fusion Capital may sell the shares will be determined by the prevailing market price for the shares or in negotiated transactions. We will not receive proceeds from the sale of our shares by Fusion Capital.

Our common stock is registered under Section 12(g) of the Securities Exchange Act of 1934 and quoted on the OTC Bulletin Board under the symbol NEOP. On September 29, 2010, the last reported sale price for our common stock as reported on the OTC Bulletin Board was \$1.86 per share.

The selling stockholder is an “underwriter” within the meaning of the Securities Act of 1933, as amended.

THE SECURITIES OFFERED IN THIS PROSPECTUS INVOLVE A HIGH DEGREE OF RISK. YOU SHOULD CONSIDER THE RISK FACTORS BEGINNING ON PAGE 5 BEFORE PURCHASING OUR COMMON STOCK.

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. Any representation to the contrary is a criminal offense.

[The date of this prospectus is October __, 2010.]

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Unless otherwise specified, the information in this prospectus is set forth as of September 30, 2010, and we anticipate that changes in our affairs will occur after such date. We have not authorized any person to give any information or to make any representations, other than as contained in this prospectus, in connection with the offer contained in this prospectus. If any person gives you any information or makes representations in connection with this offer, do not rely on it as information we have authorized. This prospectus is not an offer to sell our common stock in any state or other jurisdiction to any person to whom it is unlawful to make such offer.

PROSPECTUS SUMMARY

The following summary highlights selected information from this prospectus and may not contain all the information that is important to you. To understand our business and this offering fully, you should read this entire prospectus carefully, including the financial statements and the related notes beginning on page F-1. When we refer in this prospectus to the “company,” “we,” “us,” and “our,” we mean Neoprobe Corporation, a Delaware corporation, together with our subsidiaries. This prospectus contains forward-looking statements and information relating to Neoprobe Corporation. See Cautionary Note Regarding Forward Looking Statements on page 15.

Our Company

Neoprobe Corporation is a biomedical technology company that provides innovative surgical and diagnostic oncology products that enhance patient care and improve patient outcome. We currently market a line of medical devices, our neoprobe® GDS gamma detection systems, that are used in a cancer staging procedure called intraoperative lymphatic mapping. In addition to our medical device products, we have two radiopharmaceutical products, Lymphoseek® and RIGScan™ CR, in advanced phases of clinical development. We are also exploring the development of our activated cellular therapy (ACT) technology for patient-specific disease treatment through our majority-owned subsidiary, Cira Biosciences, Inc. (Cira Bio).

We were originally incorporated in Ohio in 1983 and reincorporated in Delaware in 1988. Our executive offices are located at 425 Metro Place North, Suite 300, Dublin, Ohio 43017. Our telephone number is (614) 793-7500. Our corporate website is www.neoprobe.com. This reference to our website is a textual reference only. We do not incorporate the information on our website into this prospectus and you should not consider any information on, or that can be accessed through, our website as part of this prospectus.

From our inception through 1998, we devoted substantially all of our efforts and resources to the research and clinical development of radiopharmaceutical and medical device technologies related to the intraoperative diagnosis and treatment of cancers, including our proprietary radioimmunoguided surgery (RIGS®) technology. In 1998, U.S. and European regulatory agencies completed evaluations and discussions of the status of the regulatory pathway for our RIGS products, which coupled with our limited financial resources at the time, caused us to suspend our radiopharmaceutical development activities and refocus our operating strategy on our medical device business. After achieving profitability in the fourth quarter of 1999 following this retrenchment, we expanded our medical device offerings at the beginning of 2002 through the acquisition of an Israeli company that was developing a line of blood flow measurement devices.

Although we had expanded our strategic focus with the addition of medical devices outside the oncology field, we continued to look for other avenues to reinvigorate our radiopharmaceutical development portfolio. In 2004, our efforts resulted in a number of positive events that caused us to take steps to re-activate our radiopharmaceutical and therapeutic initiatives. As a result of our efforts since 2004, we now have submitted data from a Phase 3 clinical trial of one of our radiopharmaceutical products, Lymphoseek®, to the U.S. Food and Drug Administration (FDA) for review and have held a successful meeting with FDA that has clarified the process for the near-term filing of a new drug application (NDA) to FDA. In addition, we are enrolling patients in a second Phase 3 clinical trial intended to further support and expand our proposed product labeling for Lymphoseek and to support European filing for the product. Interest in, and activity related to, our original radiopharmaceutical product, RIGScan™ CR, has also increased significantly in recent years as we received formal scientific advice in late 2008 from the European Medicinal Evaluation Agency (EMA) regarding our regulatory and clinical development plans for RIGScan CR. We have initiated action to obtain similar feedback from FDA and plan to file amendments to our investigational new drug (IND) protocol in the coming months to be followed by a Special Protocol Assessment (SPA) request. Our subsidiary, Cira Biosciences, Inc. (Cira Bio), is also evaluating the market opportunities for yet another technology

platform, activated cellular therapy (ACT). The success we have been experiencing in recent years related to our drug development activities caused us, during 2009, to re-evaluate our product initiatives and strategies. As a result of this evaluation, we made the decision during the third quarter of 2009 to discontinue the operations of our blood flow measurement device product line and to look for opportunities to divest our Cardiosonix Ltd. subsidiary. We believe this decision will allow us to better focus on our oncology-related development platforms as we approach several key milestones in the coming twelve to eighteen months.

We believe that our virtual business model is unique within our industry as we combine revenue generation from medical devices to cover our public company overhead while we devote capital raised through financing efforts to the development of products such as Lymphoseek which possess even greater potential for shareholder return. In addition, we have sought to maintain a development pipeline with additional longer-term return potential such as RIGScan CR and ACT that provide the opportunity for incremental return on the achievement of key development and funding milestones.

The Offering

Fusion Capital, the selling stockholder under this prospectus, is offering for sale up to 11,500,000 shares of our common stock hereunder. On December 1, 2006, we entered into a common stock purchase agreement with Fusion Capital, an Illinois limited liability company, to sell \$6,000,000 of our common stock over a 24-month period which ended on November 21, 2008. Through November 21, 2008, we sold to Fusion Capital under the agreement 7,568,671 shares for proceeds of \$1,950,000. None of the 7,568,671 shares are part of the offering pursuant to this prospectus. On December 1, 2006, we issued to Fusion Capital 720,000 shares of our common stock as a commitment fee upon execution of the agreement. In connection with sales of our common stock, we issued an additional 234,000 shares of our common stock to Fusion Capital as an additional commitment fee. None of the 720,000 shares or the 234,000 shares are part of the offering pursuant to this prospectus.

In December 2008, we entered into an amendment to the agreement which gave us a right to sell an additional \$6,000,000 of our common stock to Fusion Capital before March 1, 2011, along with the \$4,050,000 of the unsold balance of the \$6,000,000 we originally had the right to sell to Fusion Capital under the original agreement. We issued an additional 360,000 shares in consideration for Fusion Capital's agreement to enter into the amendment. All 360,000 shares are part of the offering pursuant to this prospectus. Pursuant to the amended agreement, as an additional commitment fee, we also agreed to issue to Fusion Capital pro rata 486,000 shares of our common stock as we sold the first \$4,050,000 of our common stock to Fusion Capital under the agreement as amended. In March 2010, we sold to Fusion Capital under the amended agreement 540,541 shares for proceeds of \$1,000,000, and issued Fusion Capital 120,000 additional commitment shares in connection with the sale. All 540,541 shares and 120,000 shares are part of the offering pursuant to this prospectus. Subsequent to this sale, the remaining aggregate amount of our common stock we can sell to Fusion Capital is \$9,050,000, and we have reserved a total of 10,113,459 shares of our common stock for sale under the amended agreement. All 10,113,459 shares are part of the offering pursuant to this prospectus. Following the issuance of the 120,000 commitment shares in connection with the March 2010 sale referenced above, 366,000 commitment shares remain to be issued as we sell the remaining \$3,050,000 of the unsold balance of the \$6,000,000 we originally had the right to sell to Fusion Capital under the original agreement. All 366,000 shares are part of the offering pursuant to this prospectus.

Our right to make sales under the amended agreement is limited to \$50,000 every two business days, unless our stock price equals or exceeds \$0.30 per share, in which case we can sell greater amounts to Fusion Capital as the price of our common stock increases. Fusion Capital does not have the right or any obligation to purchase any shares on any business day that the market price of our common stock is less than \$0.20 per share. Assuming all 10,113,459 shares are sold, the selling price per share would have to average approximately \$0.90 for us to receive the full \$9,050,000 remaining proceeds under the agreement as amended. Assuming we sell to Fusion Capital all 10,113,459 shares at a sale price of \$1.86 per share (the closing sale price of the common stock on September 29, 2010), we would receive the full remaining \$9,050,000 under the agreement.

As of September 28, 2010, there were 82,387,411 shares of our common stock outstanding (79,784,297 shares held by non-affiliates) including the 360,000 shares we issued to Fusion Capital in consideration for Fusion Capital's entering into the first amendment, the 540,541 shares sold to Fusion Capital in March 2010, the 120,000 commitment shares issued to Fusion in connection with the March 2010 sale, and the 7,568,671 shares acquired by Fusion Capital

pursuant to the stock purchase agreement prior to the date of the first amendment to common stock purchase agreement, but excluding the 10,113,459 shares which have not yet been issued and purchased by Fusion Capital and the remaining 366,000 additional commitment fee shares which have not yet been issued to Fusion Capital. If all 11,500,000 shares offered hereby were issued and outstanding as of the date hereof, the 11,500,000 shares would represent 12.4% of the total common stock outstanding or 12.7% of the non-affiliate shares outstanding as of the date hereof.

In summary, this prospectus covers: (i) 360,000 shares of our common stock issued to Fusion Capital in consideration for its agreement to enter into the amendment to the common stock purchase agreement; (ii) 540,541 shares sold to Fusion Capital under the amended agreement in March 2010; (iii) 120,000 commitment fee shares issued to Fusion Capital in connection with the March 2010 sale; (iii) 366,000 additional commitment fee shares to be issued pro rata as we sell the remaining \$3,050,000 of the unsold balance of the \$6,000,000 we had the right to sell to Fusion Capital under the original agreement; and (vi) 10,113,459 shares of our common stock which we may sell to Fusion Capital pursuant to the terms of the common stock purchase agreement as amended. Under the agreement, we have the right but not the obligation to sell more than the 10,113,459 shares to Fusion Capital. As of the date hereof, we do not currently have any plans or intent to sell to Fusion Capital any shares beyond the 10,113,459 shares. However, if we elect to sell more than the 10,113,459 shares, we must first register any additional shares we may elect to sell to Fusion Capital under the Securities Act before we can sell such additional shares. The number of shares ultimately offered for sale by Fusion Capital is dependent upon the number of shares purchased by Fusion Capital under the agreement.

We do not have the right to commence any sales of our shares to Fusion Capital until the Securities & Exchange Commission has declared effective the registration statement of which this prospectus forms a part. After the Securities & Exchange Commission has declared effective such registration statement, generally we have the right but not the obligation from time to time but prior to March 1, 2011, to sell our shares to Fusion Capital in amounts between \$50,000 and \$1.0 million depending on certain conditions set forth in the common stock purchase agreement. We have the right to control the timing and amount of any sales of our shares to Fusion Capital. The purchase price of the shares will be determined based upon the market price of our shares without any fixed discount at the time of each sale. Fusion Capital shall not have the right nor the obligation to purchase any shares of our common stock on any business day that the price of our common stock is below \$0.20. There are no negative covenants, restrictions on future fundings, penalties or liquidated damages in the agreement. The agreement may be terminated by us at any time at our discretion without any cost to us.

An investment in our common stock is highly speculative and involves a high degree of risk. See Risk Factors beginning on page 5.

RISK FACTORS

An investment in our common stock involves a high degree of risk. You should carefully consider the risks described below, together with all of the other information included in this prospectus, before making an investment decision. If any of the following risks actually occurs, our business, financial condition or results of operations could suffer. In that case, the trading price of our common stock could decline, and you may lose all or part of your investment.

We have suffered significant operating losses for several years in our history and we may not be able to again achieve profitability.

We had an accumulated deficit of approximately \$246 million as of June 30, 2010. Although we were profitable in 2000 and 2001, we incurred substantial losses in the years prior to that, and again in subsequent years. The deficit resulted because we expended more money in the course of researching, developing and enhancing our technology and products and establishing our marketing and administrative organizations than we generated in revenues, and because of the significant non-cash losses we have recognized related to accounting for certain of the complex financial instruments we have issued in recent years to fund our business. We expect to continue to incur significant expenses in the foreseeable future, primarily related to the completion of development and commercialization of Lymphoseek, but also potentially related to RIGS and our device product lines. As a result, we are sustaining substantial operating and net losses, and it is possible that we will never be able to sustain or develop the revenue levels necessary to again attain profitability.

Our products and product candidates may not achieve the broad market acceptance they need in order to be a commercial success.

Widespread use of our handheld gamma detection devices is currently limited to one surgical procedure, sentinel lymph node biopsy (SLNB), used in the diagnosis and treatment of two primary types of cancer: melanoma and breast cancer. While the adoption of SLNB within the breast and melanoma indications appears to be widespread, we believe expansion of SLNB to other indications such as head and neck, colorectal and prostate cancers is likely dependent on a better lymphatic tissue targeting agent than is currently available. Without expanded indications in which to apply SLNB, it is likely that gamma detection devices will eventually reach market saturation. Our efforts and those of our marketing and distribution partners may not result in significant demand for our products, and the current demand for our products may decline.

Our radiopharmaceutical product candidates, Lymphoseek and RIGScan CR, are still in the process of development, and even if we are successful in commercializing them, we cannot assure you that they will obtain significant market acceptance.

We may have difficulty raising additional capital, which could deprive us of necessary resources.

We expect to continue to devote significant capital resources to fund research and development and to maintain existing and secure new manufacturing capacity. In order to support the initiatives envisioned in our business plan, we may need to raise additional funds through the sale of assets, public or private debt or equity financing, collaborative relationships or other arrangements. Our ability to raise additional financing depends on many factors beyond our control, including the state of capital markets, the market price of our common stock and the development or prospects for development of competitive technology by others. Because our common stock is not listed on a major stock market, many investors may not be willing or allowed to purchase it or may demand steep discounts. Sufficient additional financing may not be available to us or may be available only on terms that would result in further dilution to the current owners of our common stock.

We believe that we have access to sufficient financial resources with which to fund our operations or those of our subsidiaries for the foreseeable future. Depending on market conditions and/or changes in our business plans, we may raise capital in coming quarters under this registration statement or we may consider other funding vehicles. The continuation of the depressed worldwide financial conditions and stock market valuations may adversely affect our ability to raise additional capital, either under facilities in place or from new sources of capital. If we are unsuccessful in raising additional capital, closing on financing under already agreed to terms, or the terms of raising such capital are unacceptable, we may have to modify our business plan and/or significantly curtail our planned development activities and other operations.

In December 2006, we entered into a common stock purchase agreement with Fusion Capital, an Illinois limited liability company, to sell \$6,000,000 of our common stock over a 24-month period which ended on November 21, 2008. Through November 21, 2008, we sold to Fusion Capital under the agreement 7,568,671 shares for proceeds of \$1,950,000. In December 2008, we entered into an amendment to the agreement which gave us a right to sell an additional \$6,000,000 of our common stock to Fusion Capital before March 1, 2011, along with the \$4,050,000 of the unsold balance of the \$6,000,000 we originally had the right to sell to Fusion Capital under the original agreement. In March 2010, we sold to Fusion Capital under the amended agreement 540,541 shares for proceeds of \$1,000,000. Subsequent to this sale, the remaining aggregate amount of our common stock we can sell to Fusion Capital is \$9,050,000, and we have reserved a total of 10,113,459 shares of our common stock for sale under the amended agreement. Our right to make sales under the amended agreement is limited to \$50,000 every two business days, unless our stock price equals or exceeds \$0.30 per share, in which case we can sell greater amounts to Fusion Capital as the price of our common stock increases. Fusion Capital does not have the right or any obligation to purchase any shares on any business day that the market price of our common stock is less than \$0.20 per share. Assuming all 10,113,459 shares are sold, the selling price per share would have to average approximately \$0.90 for us to receive the full \$9,050,000 remaining proceeds under the agreement as amended. Assuming we sell to Fusion Capital all 10,113,459 shares at a sale price of \$1.86 per share (the closing sale price of the common stock on September 29, 2010), we would receive the full remaining \$9,050,000 under the agreement. Under the agreement, we have the right but not the obligation to sell more than the 10,113,459 shares to Fusion Capital. As of the date hereof, we do not currently have any plans or intent to sell to Fusion Capital any shares beyond the 10,113,459 shares. However, if we elect to sell more than the 10,113,459 shares, we must first register any additional shares we may elect to sell to Fusion Capital under the Securities Act before we can sell such additional shares.

The extent to which we rely on Fusion Capital as a source of funding will depend on a number of factors, including the prevailing market price of our common stock and the extent to which we are able to secure working capital from other sources, such as through the sale of our products. To the extent that we are unable to make sales to Fusion Capital to meet our capital needs, or to the extent that we decide not to make such sales because of excessive dilution or other reasons, and if we are unable to generate sufficient revenues from sales of our products, we will need to secure another source of funding in order to satisfy our working capital needs. Even if we are able to access the full \$9,050,000 potentially remaining under the agreement with Fusion Capital, we may still need additional capital to fully implement our business, operating and development plans. Should the financing we require to sustain our working capital needs be unavailable or prohibitively expensive when we require it, the consequences could be a material adverse effect on our business, operating results, financial condition and prospects.

Clinical trials for our radiopharmaceutical product candidates will be lengthy and expensive and their outcome is uncertain.

Before obtaining regulatory approval for the commercial sale of any product candidates, we must demonstrate through preclinical testing and clinical trials that our product candidates are safe and effective for use in humans. Conducting clinical trials is a time consuming, expensive and uncertain process and may take years to complete. During 2009, we successfully completed a Phase 3 clinical trial in patients with breast cancer or melanoma for our most advanced

radiopharmaceutical product candidate, Lymphoseek. We began enrolling clinical subjects in a second Phase 3 trial for Lymphoseek in patients with head and neck squamous cell carcinoma in the third quarter of 2009 and in a third Phase 3 trial in subjects with breast cancer and melanoma in the third quarter of 2010. While neither the second or third trials are required to be completed in order to file our new drug application (NDA) for Lymphoseek, these trials are intended to contribute additional data for safety evaluation purposes and to support expanded post-marketing product labeling for Lymphoseek. In late 2008, we obtained approval from the European Medicines Agency (EMA) for a Phase 3 clinical protocol for our next radiopharmaceutical candidate, RIGScan CR, and we are preparing to approach FDA to obtain similar clearance. Historically, the results from preclinical testing and early clinical trials have often not been predictive of results obtained in later clinical trials. Frequently, drugs that have shown promising results in preclinical or early clinical trials subsequently fail to establish sufficient safety and efficacy data necessary to obtain regulatory approval. At any time during the clinical trials, we, the participating institutions, FDA or EMA might delay or halt any clinical trials for our product candidates for various reasons, including:

- ineffectiveness of the product candidate;
- discovery of unacceptable toxicities or side effects;
- development of disease resistance or other physiological factors;
- delays in patient enrollment; or
- other reasons that are internal to the businesses of our potential collaborative partners, which reasons they may not share with us.

While we have achieved some level of success in our recent Phase 2 and Phase 3 clinical trials for Lymphoseek, the results of these clinical trials, as well as pending and future trials, are subject to review and interpretation by various regulatory bodies during the regulatory review process and may ultimately fail to demonstrate the safety or effectiveness of our product candidates to the extent necessary to obtain regulatory approval or such that commercialization of our product candidates is worthwhile. Any failure or substantial delay in successfully completing clinical trials and obtaining regulatory approval for our product candidates could severely harm our business.

If we fail to obtain collaborative partners, or those we obtain fail to perform their obligations or discontinue clinical trials for particular product candidates, our ability to develop and market potential products could be severely limited.

Our strategy for the development and commercialization of our product candidates depends, in large part, upon the formation of collaborative arrangements. Collaborations may allow us to:

- generate cash flow and revenue;
- offset some of the costs associated with our internal research and development, preclinical testing, clinical trials and manufacturing;
- seek and obtain regulatory approvals faster than we could on our own; and
- successfully commercialize existing and future product candidates.

We have an agreement in place with Cardinal Health for the distribution of Lymphoseek in the United States. We do not currently have collaborative agreements covering Lymphoseek in other areas of the world or for RIGScan CR or ACT. We cannot assure you that we will be successful in securing collaborative partners for other markets or radiopharmaceutical products, or that we will be able to negotiate acceptable terms for such arrangements. The development, regulatory approval and commercialization of our product candidates will depend substantially on the efforts of collaborative partners, and if we fail to secure or maintain successful collaborative arrangements, or if our partners fail to perform their obligations, our development, regulatory, manufacturing and marketing activities may be delayed, scaled back or suspended.

We rely on third parties for the worldwide marketing and distribution of our gamma detection devices, who may not be successful in selling our products.

We currently distribute our gamma detection devices in most global markets through partners who are solely responsible for marketing and distributing these products. The partners assume direct responsibility for business risks related to credit, currency exchange, foreign tax laws or tariff and trade regulation. For the past ten years, our primary marketing and distribution partner for our gamma detection devices has been Ethicon Endo-Surgery, Inc. (EES), a Johnson & Johnson company. Recently, EES sold its breast care franchise, the group that is responsible for selling our gamma detection devices, to Devicor Medical Products, Inc. (Devicor). While we believe that Devicor as our distribution partner intends to continue to aggressively market our products, we cannot assure you that the distribution partner will succeed in marketing our products on a global basis. We may not be able to maintain satisfactory arrangements with our marketing and distribution partners, who may not devote adequate resources to selling our products. If this happens, we may not be able to successfully market our products, which would decrease our

revenues.

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Our radiopharmaceutical product candidates are subject to extensive government regulations and we may not be able to obtain necessary regulatory approvals.

We may not receive the regulatory approvals necessary to commercialize our Lymphoseek and RIGScan product candidates, which could cause our business to be severely harmed. Our product candidates are subject to extensive and rigorous government regulation. FDA regulates, among other things, the development, testing, manufacture, safety, record-keeping, labeling, storage, approval, advertising, promotion, sale and distribution of pharmaceutical products. If our potential products are marketed abroad, they will also be subject to extensive regulation by foreign governments. None of our radiopharmaceutical product candidates have been approved for sale in the United States or in any foreign market. The regulatory review and approval process, which includes preclinical studies and clinical trials of each product candidate, is lengthy, complex, expensive and uncertain. Securing FDA clearance to market requires the submission of extensive preclinical and clinical data and supporting information to FDA for each indication to establish the product candidate's safety and efficacy. Data obtained from preclinical and clinical trials are susceptible to varying interpretation, which may delay, limit or prevent regulatory approval. The approval process may take many years to complete and may involve ongoing requirements for post-marketing studies. In light of the limited regulatory history of monoclonal antibody-based therapeutics, regulatory approvals for our products may not be obtained without lengthy delays, if at all. Any FDA or other regulatory approvals of our product candidates, once obtained, may be withdrawn. The effect of government regulation may be to:

- delay marketing of potential products for a considerable period of time;
- limit the indicated uses for which potential products may be marketed;
- impose costly requirements on our activities; and
- provide competitive advantage to other pharmaceutical and biotechnology companies.

We may encounter delays or rejections in the regulatory approval process because of additional government regulation from future legislation or administrative action or changes in FDA policy during the period of product development, clinical trials and FDA regulatory review. Failure to comply with applicable FDA or other regulatory requirements may result in criminal prosecution, civil penalties, recall or seizure of products, total or partial suspension of production or injunction, as well as other regulatory action against our product candidates or us. Outside the United States, our ability to market a product is contingent upon receiving clearances from the appropriate regulatory authorities. This foreign regulatory approval process includes risks similar to those associated with FDA approval process.

Our radiopharmaceutical product candidates will remain subject to ongoing regulatory review even if they receive marketing approval. If we fail to comply with continuing regulations, we could lose these approvals and the sale of our products could be suspended.

Even if we receive regulatory clearance to market a particular product candidate, the approval could be conditioned on us conducting additional costly post-approval studies or could limit the indicated uses included in our labeling. Moreover, the product may later cause adverse effects that limit or prevent its widespread use, force us to withdraw it from the market or impede or delay our ability to obtain regulatory approvals in additional countries. In addition, the manufacturer of the product and its facilities will continue to be subject to FDA review and periodic inspections to ensure adherence to applicable regulations. After receiving marketing clearance, the manufacturing, labeling, packaging, adverse event reporting, storage, advertising, promotion and record-keeping related to the product will remain subject to extensive regulatory requirements. We may be slow to adapt, or we may never adapt, to changes in existing regulatory requirements or adoption of new regulatory requirements.

If we fail to comply with the regulatory requirements of FDA and other applicable U.S. and foreign regulatory authorities or previously unknown problems with our products, manufacturers or manufacturing processes are

discovered, we could be subject to administrative or judicially imposed sanctions, including:

- restrictions on the products, manufacturers or manufacturing processes;
 - warning letters;
 - civil or criminal penalties;
 - fines;

delaying the submission of product candidates for regulatory approval and the market introduction and subsequent commercialization of our potential products. Any such delays may lower our revenues and potential profitability.

We and any third-party manufacturers that we may use must continually adhere to current Good Manufacturing Practices regulations enforced by FDA through its facilities inspection program. If our facilities or the facilities of third-party manufacturers cannot pass a pre-approval plant inspection, FDA will not grant approval to our product candidates. In complying with these regulations and foreign regulatory requirements, we and any of our third-party manufacturers will be obligated to expend time, money and effort on production, record-keeping and quality control to assure that our potential products meet applicable specifications and other requirements. If we or any third-party manufacturer with whom we may contract fail to maintain regulatory compliance, we or the third party may be subject to fines and/or manufacturing operations may be suspended.

Unfavorable pricing regulations, third-party reimbursement practices or healthcare reform initiatives applicable to our radiopharmaceutical products and product candidates could limit our potential product revenue and adversely affect our business.

The regulations governing drug pricing and reimbursement vary widely from country to country. Some countries require approval of the sale price of a drug before it can be marketed and, in many of these countries, the pricing review period begins only after approval is granted. In some countries, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. Although we monitor these regulations, our product candidates are currently in the development stage and we will not be able to assess the impact of price regulations for at least several years. As a result, we may obtain regulatory approval for a product in a particular country, but then be subject to price regulations that may delay the commercial launch of the product and may negatively impact the revenues we are able to derive from sales in that country.

The healthcare industry is undergoing fundamental changes resulting from political, economic and regulatory influences. In the United States, comprehensive programs have been proposed that seek to increase access to healthcare for the uninsured, to control the escalation of healthcare expenditures within the economy and to use healthcare reimbursement policies to balance the federal budget. On March 23, 2010, health reform legislation was approved by Congress and has been signed into law. The reform legislation provides that most individuals must have health insurance, will establish new regulations on health plans, create insurance pooling mechanisms and other expanded public health care measures, and impose new taxes on sales of medical devices and pharmaceuticals. Since this legislation was recently enacted and will require the adoption of implementing regulations, we cannot predict the effect, if any, that it will have on our business, but this legislation and similar federal and state initiatives may have the effect of lowering reimbursements for our products, reducing medical procedure volumes, increasing our taxes and otherwise adversely affect our business, possibly materially.

We expect that Congress and state legislatures will continue to review and assess healthcare proposals, and public debate of these issues will likely continue. We cannot predict which, if any, of such reform proposals will be adopted and when they might be adopted. Other countries also are considering healthcare reform. Significant changes in healthcare systems could have a substantial impact on the manner in which we conduct our business and could require us to revise our strategies.

The sale of our common stock to Fusion Capital may cause dilution and the sale of common stock acquired by Fusion Capital could cause the price of our common stock to decline.

In connection with our agreement with Fusion Capital, we have authorized the sale of up to 18,222,671 shares of our common stock and the issuance of 1,800,000 shares in commitment fees, and we have filed a registration statement with the SEC for the sale to the public of 11,500,000 shares issuable to Fusion Capital pursuant to the agreement. Through August 30, 2010, we have sold Fusion Capital 8,109,212 shares of common stock and issued 1,434,000 shares of stock as commitment fees to Fusion Capital. The number of shares ultimately offered for sale to the public will be dependent upon the number of shares purchased by Fusion Capital under the agreement. It is anticipated that

these shares will be sold over a period of up to 26 months from the date of the December 24, 2008 amendment to the agreement, at prices that will fluctuate based on changes in the market price of our common stock over that period. Depending upon market liquidity at the times sales are made, these sales could cause the market price of our common stock to decline. Consequently, sales to Fusion Capital may result in substantial dilution to the interests of other holders of our common stock. The sale of a substantial number of shares of our common stock by Fusion Capital, or anticipation of such sales, could make it more difficult for us to sell equity or equity-related securities in the future at a time and at a price that we might otherwise wish to effect sales. However, we have the right to control the timing and amount of any sales of our shares to Fusion Capital and the agreement may be terminated by us at any time at our discretion without any cost to us.

The sale of the shares of common stock acquired in private placements could cause the price of our common stock to decline.

Over the past few years, we completed various financings in which we issued common stock, convertible notes, warrants and other securities convertible into common stock to certain private investors. The terms of these transactions require that we file registration statements with the Securities and Exchange Commission under which the investors may resell to the public common stock acquired in these transactions, as well as common stock acquired on the exercise of the warrants and convertible securities held by them. Further, some or all of the common stock sold in these transactions may become eligible for resale without registration under the provisions of Rule 144, upon satisfaction of the holding period and other requirements of the Rule.

As required by our financing arrangements with Fusion Capital, we have filed a registration statement registering for resale a total of 11,500,000 common shares, consisting of (i) 360,000 shares of our common stock issued to Fusion Capital in consideration for its agreement to amend the common stock purchase agreement, (ii) 540,541 shares sold to Fusion Capital under the amended agreement in March 2010, (iii) 120,000 commitment fee shares issued to Fusion Capital in connection with the March 2010 sale; (iii) 366,000 additional commitment fee shares to be issued pro rata as we sell the remaining \$3,050,000 of the unsold balance of the \$6,000,000 we had the right to sell to Fusion Capital under the original agreement; and (vi) 10,113,459 shares of our common stock which we may sell to Fusion Capital pursuant to the terms of the common stock purchase agreement as amended. The number of shares ultimately sold under the registration statement will be dependent upon the number of shares purchased by Fusion Capital under the amended agreement. It is anticipated that these shares will be sold from time to time over a period ending on March 1, 2011, at prices that will fluctuate based on changes in the market price of our common stock over that period. We have the right to control the timing and amount of any sales of our shares to Fusion Capital and the agreement may be terminated by us at any time at our discretion without any cost to us.

On December 26, 2007, we entered into a Securities Purchase Agreement (SPA) with Platinum-Montaur Life Sciences, LLC (Montaur), pursuant to which we issued Montaur a 10% Series A Convertible Senior Secured Promissory Note in the principal amount of \$7,000,000, due December 26, 2011 (the Series A Note) and a five-year Series W Warrant to purchase 6,000,000 shares of our common stock at an exercise price of \$0.32 per share. On April 16, 2008, following receipt by the Company of clearance by the FDA to commence a Phase 3 clinical trial for Lymphoseek in patients with breast cancer or melanoma, we amended the SPA and issued Montaur a 10% Series B Convertible Senior Secured Promissory Note in the principal amount of \$3,000,000, also due December 26, 2011 (the Series B Note, and hereinafter referred to collectively with the Series A Note as the Montaur Notes), and a five-year Series X Warrant to purchase 8,333,333 shares of our common stock at an exercise price of \$0.46 per share. On December 5, 2008, after the Company had obtained 135 vital blue dye lymph nodes from patients who had completed surgery and the injection of the drug in the Phase 3 clinical trial of Lymphoseek in patients with breast cancer or melanoma, we issued Montaur 3,000 shares of our 8% Series A Cumulative Convertible Preferred Stock (the Series A Preferred Stock) and a five-year Series Y Warrant (hereinafter referred to collectively with the Series W Warrant and Series X Warrant as the Montaur Warrants) to purchase 6,000,000 shares of our common stock, at an exercise price of \$0.575 per share, also for an aggregate purchase price of \$3,000,000. On July 24, 2009, we entered into a Securities Amendment and Exchange Agreement (Amendment Agreement) with Montaur, pursuant to which Montaur agreed to the amendment and restatement of the terms of the Montaur Notes, the Montaur Warrants and the Preferred Stock, to remove price-based anti-dilution adjustment provisions that had created a significant non-cash derivative liability on the Company's balance sheet, and upon the surrender of the Montaur Notes and the Montaur Warrants we issued Montaur an Amended and Restated 10% Series A Convertible Senior Secured Promissory Note in the principal amount of \$7,000,000, due December 26, 2011 (the Amended Series A Note), an Amended and Restated 10% Series B Convertible Senior Secured Promissory Note in the principal amount of \$3,000,000, due December 26, 2011 (the Amended Series B Note, and together with the Amended Series A Note the Amended Montaur Notes), an Amended and Restated Series W Warrant (the Amended Series W Warrant), an Amended and Restated Series X Warrant (the

Amended Series X Warrant), an Amended and Restated Series Y Warrant (the Amended Series Y Warrant), and in consideration for the agreement of Montaur to enter into the Amendment Agreement, a Series AA Warrant to purchase 2,400,000 shares of our common stock at an exercise price of \$0.97 per share (the Series AA Warrant, and together with the Amended Series W Warrant, Amended Series X Warrant and Amended Series Y Warrant, the Amended Montaur Warrants). On June 25, 2010, we entered into a Securities Exchange Agreement (the Exchange Agreement) with Montaur, pursuant to which Montaur delivered to the Company for cancellation and retirement: (1) the Amended Montaur Notes; and (2) the Series A Preferred Stock, in exchange for 10,000 shares of our Series B Convertible Preferred Stock (Series B Preferred Stock). Pursuant to the provisions of the Certificate of Designations, Voting Powers, Preferences, Limitations, Restrictions, and Relative Rights of the Series B Convertible Preferred Stock, Montaur may convert all or any portion of the shares of the Series B Preferred Stock into an aggregate 32,700,000 shares of our common stock, subject to adjustment as described in the Certificate of Designations.

Montaur may sell none, some or all of the shares of common stock acquired from us, as well as common stock acquired on the exercise of the warrants and convertible securities held by them. We have no way of knowing whether or when Montaur will sell these shares. Depending upon market liquidity at the time, a sale of these shares at any given time could cause the trading price of our common stock to decline. The sale of a substantial number of shares of our common stock, or anticipation of such sales, could make it more difficult for us to sell equity or equity-related securities in the future at a time and at a price that we might otherwise wish to effect sales.

We may lose out to larger and better-established competitors.

The medical device and biotechnology industries are intensely competitive. Some of our competitors have significantly greater financial, technical, manufacturing, marketing and distribution resources as well as greater experience in the medical device industry than we have. The particular medical conditions our product lines address can also be addressed by other medical devices, procedures or drugs. Many of these alternatives are widely accepted by physicians and have a long history of use. Physicians may use our competitors' products and/or our products may not be competitive with other technologies. If these things happen, our sales and revenues will decline. In addition, our current and potential competitors may establish cooperative relationships with large medical equipment companies to gain access to greater research and development or marketing resources. Competition may result in price reductions, reduced gross margins and loss of market share.

Our products may be displaced by newer technology.

The medical device and biotechnology industries are undergoing rapid and significant technological change. Third parties may succeed in developing or marketing technologies and products that are more effective than those developed or marketed by us, or that would make our technology and products obsolete or non-competitive. Additionally, researchers could develop new surgical procedures and medications that replace or reduce the importance of the procedures that use our products. Accordingly, our success will depend, in part, on our ability to respond quickly to medical and technological changes through the development and introduction of new products. We may not have the resources to do this. If our products become obsolete and our efforts to develop new products do not result in any commercially successful products, our sales and revenues will decline.

We may not have sufficient legal protection against infringement or loss of our intellectual property, and we may lose rights to our licensed intellectual property if diligence requirements are not met.

Our success depends, in part, on our ability to secure and maintain patent protection, to preserve our trade secrets, and to operate without infringing on the patents of third parties. While we seek to protect our proprietary positions by filing United States and foreign patent applications for our important inventions and improvements, domestic and foreign patent offices may not issue these patents. Third parties may challenge, invalidate, or circumvent our patents or patent applications in the future. Competitors, many of which have significantly more resources than we have and have made substantial investments in competing technologies, may apply for and obtain patents that will prevent, limit, or interfere with our ability to make, use, or sell our products either in the United States or abroad.

In the United States, patent applications are secret until patents are issued, and in foreign countries, patent applications are secret for a time after filing. Publications of discoveries tend to significantly lag the actual discoveries and the filing of related patent applications. Third parties may have already filed applications for patents for products or processes that will make our products obsolete or will limit our patents or invalidate our patent applications.

We typically require our employees, consultants, advisers and suppliers to execute confidentiality and assignment of invention agreements in connection with their employment, consulting, advisory, or supply relationships with us. They may breach these agreements and we may not obtain an adequate remedy for breach. Further, third parties may gain access to our trade secrets or independently develop or acquire the same or equivalent information.

Agencies of the United States government conducted some of the research activities that led to the development of antibody technology that some of our proposed antibody-based surgical cancer detection products use. When the United States government participates in research activities, it retains rights that include the right to use the technology for governmental purposes under a royalty-free license, as well as rights to use and disclose technical data that could preclude us from asserting trade secret rights in that data and software.

We may lose the license rights to certain in-licensed products if we do not exercise adequate diligence.

Our license agreements for Lymphoseek, RIGS, and ACT contain provisions that require that we demonstrate ongoing diligence in the continuing research and development of these potential products. Cira Bio's rights to certain applications of the ACT technology may be affected by its failure to achieve certain capital raising milestones although no such notices to that effect have been received to date. We have provided information, as required or requested, to the licensors of our technology indicating the steps we have taken to demonstrate our diligence and believe we are adequately doing so to meet the terms and/or intent of our license agreements. However, it is possible that the licensors may not consider our actions adequate in demonstrating such diligence. Should we fail to demonstrate the requisite diligence required by any such agreements or as interpreted by the respective licensors, we may lose our development and commercialization rights for the associated product.

We could be damaged by product liability claims.

Our products are used or intended to be used in various clinical or surgical procedures. If one of our products malfunctions or a physician misuses it and injury results to a patient or operator, the injured party could assert a product liability claim against our Company. We currently have product liability insurance with a \$10 million per occurrence limit, which we believe is adequate for our current activities. However, we may not be able to continue to obtain insurance at a reasonable cost. Furthermore, insurance may not be sufficient to cover all of the liabilities resulting from a product liability claim, and we might not have sufficient funds available to pay any claims over the limits of our insurance. Because personal injury claims based on product liability in a medical setting may be very large, an underinsured or an uninsured claim could financially damage our Company.

We may have difficulty attracting and retaining qualified personnel and our business may suffer if we do not.

Our business has experienced a number of successes and faced several challenges in recent years that have resulted in several significant changes in our strategy and business plan, including the shifting of resources to support our current product initiatives. Our management will need to remain flexible to support our business model over the next few years. However, losing members of the Neoprobe management team could have an adverse effect on our operations. Our success depends on our ability to attract and retain technical and management personnel with expertise and experience in the medical device business. The competition for qualified personnel in the biotechnology industry is intense and we may not be successful in hiring or retaining the requisite personnel. If we are unable to attract and retain qualified technical and management personnel, we will suffer diminished chances of future success.

Our common stock is traded over the counter, which may deprive stockholders of the full value of their shares.

Our common stock is quoted via the OTC Bulletin Board (OTCBB). As such, our common stock may have fewer market makers, lower trading volumes and larger spreads between bid and ask prices than securities listed on an

exchange such as the New York Stock Exchange or the NASDAQ Stock Market. These factors may result in higher price volatility and less market liquidity for the common stock.

A low market price may severely limit the potential market for our common stock.

Our common stock is currently trading at a price substantially below \$5.00 per share, subjecting trading in the stock to certain SEC rules requiring additional disclosures by broker-dealers. These rules generally apply to any non-NASDAQ equity security that has a market price share of less than \$5.00 per share, subject to certain exceptions (a "penny stock"). Such rules require the delivery, prior to any penny stock transaction, of a disclosure schedule explaining the penny stock market and the risks associated therewith and impose various sales practice requirements on broker-dealers who sell penny stocks to persons other than established customers and institutional or wealthy investors. For these types of transactions, the broker-dealer must make a special suitability determination for the purchaser and have received the purchaser's written consent to the transaction prior to the sale. The broker-dealer also must disclose the commissions payable to the broker-dealer, current bid and offer quotations for the penny stock and, if the broker-dealer is the sole market maker, the broker-dealer must disclose this fact and the broker-dealer's presumed control over the market. Such information must be provided to the customer orally or in writing before or with the written confirmation of trade sent to the customer. Monthly statements must be sent disclosing recent price information for the penny stock held in the account and information on the limited market in penny stocks. The additional burdens imposed upon broker-dealers by such requirements could discourage broker-dealers from effecting transactions in our common stock.

The price of our common stock has been highly volatile due to several factors that will continue to affect the price of our stock.

Our common stock traded as low as \$0.95 per share and as high as \$2.30 per share during the 12-month period ended September 29, 2010. The market price of our common stock has been and is expected to continue to be highly volatile. Factors, including announcements of technological innovations by us or other companies, regulatory matters, new or existing products or procedures, concerns about our financial position, operating results, litigation, government regulation, developments or disputes relating to agreements, patents or proprietary rights, may have a significant impact on the market price of our stock. In addition, potential dilutive effects of future sales of shares of common stock by the Company and by stockholders, and subsequent sale of common stock by the holders of warrants and options could have an adverse effect on the market price of our shares.

Some additional factors which could lead to the volatility of our common stock include:

- price and volume fluctuations in the stock market at large which do not relate to our operating performance;
- financing arrangements we may enter that require the issuance of a significant number of shares in relation to the number of shares currently outstanding;
 - public concern as to the safety of products that we or others develop; and
 - fluctuations in market demand for and supply of our products.

An investor's ability to trade our common stock may be limited by trading volume.

Generally, the trading volume for our common stock has been relatively limited. A consistently active trading market for our common stock may not occur on the OTCBB. The average daily trading volume for our common stock on the OTCBB for the 12-month period ended September 28, 2010 was approximately 119,000 shares.

Some provisions of our organizational and governing documents may have the effect of deterring third parties from making takeover bids for control of our Company or may be used to hinder or delay a takeover bid.

Our certificate of incorporation authorizes the creation and issuance of "blank check" preferred stock. Our Board of Directors may divide this stock into one or more series and set their rights. The Board of Directors may, without prior

stockholder approval, issue any of the shares of “blank check” preferred stock with dividend, liquidation, conversion, voting or other rights, which could adversely affect the relative voting power or other rights of the common stock. Preferred stock could be used as a method of discouraging, delaying, or preventing a take-over of our Company. If we issue “blank check” preferred stock, it could have a dilutive effect upon our common stock. This would decrease the chance that our stockholders would realize a premium over market price for their shares of common stock as a result of a takeover bid.

Because we will not pay dividends in the foreseeable future, stockholders will only benefit from owning common stock if it appreciates.

We have never paid dividends on our common stock and we do not intend to do so in the foreseeable future. We intend to retain any future earnings to finance our growth. Accordingly, any potential investor who anticipates the need for current dividends from his investment should not purchase our common stock.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the information incorporated by reference in this prospectus contain forward-looking statements. We sometimes use words such as “anticipate,” “believe,” “continue,” “estimate,” “expect,” “intend,” “may,” “plan,” “potential,” “project,” “should,” “will” and similar expressions, as they relate to us, our management and our industry, to identify forward-looking statements. Forward-looking statements relate to our expectations, beliefs, plans, strategies, prospects, future performance, anticipated trends and other future events. Specifically, this prospectus and the information incorporated by reference in this prospectus contain forward-looking statements relating to, among other things:

- our revenue;
- our primary operating costs and expenses;
- capital expenditures;
- evaluation of possible acquisitions of, or investments in business, products and technologies; and
- sufficiency of existing cash to meet operating requirements.

These statements involve known and unknown risks, uncertainties, and other factors that may cause our or our industry’s past results, levels of activity, performance, or achievements to be materially different from any future results, levels of activity, performance, or achievements expressed or implied by such forward-looking statements. Actual results may differ materially. Some of the risks, uncertainties and assumptions that may cause actual results to differ from these forward-looking statements are described in “Risk Factors” and elsewhere in this prospectus, and may also be found in an accompanying prospectus supplement and in information incorporated by reference.

You should read this prospectus, the documents that we filed as exhibits to the registration statement of which this prospectus is a part and the documents that we incorporate by reference in this prospectus completely and with the understanding that our future results may be materially different from what we expect. We qualify all of our forward-looking statements by these cautionary statements, and we assume no obligation to update these forward-looking statements publicly for any reason.

WHERE YOU CAN FIND MORE INFORMATION
AND INCORPORATION BY REFERENCE

We have filed a registration statement on Form S-3 with the Securities and Exchange Commission. This prospectus does not contain all of the information in the registration statement. In addition, we file annual, quarterly and special reports, proxy statements and other information with the Commission. Our Commission filings are available to the public over the Internet at the Commission's web site at <http://www.sec.gov>. You may also read and copy any document we file with the Commission at its public reference facilities at 100 F Street, N.E., Washington, DC 20549. You can also obtain copies of the documents at prescribed rates by writing to the Public Reference Section of the Commission at 100 F Street, N.E., Washington, DC 20549. Please call the Commission at 1-800-SEC-0330 for further information on the operation of the public reference facilities.

We "incorporate by reference" into this prospectus the information we file with the Commission (Commission file number 0-26520), which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is an important part of this prospectus. Information that we file with the Commission after the date of this prospectus will automatically update this prospectus. We incorporate by reference the documents listed below, and any filings we make with the Commission under Sections 13(a), 13(c), 14, or 15(d) of the Securities Exchange Act of 1934 after the initial filing of the registration statement that contains this prospectus (except for information furnished and not filed with the Commission in a Current Report on Form 8-K):

- our Annual Report on Form 10-K for the year ended December 31, 2009, filed with the Commission on March 31, 2010;
- our Quarterly Reports on Form 10-Q for the quarterly periods ended March 31, 2010, filed with the Commission on May 14, 2010, and June 30, 2010, filed with the Commission on August 10, 2010;
- our Current Reports on Form 8-K, dated January 11, 2010 (filed January 11, 2010), dated January 26, 2010 (filed January 28, 2010), dated February 24, 2010 (filed February 26, 2010), dated March 11, 2010 (filed March 12, 2010), dated May 26, 2010 (filed May 27, 2010), dated June 22, 2010 (filed June 28, 2010) and dated July 16, 2010 (filed July 20, 2010); and
- the description of our common stock which is contained in our Form 8-A filed with the Commission pursuant to Section 12 of the Securities Exchange Act of 1934, as amended, as updated in any amendment or report filed for the purpose of updating such description.

Information furnished by us in Current Reports on Form 8-K under Items 2.02 and 9.01 is expressly not incorporated by reference in this prospectus.

We will provide to each person, including any beneficial owner, to whom a prospectus is delivered, without charge, upon written or oral request, a copy of any or all of the documents that are incorporated by reference into this prospectus but not delivered with the prospectus, including exhibits that are specifically incorporated by reference into such documents. You may request a copy of these filings at no cost, by writing to or telephoning us at:

Neoprobe Corporation
Attn: Brent L. Larson
425 Metro Place North
Dublin, Ohio 43017-1367
(614) 822-2330

USE OF PROCEEDS

This prospectus relates to shares of our common stock that may be offered and sold from time to time by the selling stockholder. We will receive no proceeds from the sale of shares of common stock in this offering.

DESCRIPTION OF CAPITAL STOCK

The following description of our capital stock is only a summary and is subject to the provisions of our amended and restated certificate of incorporation, or certificate of incorporation, and our amended and restated by-laws, or by-laws, which are included as exhibits to the registration statement of which this prospectus forms a part, and provisions of applicable law.

Our articles of incorporation authorize our board of directors to issue 200,000,000 shares of common stock and 5,000,000 shares of preferred stock. As of September 28, 2010, 82,387,411 shares of common stock were issued and outstanding, and 11,000 shares of preferred stock were issued and outstanding.

Common Stock

Dividends

Each share of common stock is entitled to receive an equal dividend, if one is declared, which is unlikely. We have never paid dividends on our common stock and do not intend to do so in the foreseeable future. We intend to retain any future earnings to finance our growth. See Risk Factors.

Liquidation

If our company is liquidated, any assets that remain after the creditors are paid, and the owners of preferred stock receive any liquidation preferences, will be distributed to the owners of our common stock pro-rata.

Voting Rights

Each share of our common stock entitles the owner to one vote. There is no cumulative voting. A simple majority can elect all of the directors at a given meeting and the minority would not be able to elect any directors at that meeting.

Preemptive Rights

Owners of our common stock have no preemptive rights. We may sell shares of our common stock to third parties without first offering it to current stockholders.

Redemption Rights

We do not have the right to buy back shares of our common stock except in extraordinary transactions such as mergers and court approved bankruptcy reorganizations. Owners of our common stock do not ordinarily have the right to require us to buy their common stock. We do not have a sinking fund to provide assets for any buy back.

Conversion Rights

Shares of our common stock cannot be converted into any other kind of stock except in extraordinary transactions, such as mergers and court approved bankruptcy reorganizations.

Preferred Stock

Our certificate of incorporation authorizes our board of directors to issue "blank check" preferred stock. The board of directors may divide this stock into series and set their rights. On December 26, 2007, the board of directors designated 3,000 shares of preferred stock as Series A 8% Cumulative Convertible Preferred Stock (Series A Preferred Stock). On December 5, 2008, we issued 3,000 shares of Series A 8% Cumulative Convertible Preferred Stock to Montaur. On June 25, 2010, the board of directors designated 10,000 shares of preferred stock as Series B Convertible Preferred Stock (Series B Preferred Stock), and 1,000 shares of preferred stock as Series C Convertible Preferred Stock (Series C Preferred Stock). Also, on June 25, 2010: (1) Montaur surrendered the Amended Series A Note, the Amended Series B Note, and all 3,000 shares of Series A Preferred Stock issued to it on December 5, 2008, in exchange for 10,000 shares of Series B Preferred Stock; and (2) David C. Bupp, the Company's President and Chief Executive Officer, and Cynthia B. Gochoco, both individually and as co-executors of the Estate of Walter H. Bupp (the Bupp Investors) surrendered the Amended Bupp Note in exchange for 1,000 shares of Series C Preferred Stock. Montaur may convert all or any portion of the shares of Series B Preferred Stock into an aggregate 32,700,000 shares of our common stock, and the Bupp Investors may convert all or any portion of the shares of Series C Preferred Stock into an aggregate 3,226,000 shares of our common stock. On August 2, 2010, we filed a Certificate of Elimination with the State of Delaware which had the effect of eliminating from our certificate of incorporation all references to the Series A Preferred Stock.

The board of directors may, without prior stockholder approval, issue any of the remaining 4,989,000 shares of authorized preferred stock with dividend, liquidation, conversion, voting or other rights which could adversely affect the relative voting power or other rights of the common stock. Preferred stock could be used as a method of discouraging, delaying, or preventing a take-over of our Company. If we do issue preferred stock in the future, it could have a dilutive effect upon the common stock. See Risk Factors.

ANTI-TAKEOVER CHARTER PROVISIONS AND LAWS

Some features of our certificate of incorporation and by-laws and the Delaware General Corporation Law (DGCL), which are further described below, may have the effect of deterring third parties from making takeover bids for control of our company or may be used to hinder or delay a takeover bid. This would decrease the chance that our stockholders would realize a premium over market price for their shares of common stock as a result of a takeover bid. See Risk Factors.

Limitations on Stockholder Actions

Our certificate of incorporation provides that stockholder action may only be taken at a meeting of the stockholders. Thus, an owner of a majority of the voting power could not take action to replace the board of directors, or any class of directors, without a meeting of the stockholders, nor could he amend the by-laws without presenting the amendment to a meeting of the stockholders. Furthermore, under the provisions of the certificate of incorporation and by-laws, only the board of directors has the power to call a special meeting of stockholders. Therefore, a stockholder, even one who owns a majority of the voting power, may neither replace sitting board of directors members nor amend the by-laws before the next annual meeting of stockholders.

Advance Notice Provisions

Our by-laws establish advance notice procedures for the nomination of candidates for election as directors by stockholders, as well as for other stockholder proposals to be considered at annual meetings. Generally, we must receive a notice of intent to nominate a director or raise any other matter at a stockholder meeting not less than 120 days before the first anniversary of the mailing of our proxy statement for the previous year's annual meeting. The

notice must contain required information concerning the person to be nominated or the matters to be brought before the meeting and concerning the stockholder submitting the proposal.

Delaware Law

We are incorporated in Delaware, and as such are subject to Section 203 of the DGCL, which provides that a corporation may not engage in any business combination with an interested stockholder during the three years after he becomes an interested stockholder unless:

- the corporation's board of directors approved in advance either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- the interested stockholder owned at least 85 percent of the corporation's voting stock at the time the transaction commenced; or
- the business combination is approved by the corporation's board of directors and the affirmative vote of at least two-thirds of the voting stock which is not owned by the interested stockholder.

An interested stockholder is anyone who owns 15 percent or more of a corporation's voting stock, or who is an affiliate or associate of the corporation and was the owner of 15 percent or more of the corporation's voting stock at any time within the previous three years; and the affiliates and associates of any those persons. Section 203 of the DGCL makes it more difficult for an interested stockholder to implement various business combinations with our Company for a three-year period, although our stockholders may vote to exclude it from the law's restrictions.

Classified Board

Our certificate of incorporation and by-laws divide our board of directors into three classes with staggered three year terms. There are currently eight directors, two in one class and three in each of two additional classes. At each annual meeting of stockholders, the terms of one class of directors will expire and the newly nominated directors of that class will be elected for a term of three years. The board of directors will be able to determine the total number of directors constituting the full board of directors and the number of directors in each class, but the total number of directors may not exceed 9 nor may the number of directors in any class exceed six. Subject to these rules, the classes of directors need not have equal numbers of members. No reduction in the total number of directors or in the number of directors in a given class will have the effect of removing a director from office or reducing the term of any then sitting director. Stockholders may only remove directors for cause. If the board of directors increases the number of directors in a class, it will be able to fill the vacancies created for the full remaining term of a director in that class even though the term may extend beyond the next annual meeting. The directors will also be able to fill any other vacancies for the full remaining term of the director whose death, resignation or removal caused the vacancy.

A person who has a majority of the voting power at a given meeting will not in any one year be able to replace a majority of the directors since only one class of the directors will stand for election in any one year. As a result, at least two annual meeting elections will be required to change the majority of the directors by the requisite vote of stockholders. The purpose of classifying the board of directors is to provide for a continuing body, even in the face of a person who accumulates a sufficient amount of voting power, whether by ownership or proxy or a combination, to have a majority of the voting power at a given meeting and who may seek to take control of our Company without paying a fair premium for control to all of the owners of our common stock. This will allow the board of directors time to negotiate with such a person and to protect the interests of the other stockholders who may constitute a majority of the shares not actually owned by that person. However, it may also have the effect of deterring third parties from making takeover bids for control of our Company or may be used to hinder or delay a takeover bid.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Continental Stock Transfer & Trust Company, located in New York, New York.

THE FUSION TRANSACTION

General

Fusion Capital, the selling stockholder under this prospectus, is offering for sale up to 11,500,000 shares of our common stock hereunder. On December 1, 2006, we entered into a common stock purchase agreement with Fusion Capital, an Illinois limited liability company, to sell \$6,000,000 of our common stock over a 24-month period which ended on November 21, 2008. Through November 21, 2008, we sold to Fusion Capital under the agreement 7,568,671 shares for proceeds of \$1,950,000. None of the 7,568,671 shares are part of the offering pursuant to this prospectus. On December 1, 2006, we issued to Fusion Capital 720,000 shares of our common stock as a commitment fee upon execution of the agreement. In connection with sales of our common stock, we issued an additional 234,000 shares of our common stock to Fusion Capital as an additional commitment fee. None of the 720,000 shares or the 234,000 shares are part of the offering pursuant to this prospectus.

In December 2008, we entered into an amendment to the agreement which gave us a right to sell an additional \$6,000,000 of our common stock to Fusion Capital before March 1, 2011, along with the \$4,050,000 of the unsold balance of the \$6,000,000 we had the right to sell to Fusion Capital under the original agreement. We issued an additional 360,000 shares in consideration for Fusion Capital's agreement to enter into the amendment. All 360,000 shares are part of the offering pursuant to this prospectus. Pursuant to the amended agreement, as an additional commitment fee, we also agreed to issue to Fusion Capital pro rata 486,000 shares of our common stock as we sold the first \$4,050,000 of our common stock to Fusion Capital under the agreement as amended. In March 2010, we sold to Fusion Capital under the amended agreement 540,541 shares for proceeds of \$1,000,000, and issued Fusion Capital 120,000 additional commitment shares in connection with the sale. All 540,541 shares and 120,000 shares are part of the offering pursuant to this prospectus. Subsequent to this sale, the remaining aggregate amount of our common stock we can sell to Fusion Capital is \$9,050,000, and we have reserved a total of 10,113,459 shares of our common stock for sale under the amended agreement. All 10,113,459 shares are part of the offering pursuant to this prospectus. Following the issuance of the 120,000 commitment shares in connection with the March 2010 sale referenced above, 366,000 commitment shares remain to be issued as we sell the remaining \$3,050,000 of the unsold balance of the \$6,000,000 we originally had the right to sell to Fusion Capital under the original agreement. All 366,000 shares are part of the offering pursuant to this prospectus.

Our right to make sales under the amended agreement is limited to \$50,000 every two business days, unless our stock price equals or exceeds \$0.30 per share, in which case we can sell greater amounts to Fusion Capital as the price of our common stock increases. Fusion Capital does not have the right or any obligation to purchase any shares on any business day that the market price of our common stock is less than \$0.20 per share. Assuming all 10,113,459 shares are sold, the selling price per share would have to average approximately \$0.90 for us to receive the full \$9,050,000 remaining proceeds under the agreement as amended. Assuming we sell to Fusion Capital all 10,113,459 shares at a sale price of \$1.86 per share (the closing sale price of the common stock on September 29, 2010), we would receive the full remaining \$9,050,000 under the agreement.

As of September 28, 2010, there were 82,387,411 shares of our common stock outstanding (79,784,297 shares held by non-affiliates) including the 360,000 shares we issued to Fusion Capital in consideration for Fusion Capital's entering into the first amendment, the 540,541 shares sold to Fusion Capital in March 2010, the 120,000 commitment shares issued to Fusion in connection with the March 2010 sale, and the 7,568,671 shares acquired by Fusion Capital pursuant to the stock purchase agreement prior to the date of the first amendment to common stock purchase agreement, but excluding the 10,113,459 shares which have not yet been issued and purchased by Fusion Capital and the remaining 366,000 additional commitment fee shares which have not yet been issued to Fusion Capital. If all 11,500,000 shares offered hereby were issued and outstanding as of the date hereof, the 11,500,000 shares would represent 12.4% of the total common stock outstanding or 12.7% of the non-affiliate shares outstanding as of the date

hereof.

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In summary, this prospectus covers: (i) 360,000 shares of our common stock issued to Fusion Capital in consideration for its agreement to enter into the amendment to the common stock purchase agreement; (ii) 540,541 shares sold to Fusion Capital under the amended agreement in March 2010; (iii) 120,000 commitment fee shares issued to Fusion Capital in connection with the March 2010 sale; (iii) 366,000 additional commitment fee shares to be issued pro rata as we sell the remaining \$3,050,000 of the unsold balance of the \$6,000,000 we had the right to sell to Fusion Capital under the original agreement; and (vi) 10,113,459 shares of our common stock which we may sell to Fusion Capital pursuant to the terms of the common stock purchase agreement as amended. Under the agreement, we have the right but not the obligation to sell more than the 10,113,459 shares to Fusion Capital. As of the date hereof, we do not currently have any plans or intent to sell to Fusion Capital any shares beyond the 10,113,459 shares. However, if we elect to sell more than the 10,113,459 shares, we must first register any additional shares we may elect to sell to Fusion Capital under the Securities Act before we can sell such additional shares. The number of shares ultimately offered for sale by Fusion Capital is dependent upon the number of shares purchased by Fusion Capital under the agreement.

We do not have the right to commence any sales of our shares to Fusion Capital until the Securities & Exchange Commission has declared effective the registration statement of which this prospectus forms a part. After the Securities & Exchange Commission has declared effective such registration statement, generally we have the right but not the obligation from time to time but prior to March 1, 2011, to sell our shares to Fusion Capital in amounts between \$50,000 and \$1.0 million depending on certain conditions set forth in the common stock purchase agreement. We have the right to control the timing and amount of any sales of our shares to Fusion Capital. The purchase price of the shares will be determined based upon the market price of our shares without any fixed discount at the time of each sale. Fusion Capital shall not have the right nor the obligation to purchase any shares of our common stock on any business day that the price of our common stock is below \$0.20. There are no negative covenants, restrictions on future fundings, penalties or liquidated damages in the agreement. The agreement may be terminated by us at any time at our discretion without any cost to us.

Purchase of Shares Under The Common Stock Purchase Agreement

Under the common stock purchase agreement, on any business day selected by us, we may direct Fusion Capital to purchase up to \$50,000 of our common stock. The purchase price per share is equal to the lesser of:

- the lowest sale price of our common stock on the purchase date; or
- the average of the three (3) lowest closing sale prices of our common stock during the twelve (12) consecutive business days prior to the date of a purchase by Fusion Capital.

The purchase price will be equitably adjusted for any reorganization, recapitalization, non-cash dividend, stock split, or other similar transaction occurring during the business days used to compute the purchase price. We may direct Fusion Capital to make multiple purchases from time to time in our sole discretion; no sooner than every two (2) business days.

Our Right to Increase the Amount to be Purchased

In addition to purchases of up to \$50,000 from time to time, we may also from time to time elect on any single business day selected by us to require Fusion Capital to purchase our shares in an amount up to \$100,000 provided that our share price is not below \$0.30 during the two (2) business days prior to and on the purchase date. We may increase this amount to up to \$250,000 if our share price is not below \$0.60 during the two (2) business days prior to and on the purchase date. This amount may also be increased to up to \$500,000 if our share price is not below \$0.80 during the two (2) business days prior to and on the purchase date. This amount may also be increased to up to \$1

million if our share price is not below \$1.20 during the two (2) business days prior to and on the purchase date. We may direct Fusion Capital to make multiple large purchases from time to time in our sole discretion; however, at least three (3) business days must have passed since the most recent large purchase was completed. The price at which our common stock would be purchased in this type of larger purchases will be the lesser of (i) the lowest sale price of our common stock on the purchase date and (ii) the lowest purchase price (as described above) during the previous eight (8) business days prior to the purchase date.

Minimum Purchase Price

Under the common stock purchase agreement, we have set a minimum purchase price (“floor price”) of \$0.20. However, Fusion Capital shall not have the right nor the obligation to purchase any shares of our common stock in the event that the purchase price would be less than the floor price. Specifically, Fusion Capital shall not have the right or the obligation to purchase shares of our common stock on any business day that the market price of our common stock is below \$0.20.

Events of Default

Generally, Fusion Capital may terminate the common stock purchase agreement without any liability or payment to the Company upon the occurrence of any of the following events of default:

- the effectiveness of the registration statement of which this prospectus is a part lapses for any reason (including, without limitation, the issuance of a stop order) or is unavailable to Fusion Capital for sale of our common stock offered hereby and such lapse or unavailability continues for a period of ten (10) consecutive business days or for more than an aggregate of thirty (30) business days in any 365-day period;
- suspension by our principal market of our common stock from trading for a period of three (3) consecutive business days;
- the de-listing of our common stock from our principal market provided our common stock is not immediately thereafter trading on the Nasdaq Global Market, the Nasdaq Capital Market, the New York Stock Exchange or the American Stock Exchange;
- the transfer agent's failure for five (5) business days to issue to Fusion Capital shares of our common stock which Fusion Capital is entitled to under the common stock purchase agreement;
- any material breach of the representations or warranties or covenants contained in the common stock purchase agreement or any related agreements which has or which could have a material adverse effect on us subject to a cure period of ten (10) business days;
 - any participation or threatened participation in insolvency or bankruptcy proceedings by or against us; or
- any change in our business properties, operations, financial condition or results of operations of the Company and its Subsidiaries that could reasonably be expected to have a material adverse effect.

Our Termination Rights

We have the unconditional right at any time for any reason to give notice to Fusion Capital terminating the common stock purchase agreement without any cost to us.

No Short-Selling or Hedging by Fusion Capital

Fusion Capital has agreed that neither it nor any of its affiliates shall engage in any direct or indirect short-selling or hedging of our common stock during any time prior to the termination of the common stock purchase agreement.

Commitment Shares Issued to Fusion Capital

Under the terms of the common stock purchase agreement entered into in December 2006, Fusion Capital received a commitment fee consisting of 720,000 shares of our common stock. From December 2006 through November 2007, we also issued Fusion Capital 234,000 shares of our common stock as we received approximately \$1,950,000 under the agreement. We issued Fusion Capital another 360,000 shares of our common stock in consideration for Fusion Capital entering into the first amendment to common stock purchase agreement, dated December 24, 2008. In March 2010, we issued Fusion Capital 120,000 additional commitment fee shares in connection with the sale to Fusion Capital under the amended agreement of 540,541 shares for proceeds of \$1,000,000. In connection with future purchases of our common stock under the amended agreement, we will issue up to 366,000 shares of common stock to

Fusion Capital as an additional commitment fee. These additional commitment fee shares will be issued on a pro rata basis as we receive the remaining \$3,050,000 of the unsold balance of the \$6,000,000 we had the right to sell to Fusion Capital under the original agreement.

Effect of Performance of the Common Stock Purchase Agreement on Our Stockholders

All 11,500,000 shares registered in this offering are expected to be freely tradable. It is anticipated that shares registered in this offering will be sold from time to time over a period ending on March 1, 2011. The sale by Fusion Capital of a significant amount of shares registered in this offering at any given time could cause the market price of our common stock to decline and to be highly volatile. Fusion Capital may ultimately purchase all, some or none of the 10,113,459 shares of common stock not yet sold by us as of the date hereof, but are part of this offering. After it has acquired such shares, it may sell all, some or none of such shares. Therefore, sales to Fusion Capital by us under the agreement may result in substantial dilution to the interests of other holders of our common stock. However, we have the right to control the timing and amount of any sales of our shares to Fusion Capital and the agreement may be terminated by us at any time at our discretion without any cost to us.

In connection with entering into the agreement, as amended, we authorized the sale to Fusion Capital of up to 18,222,671 shares of our common stock. As of September 28, 2010, Fusion Capital had purchased 8,109,212 of the available 18,222,671 shares of our common stock, resulting in total proceeds to the Company of \$2,950,000. The number of shares ultimately offered for sale by Fusion Capital under this prospectus is dependent upon the number of shares purchased by Fusion Capital under the agreement. The following table sets forth the amount of proceeds we would receive from Fusion Capital from the sale of the remaining 10,113,459 shares available at varying purchase prices:

| Assumed Average Purchase Price | Number of Shares Remaining to be Issued if Full Purchase | Percentage of Outstanding Shares After Giving Effect to the Issuance to Fusion Capital(1) | Proceeds from the Sale of Remaining Shares to Fusion Capital Under the Common Stock Purchase Agreement |
|--------------------------------|----------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| \$ 0.20 | 10,113,459 | 12.3% | \$ 2,022,692 |
| \$ 0.50 | 10,113,459 | 12.8% | \$ 5,056,730 |
| \$ 1.00 | 9,050,000 | 11.8% | \$ 9,050,000 |
| \$ 1.50 | 6,033,333 | 8.8% | \$ 9,050,000 |
| \$ 1.86(2) | 4,865,591 | 7.5% | \$ 9,050,000 |
| \$ 2.00 | 4,525,000 | 7.2% | \$ 9,050,000 |
| \$ 2.50 | 3,620,000 | 6.3% | \$ 9,050,000 |
| \$ 3.00 | 3,016,667 | 5.6% | \$ 9,050,000 |

(1) The denominator is based on 82,387,411 shares outstanding as of September 28, 2010, which includes (i) the 360,000 shares issued to Fusion Capital as consideration for Fusion Capital entering into the first amendment, (ii) the 540,541 shares sold to Fusion Capital in March 2010, (iii) the 120,000 commitment shares issued to Fusion in connection with the March 2010 sale, (iv) the 7,568,671 shares acquired by Fusion Capital pursuant to the stock purchase agreement prior to the date of the first amendment to common stock purchase agreement, (v) the 954,000 commitment shares issued prior to the date of the first amendment, (vi) the number of shares which may be sold under the agreement at the corresponding assumed purchase prices set forth in the first column, and (vii) a pro rata amount of the 366,000 shares which we will issue in the future as an additional commitment fee as we receive the first \$3,050,000 of the \$9,050,000 of the future funding, together with the number of shares set forth in the second column. The numerator is based on (i) the number of shares which may be sold under the agreement at the corresponding assumed purchase prices set forth in the first column, the 1,074,000 commitment shares issued to Fusion to date, plus a pro rata amount of the 366,000 which we will in the future as an additional commitment fee as we receive the first \$3,050,000 of the \$9,050,000 of the future funding.

(2) Closing sale price of our shares on September 29, 2010.

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SELLING STOCKHOLDER

The following table presents information regarding the selling stockholder and the shares that may be sold by it pursuant to this prospectus. Neither the selling stockholder nor any of its affiliates has held a position or office, or had any other material relationship with us.

| Selling Stockholder | Shares Owned Before Offering | Percentage of Outstanding Shares Owned Before Offering (1) | Shares to be Sold in the Offering | Percentage of Outstanding Shares Owned After Offering (1) |
|---------------------------------------|------------------------------|------------------------------------------------------------|-----------------------------------|-----------------------------------------------------------|
| Fusion Capital Fund II, LLC (1)(2) | 1,119,963 | 1.36% | 11,500,000 | 1.21% |

(1) Before the offering Fusion Capital beneficially owned 1,119,963 shares of our common stock, 360,000 of which are included in the offering pursuant to this prospectus. As of September 28, 2010, there were 82,387,411 shares outstanding which includes 1,074,000 shares issued to Fusion Capital as a commitment fee, 360,000 shares issued to Fusion Capital in consideration for its agreement to enter into the first amendment to the common stock purchase agreement dated December 24, 2008, 540,541 shares sold to Fusion Capital for resale in March 2010, and the 7,568,671 shares acquired by Fusion Capital for resale pursuant to the stock purchase agreement prior to the date of the first amendment to common stock purchase agreement. Percentage of outstanding shares beneficially owned after offering is based on 92,866,870 shares which includes the remaining 10,113,459 shares that may be sold to Fusion Capital and the remaining 366,000 commitment shares which may be issued in connection with the offering. Beneficial ownership is determined in accordance with the rules of the SEC and generally includes voting or investment power with respect to securities. Fusion Capital does not presently beneficially own any of the 10,479,459 shares not yet issued under the agreement but offered hereby as determined in accordance with the rules of the SEC.

(2) Steven G. Martin and Joshua B. Scheinfeld, the principals of Fusion Capital, are deemed to be beneficial owners of all of the shares of common stock owned by Fusion Capital. Messrs. Martin and Scheinfeld have shared voting and disposition power over the shares being offered under this prospectus.

PLAN OF DISTRIBUTION

The common stock offered by this prospectus is being offered by Fusion Capital Fund II, LLC, the selling stockholder. The common stock may be sold or distributed from time to time by the selling stockholder directly to one or more purchasers or through brokers, dealers, or underwriters who may act solely as agents at market prices prevailing at the time of sale, at prices related to the prevailing market prices, at negotiated prices, or at fixed prices, which may be changed. The sale of the common stock offered by this Prospectus may be effected in one or more of the following methods:

- ordinary brokers' transactions;
- transactions involving cross or block trades;
- through brokers, dealers, or underwriters who may act solely as agents;
- "at the market" into an existing market for the common stock;
-

in other ways not involving market makers or established business markets, including direct sales to purchasers or sales effected through agents;

- in privately negotiated transactions; or
- any combination of the foregoing.

In order to comply with the securities laws of certain states, if applicable, the shares may be sold only through registered or licensed brokers or dealers. In addition, in certain states, the shares may not be sold unless they have been registered or qualified for sale in the state or an exemption from the registration or qualification requirement is available and complied with.

Brokers, dealers, underwriters, or agents participating in the distribution of the shares as agents may receive compensation in the form of commissions, discounts, or concessions from the selling stockholder and/or purchasers of the common stock for whom the broker-dealers may act as agent. The compensation paid to a particular broker-dealer may be less than or in excess of customary commissions.

Fusion Capital is an “underwriter” within the meaning of the Securities Act.

Neither we nor Fusion Capital can presently estimate the amount of compensation that any agent will receive. We know of no existing arrangements between Fusion Capital, any other stockholder, broker, dealer, underwriter, or agent relating to the sale or distribution of the shares offered by this Prospectus. At the time a particular offer of shares is made, a prospectus supplement, if required, will be distributed that will set forth the names of any agents, underwriters, or dealers and any compensation from the selling stockholder, and any other required information.

We will pay all of the expenses incident to the registration, offering, and sale of the shares to the public other than commissions or discounts of underwriters, broker-dealers, or agents. We have also agreed to indemnify Fusion Capital and related persons against specified liabilities, including liabilities under the Securities Act.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers, and controlling persons, we have been advised that in the opinion of the SEC this indemnification is against public policy as expressed in the Securities Act and is therefore, unenforceable.

Fusion Capital and its affiliates have agreed not to engage in any direct or indirect short selling or hedging of our common stock during the term of the common stock purchase agreement.

We have advised Fusion Capital that while it is engaged in a distribution of the shares included in this Prospectus it is required to comply with Regulation M promulgated under the Securities Exchange Act of 1934, as amended. With certain exceptions, Regulation M precludes the selling stockholder, any affiliated purchasers, and any broker-dealer or other person who participates in the distribution from bidding for or purchasing, or attempting to induce any person to bid for or purchase any security which is the subject of the distribution until the entire distribution is complete. Regulation M also prohibits any bids or purchases made in order to stabilize the price of a security in connection with the distribution of that security. All of the foregoing may affect the marketability of the shares offered hereby this Prospectus.

This offering will terminate on the date that all shares offered by this Prospectus have been sold by Fusion Capital.

LEGAL MATTERS

The validity of the shares offered hereby has been passed upon for us by Porter, Wright, Morris & Arthur LLP, 41 South High Street, Columbus, Ohio 43215.

EXPERTS

The financial statements as of December 31, 2009 and 2008 and for each of the years then ended incorporated by reference in this Prospectus have been so incorporated in reliance on the report of BDO Seidman, LLP, an

independent registered public accounting firm, incorporated herein by reference, given on the authority of said firm as experts in auditing and accounting.

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following table sets forth the expenses expected to be incurred by our company in connection with the issuance and distribution of the securities being registered.

| | | |
|-------------------------|-----------|---------------|
| SEC registration fee | \$ | 509 |
| Legal fees and expenses | \$ | 15,000 |
| Accounting fees | \$ | 20,000 |
| Printing fees | | ** |
| Miscellaneous | \$ | 1,491 |
| Total | \$ | 37,000 |

** Estimated expenses are presently not known and cannot be estimated.

Item 15. Indemnification of Directors and Officers.

Section 145 of the General Corporation Law of the State of Delaware (Section 145) provides that directors and officers of Delaware corporations may, under certain circumstances, be indemnified against expenses (including attorneys' fees) and other liabilities actually and reasonably incurred by them as a result of any suit brought against them in their capacity as a director or officer, if they acted in good faith and in a manner they reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, if they had no reasonable cause to believe their conduct was unlawful. Section 145 also provides that directors and officers may also be indemnified against expenses (including attorneys' fees) incurred by them in connection with a derivative suit if they acted in good faith and in a manner they reasonably believed to be in or not opposed to the best interests of the corporation, except that no indemnification may be made without court approval if such person was adjudged liable to the corporation.

Article V of the Company's By-laws contains provisions which require that the Company indemnify its officers, directors, employees and agents, in substantially the same language as Section 145.

Article Nine, section (b), of the Company's Certificate of Incorporation further provides that no director will be personally liable to the Company or its stockholders for monetary damages or for any breach of fiduciary duty except for breach of the director's duty of loyalty to the Company or its stockholders, for acts or omissions not in good faith or involving intentional misconduct or a knowing violation of law, pursuant to Section 174 of the Delaware General Corporation Law (which imposes liability in connection with the payment of certain unlawful dividends, stock purchases or redemptions), or any amendment or successor provision thereto, or for any transaction from which a director derived an improper personal benefit.

Item 16. Exhibits.

| Exhibit Number | Footnote | Exhibit Description |
|----------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.1 | (a) | Amended and Restated Certificate of Incorporation of Neoprobe Corporation as corrected February 18, 1994 and amended June 27, 1994, June 3, 1996, March 17, 1999, May 9, 2000, June 13, 2003, July 27, 2004, June 22, 2005, November 20, 2006 and August 2, 2010. |
| 4.2 | (b) | Amended and Restated By-Laws dated July 21, 1993, as amended July 18, 1995, May 30, 1996 and July 26, 2007. |
| 5.1 | (c) | Opinion of Porter, Wright, Morris & Arthur LLP. |
| 23.1 | (c) | Consent of Porter, Wright, Morris & Arthur LLP (included in Exhibit 5). |
| 23.2 | * | Consent of Independent Registered Public Accounting Firm. |
| 24.1 | (d) | Power of Attorney. |

* Filed herewith.

(a) Incorporated by reference to Exhibit 4.1 previously filed on August 3, 2010, with Neoprobe's Registration Statement on Form S-3 (Registration No. 333-168485).

(b) Incorporated by reference to Exhibit 3.2 previously filed on August 3, 2007, with Neoprobe's Current Report on Form 8-K.

(c) Incorporated by reference to Exhibit 5.1 previously filed on January 20, 2009, with Neoprobe's Registration Statement on Form S-1 (Registration file No. 333-156810).

(d) Incorporated by reference to Exhibit 24.1 previously filed on January 20, 2009, with Neoprobe's Registration Statement on Form S-1 (Registration file No. 333-156810).

Item 17. Undertakings.

(a) The undersigned hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this Registration Statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high and of the estimated maximum offering range may be reflected in

the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the “Calculation of Registration Fee” table in the effective registration statement; and

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(iii) To include any material information with respect to the plan of distribution not previously disclosed in the Registration Statement or any material change to such information in the Registration Statement.

Provided, however, that paragraphs (1)(i), (1)(ii) and (1)(iii) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement;

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(i) If the registrant is relying on Rule 430B:

(A) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date; or

(ii) If the registrant is subject to Rule 430C, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.

(5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to the directors, officers, and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer, or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Post-effective Amendment on Form S-3 to Registration Statement on Form S-1 to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Dublin, State of Ohio, on September 30, 2010.

NEOPROBE CORPORATION

/s/ Brent L. Larson
Brent L. Larson, Senior Vice President, Chief Financial
Officer, Treasurer and Secretary

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated:

| Signature | Title | Date |
|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| * David C. Bupp David C. Bupp | President, Chief Executive Officer and Director (principal executive officer) | September 30, 2010 |
| /s/ Brent L. Larson Brent L. Larson | Senior Vice President, Chief Financial Officer, Treasurer and Secretary (principal financial officer and principal accounting officer) | September 30, 2010 |
| * Carl J. Aschinger, Jr. Carl J. Aschinger, Jr. | Chairman of the Board of Directors | September 30, 2010 |
| * Gordon A. Troup Gordon A. Troup | Vice Chairman of the Board of Directors | September 30, 2010 |
| * Kirby I. Bland, M.D. Kirby I. Bland, M.D. | Director | September 30, 2010 |
| Brendan A. Ford | Director | |
| *Owen E. Johnson, M.D. Owen E. Johnson, M.D. | Director | September 30, 2010 |
| * Fred B. Miller Fred B. Miller | Director | September 30, 2010 |
| Eric K. Rowinsky, M.D. | Director | |
| * By: /s/ Brent L. Larson | | |

Brent L. Larson, attorney-in-fact for each
of the persons indicated

II-5

Exhibit Index

| Exhibit Number | Footnote | Exhibit Description |
|----------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.1 | (a) | Amended and Restated Certificate of Incorporation of Neoprobe Corporation as corrected February 18, 1994 and amended June 27, 1994, June 3, 1996, March 17, 1999, May 9, 2000, June 13, 2003, July 27, 2004, June 22, 2005, November 20, 2006 and August 2, 2010. |
| 4.2 | (b) | Amended and Restated By-Laws dated July 21, 1993, as amended July 18, 1995, May 30, 1996 and July 26, 2007. |
| 5.1 | (c) | Opinion of Porter, Wright, Morris & Arthur LLP. |
| 23.1 | (c) | Consent of Porter, Wright, Morris & Arthur LLP (included in Exhibit 5). |
| 23.2 | * | Consent of Independent Registered Public Accounting Firm. |
| 24.1 | (d) | Power of Attorney. |

* Filed herewith.

(a) Incorporated by reference to Exhibit 4.1 previously filed on August 3, 2010, with Neoprobe's Registration Statement on Form S-3 (Registration No. 333-168485).

(b) Incorporated by reference to Exhibit 3.2 previously filed on August 3, 2007, with Neoprobe's Current Report on Form 8-K.

(c) Incorporated by reference to Exhibit 5.1 previously filed on January 20, 2009, with Neoprobe's Registration Statement on Form S-1 (Registration file No. 333-156810).

(d) Incorporated by reference to Exhibit 24.1 previously filed on January 20, 2009, with Neoprobe's Registration Statement on Form S-1 (Registration file No. 333-156810).
