

DELCATH SYSTEMS INC

Form 424B5

May 24, 2012

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Filed Pursuant to Rule 424(b)(5)
Registration No. 333-178819

The information in this prospectus supplement is not complete and may be changed. This prospectus supplement and the accompanying prospectus are not an offer to sell these securities, and we are not soliciting offers to buy these securities, in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED May 24, 2012

PROSPECTUS SUPPLEMENT

(To Prospectus dated February 13, 2012)

Units consisting of Common Stock and Warrants

We are offering _____ units at a price of \$ _____ per unit, with each unit consisting of one share of common stock and a warrant to purchase _____ shares of common stock. The warrants can be exercised during the period commencing on the date of original issuance and ending on _____ and may be exercised at a price of \$ _____ per share (as adjusted from time to time). Units will not be issued or certificated. The shares of common stock and warrants are immediately separable and will be issued separately. The shares of common stock, warrants and shares of common stock underlying the warrants are sometimes collectively referred to herein as the _____ securities. See Description of Securities We Are Offering for a more complete description of the securities, beginning on page S-19.

Our common stock is listed on The NASDAQ Capital Market under the symbol DCTH. The last reported sale price of our common stock on May 23, 2012 was \$2.19 per share. There is no established public trading market for the warrants and we do not expect a market to develop. In addition, we do not intend to apply for listing of the warrants on any national securities exchange or other nationally recognized trading system.

Investing in our securities involves risks, including those described in the **Risk Factors** section beginning on page S-12 of this prospectus supplement and the section entitled **Risk Factors** beginning on page 2 of our most recent annual report on Form 10-K for the fiscal year ended December 31, 2011, which is incorporated by reference into this prospectus supplement and the accompanying prospectus.

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

	Per Unit	Total
Public offering price ⁽¹⁾	\$	\$
Underwriting discount ⁽²⁾	\$	\$
Proceeds, before expenses, to us	\$	\$

(1) The public offering price is \$ per share of common stock and \$ per warrant to purchase shares of common stock.

(2) Excludes underwriters' out-of-pocket expenses we have agreed to reimburse. See the section entitled **Underwriting** in this Prospectus Supplement for additional information.

The underwriters may also purchase up to an additional shares of common stock and/or additional warrants to purchase up to shares of common stock from us at the public offering price for each security, less the underwriting discount, within 30 days after the date of this prospectus supplement to cover over-allotments, if any. Exercise of this over-allotment option in full will result in an additional \$ of proceeds to us, before expenses, and additional underwriting discount of \$.

Delivery of the securities is expected to be made on or about May , 2012.

Joint Book-Runners

Cowen and Company

Wedbush PacGrow Life Sciences

Co-Manager

Roth Capital Partners

May , 2012.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus are part of a registration statement that we filed with the Securities and Exchange Commission, or SEC, using a shelf registration process. Under the shelf registration process, we may offer from time to time common stock, preferred stock, warrants, debt securities and stock purchase contracts. In the accompanying prospectus, we provide you with a general description of the securities we may offer from time to time under our shelf registration statement. In this prospectus supplement, we provide you with specific information about the securities that we are selling in this offering. Both this prospectus supplement and the accompanying prospectus include important information about us, our securities and other information you should know before investing. This prospectus supplement also adds, updates and changes information contained in the accompanying prospectus. You should read both this prospectus supplement and the accompanying prospectus as well as additional information described under [Where You Can Find Additional Information](#) in this prospectus supplement and the accompanying prospectus before investing in our securities.

You should rely only on the information incorporated by reference or provided in this prospectus supplement and the accompanying prospectus or any free writing prospectus prepared by or on behalf of us. Neither we nor the underwriters have authorized anyone to provide you with additional or different information. If anyone provided you with additional or different information, you should not rely on it. Neither we nor the underwriters are making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information contained in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference is accurate only as of their respective dates. Our business, financial condition, results of operations and prospects may have changed since those dates.

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DISCLOSURE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the documents incorporated by reference into this prospectus supplement contain certain forward-looking statements within the meaning of the safe harbor provisions of the Private Securities Litigation Reform Act of 1995 with respect to our business, financial condition, liquidity and results of operations. Words such as anticipates, expects, intends, plans, predicts, believes, seeks, estimates, could, would, will, may, can, continue, potential, should, and the negative of these terms or other terminology often identify forward-looking statements. Statements in this prospectus supplement, the accompanying prospectus and the other documents incorporated by reference that are not historical facts are hereby identified as forward-looking statements for the purpose of the safe harbor provided by Section 21E of the Exchange Act and Section 27A of the Securities Act. These forward-looking statements are not guarantees of future performance and are subject to risks and uncertainties that could cause actual results to differ materially from the results contemplated by the forward-looking statements, including the risks discussed in this prospectus supplement, the accompanying prospectus, in our Annual Report on Form 10-K for the fiscal year ended December 31, 2011 in Item 1A under Risk Factors as well as in Item 7A Quantitative and Qualitative Disclosures About Market Risk, our Quarterly Report on Form 10-Q for the period ended March 31, 2012 in Part I, Item 3 Quantitative and Qualitative Disclosures About Market Risk and the risks detailed from time to time in our future SEC reports. These forward-looking statements include, but are not limited to, statements about:

the progress and results of our research and development programs;

our estimates regarding sufficiency of our cash resources, anticipated capital requirements and our need for additional financing;

the commencement of future clinical trials and the results and timing of those clinical trials;

submission and timing of applications for regulatory approval and approval thereof;

our ability to successfully source certain components of the system and enter into supplier contracts;

our ability to successfully manufacture and commercialize the Delcath chemosaturation system;

our ability to successfully negotiate and enter into agreements with distribution, strategic and corporate partners; and

our estimates of potential market opportunities and our ability to successfully realize these opportunities.

Many of the important factors that will determine these results are beyond our ability to control or predict. You are cautioned not to put undue reliance on any forward-looking statements, which speak only as of the date of this prospectus supplement, the date of the accompanying prospectus or, in the case of documents incorporated by reference, as of the date of such documents. Except as otherwise required by law, we do not assume any obligation to publicly update or release any revisions to these forward-looking statements to reflect events or circumstances after the date of this prospectus supplement or to reflect the occurrence of unanticipated events.

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WHERE YOU CAN FIND ADDITIONAL INFORMATION

You should rely only on the information contained in this prospectus supplement, the accompanying prospectus, and any documents incorporated by reference. We have not authorized anyone else to provide you with different information. We are not making an offer of these securities in any jurisdiction where the offer is not permitted. You should not assume that the information in this prospectus supplement is accurate as of any date other than the date on the front page of this prospectus supplement, regardless of the time of delivery of this prospectus supplement or any sale of securities.

We file reports, proxy statements and other information with the SEC. You may read and copy any reports, proxy statements or other information filed by us at the SEC's Public Reference Room at 100 F Street NE, Washington, D.C. 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at (800) SEC-0330. The SEC maintains a website that contains reports, proxy statements and other information regarding issuers that file electronically with the SEC, including Delcath Systems, Inc. The address of the SEC website is <http://www.sec.gov>.

Important Information Incorporated By Reference

The SEC allows us to incorporate by reference information into this prospectus supplement, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The documents incorporated by reference into this prospectus supplement contain important information that you should read about us.

The following documents are incorporated by reference into this document:

Document (File No. 001-16133)	Date of Filing(s)
Proxy Statement on Schedule 14A for our 2012 Meeting of Shareholders	April 27, 2012
Annual Report on Form 10-K for year ended December 31, 2011	March 6, 2012
Quarterly Report on Form 10-Q for quarter ended March 31, 2012	May 9, 2012
Current Reports on Form 8-K	January 13, 2012; January 31, 2012; February 2, 2012; March 26, 2012; April 18, 2012 and April 24, 2012

We also incorporate by reference into this prospectus supplement all documents (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items) that are filed by us with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act (i) after the date of the initial registration statement and prior to effectiveness of the registration statement, or (ii) from the date of this prospectus supplement but prior to the termination of the offering. These documents include periodic reports, such as Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, as well as proxy statements.

We will provide to each person, including any beneficial owner, to whom a prospectus supplement and the accompanying 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 supplement, other than exhibits which are specifically incorporated by reference into such documents. Requests should be directed to Controller at Delcath Systems, Inc., 810 Seventh Avenue, 35th Floor, New York, New York 10019 or by calling us at 212-489-2100.

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SUMMARY

This summary highlights selected information more fully described elsewhere in this prospectus supplement and the accompanying prospectus. This summary does not contain all of the information you should consider before investing in our securities. You should read this prospectus supplement, the accompanying prospectus, any free writing prospectus and the documents incorporated by reference herein and therein carefully, especially the risks of investing in our securities discussed in Risk Factors below and the other risks described in the incorporated documents.

In this prospectus supplement, except as otherwise indicated, Delcath, Delcath Systems, we, our, and us refer to Delcath Systems, Inc., a Delaware corporation and its subsidiaries. Delcath is our registered United States trademark.

Company Overview

We are a development stage, specialty pharmaceutical and medical device company focused on oncology. Since our inception, we have directed our research efforts towards the development and clinical study of the Delcath chemosaturation system. The Delcath chemosaturation system is designed to administer high dose chemotherapy and other therapeutic agents to diseased organs or regions of the body, while controlling the systemic exposure of those agents. Our initial focus is on the treatment of primary and metastatic liver cancers.

The Delcath chemosaturation system allows the administration of concentrated regional chemotherapy by isolating the circulatory system of the targeted organ. Once the organ is isolated, the Delcath chemosaturation system delivers high doses of chemotherapeutic agents directly to the liver, while limiting systemic exposure and the related side effects by filtering the blood prior to returning it to the patient. The Delcath chemosaturation system involves a series of three catheter insertions, each of which is placed percutaneously through standard interventional radiology techniques. The procedure is minimally invasive and repeatable allowing for multiple courses of treatment with chemotherapeutic drugs and the potential for concomitant cancer therapies. We believe that the Delcath chemosaturation system is a platform technology that may have broader applicability, including the use of other drugs to treat the liver, as well as for the treatment of cancers in other organs and regions of the body.

Europe

On April 13, 2011, we obtained the right to affix the CE Mark to the first generation Delcath Hepatic CHEMOSAT® Delivery System (Generation 1 CHEMOSAT System) as a class III medical device. The right to affix the CE mark allows us to market and sell the CHEMOSAT System in the European Economic Area (EEA). The EEA consists of the 27 member countries of the European Union as well as Lichtenstein, Iceland, and Norway. In the EEA, the CHEMOSAT System is regulated as a medical device indicated for the intra-arterial administration of chemotherapeutic agent (melphalan hydrochloride) to the liver with additional extracorporeal filtration of the venous blood return. On April 5, 2012, we obtained the right to affix the CE Mark to the CHEMOSAT System with our second generation hemofiltration cartridge (Generation 2 CHEMOSAT System). The Generation 2 CHEMOSAT System carries the same broad indication as the previous generation system permitting physicians to use the product for the percutaneous intra arterial administration of a chemotherapeutic agent (melphalan hydrochloride) to the liver to any patient who in their opinion may benefit. The Generation 2 CHEMOSAT System has demonstrated filter efficiency greater than 98% during drug infusion of melphalan in an in vivo study; the same study also showed that this system removes fewer blood platelets than the Generation 1 CHEMOSAT System.

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We believe the CHEMOSAT System may ultimately fulfill an annual unmet clinical need for as many as 55,000 liver cancer patients in the EEA. We intend to focus our initial efforts on seven target markets including Germany, United Kingdom, France, the Netherlands, Italy, Spain and Ireland. We believe these countries represent a majority of the total potential liver cancer market in EEA countries. We plan to use a combination of direct and indirect sales channels to market and distribute the CHEMOSAT System in the EEA. Our European commercialization strategy involves the establishment of clinical training and centers of excellence to educate and train physicians in these countries in order to develop key opinion thought leadership and foster initial market acceptance. To support our commercialization efforts in the EEA, we have established our European Headquarters in Galway, Ireland.

On November 21, 2011 we announced that we had entered into our first initial training and marketing agreement with the European Institute of Oncology (IEO) in Milan, Italy. Since then, we have entered into eight additional initial launch and training agreements with leading European cancer centers, and have established a presence in five of our seven target markets. We plan to add additional cancer centers in these target markets in the near future.

In February 2012, our first European patient treatments with the Generation 1 CHEMOSAT System took place at IEO in Italy and Frankfurt University Hospital in Germany. The initial patients involved were treated for inoperable liver-dominant metastases from ocular melanoma, cutaneous melanoma, breast cancer and gastric cancer.

In March 2012, we received our first commercial order for the CHEMOSAT System from the IEO. This order was fulfilled with Generation 2 CHEMOSAT Systems in April 2012 following the receipt of the CE Mark approval. The first patient was treated using the Generation 2 CHEMOSAT System in April 2012.

United States

In the United States, the Delcath chemosaturtion system for the administration of melphalan hydrochloride is considered a combination drug and device product and is regulated as a drug by the United States Food and Drug Administration (FDA). In December 2010, we submitted our Section 505(b)(2) New Drug Application (NDA), to the FDA, seeking an indication for the percutaneous intra-arterial administration of melphalan for use in the treatment of patients with metastatic melanoma in the liver. In February 2011, we received a Refusal to File (RTF) letter from the FDA for the NDA. The FDA will issue an RTF if it determines, upon an initial review, that the NDA is not sufficiently complete to permit a substantive review. Neither the acceptance nor non-acceptance of an NDA for filing is a determination of the ultimate approvability of the drug product at issue. The RTF requested information on a number of items, including manufacturing plant inspection timing, product and sterilization validations, statistical analysis clarification concerning randomization and additional safety information regarding patient hospitalization data in order to allow the FDA to properly assess the risk-benefit profile of the product candidate. On January 12, 2012, we held a pre-NDA meeting with the FDA to discuss our NDA submission and provide an update on the items identified in the RTF. Based upon the meeting and FDA correspondence received in response to our meeting request and the briefing packet we submitted, we are satisfied with the responses that we received from the FDA to certain questions we had regarding the NDA submission.

The very substantive work of clinical and safety data gathering from all of the clinical sites and the migration to FDA compliant clinical and safety databases is now complete and we are in the final stages of preparing our NDA submission. The last remaining task before the database is locked is resolution of a relatively small number of outstanding database queries at each site. Queries are routine questions about individual patient data records in an effort to complete a final reconciliation of the data. This task will be concluded on May 25th, at which point the database will be locked. Immediately after this, a final statistical analysis will be conducted and the final NDA submission package will be completed. We expect these final steps to take approximately 10

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weeks to complete following the May 25th database lock, putting submission of the NDA in mid-August. The database lock is also important with respect to publications. Once the database is locked, the principle investigators will have the complete information needed to incorporate the data for the Phase 3 trial and multi-arm Phase 2 trials into their manuscripts and then submit them for publication.

In addition to the ongoing work on the NDA submission, we believe it is in the best interest of patients to explore ways of accelerating the availability of our second generation product to patients in the United States and therefore we have submitted to the FDA an amendment to our Investigational New Drug application to include the second generation Delcath chemosaturating system in the FDA's expanded access program, as well as all future clinical trials and compassionate use cases. Additionally, we have initiated dialogue with the FDA to discuss the optimal approval path for the second generation Delcath chemosaturating system in the United States. From these discussions, we hope to gain insight to ensure that our NDA submission is prepared in the best possible manner to support a future second generation Delcath chemosaturating system NDA supplement, which would be filed after the first generation Delcath chemosaturating system NDA is approved.

International

Having obtained the CE Mark for the CHEMOSAT System, we believe the right to affix the CE Mark can result in an accelerated regulatory approval in a number of countries outside the EEA and the United States. We recently received regulatory approval for the CHEMOSAT System in Australia and completed the product notification process in New Zealand, where we expect to launch the CHEMOSAT System in the second half of 2012 through authorized distributors. We have submitted applications for regulatory approval as a device for the CHEMOSAT System in Hong Kong, South Korea, Singapore and Brazil and intend to submit regulatory applications in Israel, Canada, Mexico, Argentina, Russia, India, Japan, China, and Taiwan. We are in the process of determining the regulatory pathway in some of these countries subject to negotiations with the applicable health authority. It is our intention to leverage the CE Mark in some or all of these countries to commercialize the Delcath CHEMOSAT System, where appropriate. Our facility in Galway, Ireland has obtained certificates of free sale from the Irish Medicines Board as many markets require country of origin manufacturing, such as Mexico, Argentina, Brazil, Japan, China, and Taiwan, as a prerequisite to obtain regulatory approval.

Clinical Trials

In 2010, we announced that our randomized Phase III clinical trial for patients with metastatic melanoma in the liver had successfully achieved the study's primary endpoint of extended hepatic progression-free survival. We also completed a multi-arm Phase II trial to treat other liver cancers. We intend to evaluate our CHEMOSAT System with melphalan for use in the treatment of metastatic colorectal cancer (mCRC) and hepatocellular carcinoma (HCC or primary liver cancer) in future clinical trials. In addition, we are currently developing a CHEMOSAT System with the chemotherapeutic agent doxorubicin and intend to evaluate the CHEMOSAT System with doxorubicin for use in the treatment of HCC in new clinical trials in Asia. We intend to initiate certain new clinical trials in these cancers in 2013. We also intend to evaluate a variety of chemotherapeutic agents for use with the Delcath chemosaturating system to treat other liver cancers, as well as other organs and body regions. We will need to conduct additional clinical trials in order to maximize the commercial opportunities of the chemosaturating system and, in certain markets including the United States, will need to seek additional approvals for each new indication for our system.

Advantages of the Delcath Chemosaturating System

Currently there are few effective treatment options for cancers in the liver and they are generally associated with significant side effects. Traditional treatment options include surgery, chemotherapy, radiation therapy, thermal therapy and chemoembolization as well as cryosurgery, percutaneous ethanol injection, implanted infusion pumps, surgically isolated perfusion and liver transplant. We believe the Delcath chemosaturating system

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system may address the critical shortcomings of traditional liver cancer treatments based on the results of our Phase I, Phase II and Phase III trials:

Allows Higher Dosing Our Phase III clinical trial demonstrated that the Delcath chemosaturation system is capable of delivering over 100 times more of the chemotherapeutic agent to the treated organ than traditional systemic chemotherapy. In our clinical studies on patients with metastatic melanoma it was shown that higher dosing led to significantly improved disease control in the liver.

Controls Toxicities In pre-clinical studies, the Generation 2 CHEMOSAT System demonstrated filter efficiency greater than 98% during drug infusion, which reduces the exposure of healthy tissue and organs to the effects of these chemotherapeutic agents. The Generation 2 CHEMOSAT System builds on the success of our Generation 1 CHEMOSAT System, which in our Phase III clinical trial, demonstrated filter efficiency of on average 72%.

Minimally Invasive and Repeatable The Delcath chemosaturation system allows for multiple courses of treatment with chemotherapeutic drugs and has a recovery period that is shorter than surgical resection or isolated hepatic perfusion.

Treats the Entire Liver By introducing the chemotherapeutic agent into the arterial blood supply feeding the liver, the Delcath chemosaturation system perfuses the entire liver with chemotherapy, treating both tumors that are visible as well as micro metastases that cannot be detected by imaging.

Strategy

We believe the Delcath chemosaturation system represents a potentially important advancement in regional therapy for cancers in the liver that include both primary liver cancer and metastatic liver cancer with tumor cells originating from other organs. We are seeking to establish the Delcath chemosaturation system as the standard of care for disease control in the liver by concentrating the power of chemotherapy.

We also intend to develop the system for use with other chemotherapeutic agents, as well as for other organs in addition to the liver. We are continuing our research and development efforts with respect to other chemotherapeutic agents and the treatment of other types of cancer and will need to conduct additional clinical trials and seek approval for escalating doses of anti-cancer agents, including melphalan and doxorubicin for use with the Delcath chemosaturation system.

Our strategy includes the following elements:

Commercialize the Delcath CHEMOSAT System in the European Economic Area. We have established our EEA headquarters in Galway, Ireland and have begun hiring initial staff to support our commercialization strategy. As of February 2012, we have entered into initial training and marketing agreements with nine leading European cancer centers, and two of these centers have utilized the CHEMOSAT System to treat initial European patients. We are pursuing a two-pronged commercialization strategy in the EEA under which we will directly market the CHEMOSAT System in certain markets and enter into agreements with third-party distributors in others.

Leverage the CE Mark to Commercialize the Delcath CHEMOSAT System in Other Countries. We believe the right to affix the CE Mark can result in an accelerated regulatory approval in a number of countries outside the EEA and the United States. We recently received regulatory approval for the CHEMOSAT System in Australia and completed the product notification process in New Zealand. We have submitted applications for regulatory approval in Hong Kong, South Korea, Singapore and Brazil and intend to submit in Israel, Canada, Mexico, Argentina, Russia, India, Japan, China, and Taiwan. It is our intention to leverage the CE Mark in some or all of these countries to commercialize the CHEMOSAT System, where appropriate.

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Obtain FDA Approval for Use of the Delcath Chemosaturation System in Combination with Melphalan to Treat Metastatic Melanoma in the Liver. Based upon the meeting and FDA correspondence received in response to our meeting request and the briefing packet we submitted, we are satisfied with the responses that we received from the FDA to certain questions we had regarding the NDA submission. We will lock the database on May 25, 2012. Accordingly, we will continue with the preparation of our NDA submission and expect to make the submission in mid-August of 2012. In addition, we have initiated a dialogue with the FDA to discuss the optimal approval path for our second generation chemosaturation system in United States.

Commercialize the Delcath Chemosaturation System in the United States. If we obtain FDA approval of our NDA, we intend to market our chemosaturation system with melphalan in the United States through our own sales force and focus our initial marketing efforts on major cancer centers beginning with those hospitals that participated in our Phase III clinical trial.

Establish Strategic Alliances and Distribution Partners. In addition to our existing partnership with Chi-Fu Trading Co., Ltd in Taiwan, we are pursuing strategic partners to develop certain Asian markets including China, Korea and Japan. We are also pursuing distribution partners to commercialize the product in other foreign markets including Australia, New Zealand, Brazil and Argentina.

Obtain Approval to Market the Delcath Chemosaturation System in the United States for the Treatment of Other Cancers in addition to Metastatic Melanoma in the Liver. We concluded a multi-arm Phase II trial to evaluate the first generation chemosaturation system for the treatment of other cancers in the liver, such as tumors of neuroendocrine and colorectal adenocarcinoma and cholangiocarcinoma origin that have spread to the liver as well as primary liver cancer. Furthermore, we also intend to pursue pharmaceutical partners to co-develop and fund additional cancer indications for the chemosaturation system. Upon successful conclusion of the related clinical trials, we intend to apply for regulatory approval of additional indications.

Expand the Application of the Delcath Chemosaturation System. We are currently developing a chemosaturation system for use with doxorubicin. We intend to evaluate a variety of chemotherapeutic agents for use with the Delcath chemosaturation system to treat liver cancers, as well as other organs and body regions.

Sales and Marketing

European Economic Area

Having obtained the right to affix the CE Mark in Europe, we plan to market and sell the Generation 2 CHEMOSAT System in the EEA. In March 2012, we received our first commercial order for our system from the IEO. This order was fulfilled with Generation 2 CHEMOSAT Systems in April 2012 following the receipt of the CE Mark approval. We intend to focus our initial efforts on seven target markets including Germany, United Kingdom, France, the Netherlands, Italy, Spain and Ireland. We believe these countries represent a majority of the total potential liver cancer market in the EEA countries. We intend to pursue a two-pronged commercialization strategy under which we will both directly and indirectly market the Generation 2 CHEMOSAT System. To pursue a direct marketing strategy in the United Kingdom, Germany and the Netherlands, we intend to utilize a direct sales force to sell our product to interventional radiologists and hospitals. In France, Italy and Spain, where we intend to pursue an indirect marketing strategy, we will enter into agreements with third-party distributors. We have engaged a third party to provide a dedicated team to educate the medical oncologists in the seven target markets.

Under the regulatory scheme in the EEA, we have received authorization to affix the CE Mark to the Generation 2 CHEMOSAT System as a device only, and physicians must separately obtain melphalan for use with the system. Our ability to market and promote the Generation 2 CHEMOSAT System is limited to the

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approved indication. Melphalan is currently approved in 14 member states of the EEA, including the seven markets we are initially targeting. However, no melphalan labels in the EEA reference our product, and the labels vary from country to country with respect to the approved indication of the drug and its mode of administration. In the exercise of their professional judgment in the practice of medicine, physicians are generally allowed, under certain conditions, to use or prescribe a product in ways not approved by regulatory authorities. Physicians intending to use the Generation 2 CHEMOSAT System must obtain and use melphalan independently at their discretion.

United States

In the United States, if granted FDA approval, our intention is to market the system ourselves focusing our initial marketing efforts on the over fifty National Cancer Institute (NCI) designated cancer centers in the United States, beginning with the hospitals which participated in our Phase III clinical trial. We plan to focus our efforts on three distinct groups of medical specialists:

surgical oncologists who administer the Delcath chemosaturation system;

medical oncologists who have initial responsibility for cancer patients; and

interventional radiologists who are physicians specialized in working with catheter-based systems and who will also administer the Delcath chemosaturation system.

We intend to utilize MSLs to provide clinical-based education to medical oncologists, and we intend to utilize a direct sales force to sell our product to interventional radiologists and hospitals.

Strategic Alliances and Distribution Partners

We plan to seek one or more corporate partners in other markets outside the United States, including Asia where we intend to pursue strategic partners to develop markets in China, Korea and Japan. Asia represents a potentially large market for the Generation 2 CHEMOSAT System, with its primary liver cancer, or HCC, incidence accounting for an overwhelmingly large majority of the world's primary liver cancer patients. We also intend to leverage our CE Mark in order to expedite approval in select countries, as we have already done successfully in Australia, having received regulatory approval to commercialize the Generation 1 CHEMOSAT System in February 2012, and we have filed for approval of the Generation 2 CHEMOSAT System. We believe distribution or corporate partnering arrangements in select markets internationally will be cost effective, can be implemented more quickly than a direct sales force and will enable us to capitalize on local marketing expertise in the countries we target. We are actively pursuing distribution partners to commercialize the product in other foreign markets including Australia, New Zealand, Hong Kong, Mexico, Brazil, Argentina and Colombia.

In February 2010, we entered into a research and distribution agreement with Chi-Fu Trading Co., Ltd., a Taiwanese company. Under the agreement Chi-Fu will conduct clinical studies of the Delcath chemosaturation system and, upon obtaining the approval from the Taiwan Food and Drug Administration (TFDA), will market, sell and distribute the Delcath chemosaturation system in Taiwan and possibly Singapore for TFDA indications of use.

We believe that the Delcath chemosaturation system may have broader applicability, including using other drugs to treat the liver, as well as for the treatment of cancers in other organs and regions of the body. As such, we also intend to pursue U.S. pharmaceutical partners to co-develop and fund possible additional indications for the Delcath chemosaturation system.

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Risks of Investing

Investing in our securities involves risks. Potential investors are urged to read and consider the risk factors relating to an investment in the common stock set forth under "Risk Factors" in this prospectus supplement and the accompanying prospectus and those described in our Annual Report on Form 10-K for the year ended December 31, 2011 filed with the SEC and incorporated by reference in this prospectus supplement and the accompanying prospectus as well as other information we include or incorporate by reference in this prospectus supplement and the accompanying prospectus.

Corporate Information

We were incorporated in the State of Delaware in August 1988. Our principal executive offices are located at 810 Seventh Avenue, 35th Floor, New York, New York 10019. Our telephone number is (212) 489-2100. Our website address is <http://www.delcath.com>. Information contained in our website is not a part of this prospectus supplement or the accompanying prospectus.

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THE OFFERING

Common stock offered by us	shares, plus shares of common stock underlying the warrants offered hereby
Warrants offered by us	Warrants to purchase up to shares of common stock. The warrants can be exercised during the period commencing on the date of original issuance and ending on at an exercise price of \$ per share of common stock (as adjusted from time to time).
Common stock to be outstanding after this offering	shares ⁽¹⁾⁽²⁾
Use of proceeds	We intend to use the net proceeds from this offering (including any resulting from the exercise of the warrants) for general corporate purposes, including, but not limited to, commercialization of our products, obtaining regulatory approvals, funding of our clinical trials, research, capital expenditures and working capital. See Use of Proceeds.
Dividend policy	We have never declared or paid any dividends to the holders of our common stock and we do not expect to pay cash dividends in the foreseeable future. We currently intend to retain any earnings for use in connection with the expansion of our business and for general corporate purposes.
NASDAQ Capital Market symbol	DCTH
Risk Factors	See Risk Factors and other information included or incorporated by reference in this prospectus supplement and the accompanying prospectus, including the section entitled Risk Factors beginning on page 15 of our most recent annual report on Form 10-K for the fiscal year ended December 31, 2011, for a discussion of the factors you should carefully consider before deciding to invest in our securities.
Transfer Agent and Registrar	American Stock Transfer and Trust Company, LLC
Unless otherwise indicated, this prospectus supplement reflects and assumes no exercise by the underwriters of their over-allotment option and that none of the warrants issued hereunder will be exercised.	

(1) The number of shares of common stock to be outstanding after this offering is based on 50,159,492 shares of common stock outstanding on May 22, 2012.

(2) The number of shares of common stock to be outstanding after this offering excludes, as of March 31, 2012:

5,048,311 shares issuable upon the exercise of stock options at a weighted average exercise price of \$4.96 per share;

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2,711,776 shares issuable upon the exercise of outstanding warrants or options to purchase warrants at a weighted average exercise price of \$3.03 per share; and

shares issuable upon the exercise of the warrants issued hereunder.

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Table of Contents**SUMMARY OF HISTORICAL FINANCIAL DATA**

You should read the summary of historical financial data set forth below in conjunction with Management's Discussion and Analysis of Financial Condition and Results of Operation and the consolidated financial statements and the related notes included in our Annual Report on Form 10-K for the year ended December 31, 2011 and our Quarterly Report on Form 10-Q for the three months ended March 31, 2012, each of which is incorporated by reference herein. We derived the following summary historical financial statement of operations data and other data for each of the three years in the period ended December 31, 2011 and the summary historical balance sheet data as of December 31, 2011 and 2010 from our audited financial statements. We derived the summary historical financial data as of and for the three months ended March 31, 2012 and 2011 from our unaudited financial statements. In our opinion, the unaudited financial statements have been prepared on the same basis as our audited financial statements and include all adjustments (consisting of only normal recurring adjustments) necessary for a fair presentation of the information set forth therein. The results for any interim period are not necessarily indicative of the results that may be expected for a full fiscal year.

(in thousands, except share and per share data)

	Three Months Ended March 31,		2011	Year Ended December 31,	
	2012	2011		2010	2009
STATEMENT OF OPERATIONS DATA:					
Cost and expenses:					
General and administrative expenses	\$ 7,423	\$ 4,166	\$ 21,283	\$ 13,187	\$ 3,899
Research and development costs	7,131	3,648	25,173	17,556	9,637
Total costs and expenses	\$ 14,554	\$ 7,814	\$ 46,456	\$ 30,743	\$ 13,536
Operating loss	(14,554)	(7,814)	(45,456)	(30,743)	(13,536)
Change in fair value of warrant liability, net	(338)	5,966	15,566	(15,951)	(8,568)
Interest income	3		5	10	74
Other expense and interest expense					(27)
Net loss	\$ (14,889)	\$ (1,848)	\$ (30,885)	\$ (46,684)	\$ (22,057)
Common share data:					
Basic and diluted loss per share	\$ (0.31)	\$ (0.04)	\$ (0.68)	\$ (1.20)	\$ (0.82)
Weighted average number of basic and diluted common shares outstanding	48,341,670	42,953,553	45,236,921	38,991,481	27,072,556

	As of March 31,		As Of December 31,	
	2012	2011	2011	2010
BALANCE SHEET DATA:				
Cash and cash equivalents	\$ 17,050	\$ 39,285	\$ 25,777	\$ 45,621
Total assets	25,633	43,284	35,241	50,578
Total liabilities	8,856	14,623	9,137	21,497
Accumulated deficit	(161,829)	(117,903)	(146,940)	(116,055)
Stockholders' equity	16,777	28,661	26,104	29,081

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RISK FACTORS

*Any investment in our securities involves a high degree of risk. You should carefully consider the risks described below and all of the information contained in this prospectus supplement and the accompanying prospectus before deciding whether to purchase our securities. In addition, you should carefully consider, among other things, the matters discussed under **Risk Factors** and **Quantitative and Qualitative Disclosures About Market Risk** in our Annual Report on Form 10-K for the year ended December 31, 2011, in our Quarterly Report on Form 10-Q for the period ended March 31, 2012, and in other documents that we subsequently file with the Securities and Exchange Commission, all of which are incorporated by reference. The risks and uncertainties described below and incorporated by reference are not the only risks and uncertainties we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our business operations. If any of these risks actually occur, our business, financial condition and results of operations would suffer. In that event, the trading price of our common stock and the market value of the warrants offered hereby could decline, and you may lose all or part of your investment. This prospectus supplement, the accompanying prospectus and the incorporated documents also include forward-looking statements and our actual results may differ substantially from those discussed in these forward-looking statements. See **Disclosure Regarding Forward-Looking Statements**.*

Risks Related to This Offering

Our management team will have broad discretion over the use of the net proceeds from this offering.

Our management will use its discretion to direct the net proceeds from this offering. We intend to use the net proceeds from the sale of the securities for general corporate purposes, including, but not limited to, commercialization of our products, obtaining regulatory approvals, funding of our clinical trials, research, capital expenditures and working capital. Our management's judgments may not result in positive returns on your investment and you will not have an opportunity to evaluate the economic, financial or other information upon which our management bases its decisions.

Investors in this offering will experience immediate and substantial dilution.

The public offering price of the securities offered pursuant to this prospectus supplement may be substantially higher than the net tangible book value per share of our common stock. Therefore, if you purchase shares of common stock in this offering, you will incur immediate and substantial dilution in the pro forma net tangible book value per share of common stock from the price per share that you pay for the common stock. If the holders of outstanding options exercise those options at prices below the public offering price, you will incur further dilution.

The warrants are a new issue of securities with no established trading market.

The warrants are a new issue of securities with no established trading market. The warrants will not be listed on any securities exchange or quotation system. A trading market for the warrants may not develop and even if a market develops it may not provide meaningful liquidity. The absence of a trading market or liquidity for the warrants may adversely affect their value.

The exercise price and number of certain warrants will be adjusted in connection with this and possibly other offerings.

The warrants issued in our September 2007 and June 2009 private placements contain anti-dilution provisions. The warrants issued in September 2007 are subject to full ratchet protection upon certain equity issuances below \$3.44 per share (as may be further adjusted). The warrants issued in June 2009 are subject to an exercise price adjustment upon certain equity issuances below \$3.60 per share (as may be further adjusted). In addition to the potential dilutive effect of these provisions, there is the potential that a large number of the shares may be sold in the public market at any given time, which could place additional downward pressure on the trading price of our common stock. The warrants sold in the offering by this prospectus supplement also contain an adjustment of only the exercise price thereof in the event of issuances or deemed issuances of our common stock at a price below the exercise price thereof.

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USE OF PROCEEDS

We estimate that the net proceeds from this offering, based on an offering price of _____, after deducting underwriter fees, estimated offering expenses of approximately \$ _____ and excluding any exercise of the warrants by the holder thereof, will be approximately \$ _____ (or approximately \$ _____ if the underwriters exercise their over-allotment option in full). We intend to use the net proceeds from this offering (including any resulting from the exercise of the warrants), if any, for general corporate purposes, including, but not limited to, commercialization of our products, obtaining regulatory approvals, funding of our clinical trials, research, capital expenditures and working capital.

DIVIDEND POLICY

We have never declared or paid any dividends to the holders of our common stock and we do not expect to pay cash dividends in the foreseeable future. We currently intend to retain all earnings for use in connection with the expansion of our business and for general corporate purposes.

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DILUTION

If you invest in our common stock, your interest will be diluted immediately to the extent of the difference between the public offering price per share of our common stock and the adjusted net tangible book value per share of our common stock after this offering.

The net tangible book value of our common stock as of March 31, 2012, was approximately \$16.7 million, or approximately \$0.34 per share. Net tangible book value per share represents the amount of our total tangible assets, excluding goodwill and intangible assets, less total liabilities divided by the total number of shares of our common stock outstanding.

Dilution per share to new investors represents the difference between the amount per share paid by purchasers for our common stock in this offering and the net tangible book value per share of our common stock immediately following the completion of this offering.

After giving effect to the sale of _____ units offered by this prospectus supplement at an offering price of \$ _____ per unit in connection with this offering and after deducting the estimated underwriting discounts and our estimated offering expenses and excluding the proceeds, if any from the exercise of the warrants issued pursuant to this offering, our pro forma net tangible book value as of March 31, 2012 would have been approximately \$ _____ or approximately \$ _____ per share. This represents an immediate increase in net tangible book value of approximately \$ _____ per share to our existing stockholders and an immediate dilution in pro forma net tangible book value of approximately \$ _____ per share to purchasers of our common stock in this offering, as illustrated by the following table:

Offering price per unit	\$
Net tangible book value per share as of March 31, 2011	\$
Increase per share attributable to new investors	\$
Pro forma net tangible book value per share as of March 31, 2011 after giving effect to this offering	\$
Dilution per share to new investors	\$

The discussion of dilution, and the table quantifying it, assume no exercise of any outstanding options or warrants or other potentially dilutive securities. The exercise of potentially dilutive securities having an exercise price less than the offering price would increase the dilutive effect to new investors.

If the underwriters exercise in full their option to purchase _____ additional shares of common stock and warrants to purchase up to _____ shares of common stock at the public offering price set forth on the cover page of this prospectus supplement, the as adjusted net tangible book value after this offering would be \$ _____ per share, representing an increase in net tangible book value of \$ _____ per share to existing stockholders and immediate dilution in net tangible book value of \$ _____ per share to investors participating in this offering at the assumed public offering price of \$ _____ per share.

The table above excludes the following potentially dilutive securities as of March 31, 2012:

5,048,311 shares issuable upon the exercise of stock options at a weighted average exercise price of \$4.96 per share;

2,711,776 shares issuable upon the exercise of outstanding warrants or options to purchase warrants at a weighted average exercise price of \$3.03 per share; and

_____ shares issuable upon exercise of the warrants issued hereunder.

To the extent that any of these options or warrants are exercised, these issuances will cause dilution per share to the investors purchasing securities in this offering.

Table of Contents**CAPITALIZATION**

The following table sets forth our cash and cash equivalents and our capitalization as of March 31, 2012 on a historical basis and as adjusted to give effect to this offering and the application of the estimated net proceeds of this offering as described under Use of Proceeds. This table should be read in conjunction with Management's Discussion and Analysis of Results of Operations and Financial Condition and the consolidated financial statements and notes thereto included in our Quarterly Report on Form 10-Q for the three months ended March 31, 2012, which is incorporated by reference herein.

	As Of March 31, 2012	
	Historical	As Adjusted
Cash and cash equivalents	\$ 17,050	\$
Warrant liability	\$ 2,930	\$
Stockholders' equity:		
Preferred stock, \$0.01 par value: 10,000,000 shares authorized; no shares issued and outstanding	\$	\$
Common stock, \$0.01 par value: 170,000,000 shares authorized; 48,237,630 shares issued and 48,016,002 shares outstanding at December 31, 2011; 48,209,534 shares issued and shares outstanding as adjusted(1)	498	
Additional paid-in capital	178,159	
Deficit accumulated during the development stage	(161,829)	
Treasury stock at cost, 28,100 shares at December 31, 2011	(51)	
Accumulated other comprehensive loss		
Total stockholders' equity	\$ 16,777	\$
Total capitalization	\$ 25,633	\$

- (1) Outstanding shares of common stock as of December 31, 2011 excludes the warrants offered hereby and the shares of our common stock issuable upon exercise of the warrants.

Table of Contents**PRICE RANGE OF COMMON STOCK**

Our common stock is listed and traded on The NASDAQ Capital Market under the ticker symbol DCTH. The following table sets forth the high and low last reported sales prices of our common stock for the fiscal quarters indicated as reported on The NASDAQ Capital Market:

Common Stock Price Range

	2012	
	High	Low
Quarter ended June 30, 2012 (through May 23, 2012)	\$ 3.20	\$ 1.99
Quarter ended March 31, 2012	\$ 4.60	\$ 2.98
	2011	
	High	Low
Quarter ended March 31, 2011	\$ 11.44	\$ 6.18
Quarter ended June 30, 2011	8.63	4.98
Quarter ended September 30, 2011	6.37	3.09
Quarter ended December 31, 2011	3.75	1.88
	2010	
	High	Low
Quarter ended March 31, 2010	\$ 8.41	\$ 4.31
Quarter ended June 30, 2010	16.18	6.34
Quarter ended September 30, 2010	8.69	5.53
Quarter ended December 31, 2010	11.27	7.20

The reported last sale price of our common stock on The NASDAQ Capital Market on May 23, 2012 was \$2.19 per share. On May 22, 2012 there were 132 stockholders of record of our common stock.

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DESCRIPTION OF THE SECURITIES WE ARE OFFERING

In this offering, we are offering _____ units at a price of \$ _____ per unit, with each unit consisting of one share of common stock and a warrant to purchase _____ shares of common stock. Units will not be issued or certificated. The shares of common stock and warrants are immediately separable and will be issued separately. This prospectus supplement also relates to the offering of _____ shares of our common stock underlying the warrants as may be adjusted under the terms of the warrants.

Common Stock

The material terms and provisions of our common stock and each other class of our securities which qualifies or limits our common stock are described under the caption Description of Common Stock starting on page 9 of the accompanying prospectus.

Warrants

This summary of certain terms and conditions of the warrants being offered hereby is qualified in its entirety by reference to the warrants, the form of which will be included as an exhibit to a Current Report on Form 8-K that will be filed with the SEC in connection with this offering. Prospective investors should carefully review the terms and conditions set forth in the form of warrant.

The warrants will be exercisable at any time and from time to time for a period of _____ years from issuance. The warrants will be exercisable, at the option of each holder, upon the surrender of the warrants to us and at an exercise price equal to \$ _____, which, except as described below, must be paid in cash at the time of exercise. The exercise price is subject to appropriate adjustment in the event of stock dividends, stock splits, reorganizations or similar events affecting our common stock. The exercise price of the warrants is subject to anti-dilution adjustments for any issuance of common stock or rights to acquire common stock for consideration per share less than the exercise price of the warrants. For purposes of these adjustments, dilutive issuances do not include securities issued under existing instruments, under board-approved equity incentive plans or in certain strategic transactions. The warrant holders must surrender payment in cash of the exercise price of the shares being acquired upon exercise of the warrants; provided, however, that if the warrant is exercised at a time when the registration statements of which this prospectus supplement is a part is not effective, then the warrants may only be exercised on a net or cashless basis. In no event is the warrant holder entitled to a cash settlement from the Company upon exercise.

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UNDERWRITING

We have entered into an underwriting agreement with Cowen and Company, LLC and Wedbush Securities Inc., acting as the representatives of the several underwriters, with respect to the securities in this offering. Our common stock is listed on The NASDAQ Capital Market under the trading symbol DCTH.

Under the terms and subject to the conditions contained in the underwriting agreement, we have agreed to sell to the underwriters named below, and each underwriter severally has agreed to purchase, the respective number of units set forth opposite its name below:

Underwriter	Number of Units
Cowen and Company, LLC.	
Wedbush Securities Inc.	
Roth Capital Partners, LLC	
Total	

The underwriters are offering the units subject to their acceptance of the units from us and subject to prior sale. The underwriting agreement provides that the obligation of the underwriters to purchase the units offered hereby is subject to certain conditions and that the underwriters are obligated to purchase all of the units offered hereby if they purchase any of the units, other than those units covered by the underwriters over-allotment option described below.

The underwriters initially propose to offer to the public the units purchased pursuant to the underwriting agreement at the public offering price on the cover page of this prospectus and to selected dealers at such price less a concession of not more than \$ per unit. After the securities are released for sale to the public, the underwriters may change the offering price and other selling terms at various times.

Wedbush Securities Inc. has indicated interest in purchasing up to \$5 million of units for its proprietary account, however there can be no assurance that it will purchase all or any portion of such units.

The underwriters will purchase the securities from us. We have also granted to the underwriters an option, exercisable for 30 days from the date of this prospectus, to purchase up to an aggregate of additional shares of common stock and/or additional warrants to purchase up to shares of common stock at the public offering price set forth on the cover page of this prospectus supplement, less underwriting discounts and commissions. The underwriters may exercise this option solely for the purpose of covering over-allotments, if any, made in connection with the offering of the securities offered by this prospectus. To the extent the option is exercised, each underwriter will become obligated, subject to certain conditions, to purchase additional shares and/or warrants from us in approximately the same proportion shown in the preceding table. If the underwriters option is exercised in full, the total price per unit to the public would be \$, the total underwriters discounts and commissions would be \$ per unit and the total proceeds to us would be \$.

The following table summarizes the compensation we will pay and proceeds, before expenses, to us:

	Per Unit	No Exercise of Option	Total Full Exercise of Option
Public Offering Price			
Underwriting discounts and commissions			
Proceeds, before expenses, to us			

We also have agreed to provide the underwriters with a non-accountable expense reimbursement of up to \$125,000.

The expenses of this offering payable by us, not including underwriting discounts and commissions, are estimated to be approximately \$, which includes legal, accounting and printing costs, giving effect to the reimbursement of certain expenses which have been agreed to by the underwriters.

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Pursuant to the underwriting agreement, we have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act, or to contribute to payments that the underwriters or such other indemnified parties may be required to make in respect of any such liabilities.

We and all of our directors and executive officers have agreed that, subject to certain exceptions, without the prior written consent of Cowen and Company, LLC and Wedbush Securities Inc., we and they will not, (i) during the period ending 90 days, subject to an 18-day extension under certain circumstances (subject to clause (ii) below), following the date of this prospectus, offer, pledge, transfer, assign, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant for the sale of, lend or otherwise dispose of any shares of our common stock or any securities convertible into or exchangeable or exercisable for our common stock or file, or cause to be filed, any registration statement under the Securities Act with respect to any of the foregoing, or (ii) during the period ending 30 days following the date of this prospectus, directly or indirectly offer, sell, assign, transfer, pledge, contract to sell, or otherwise dispose of, any shares of Common Stock pursuant to that certain Sales Agreement dated as of December 29, 2011 between us and Cowen and Company, LLC (the ATM Agreement).

The restrictions described above do not apply to certain transactions, including:

with respect to us:

the securities to be sold in this offering
with respect to our directors and executive officers:

the transfer of shares of common stock or any securities convertible into shares of common stock to us upon a vesting event of our securities or upon the exercise of options to purchase our securities, in each case on a cashless or net exercise basis or to cover tax withholding obligations and sales of shares of common stock to cover the exercise price of options and to fund tax obligations arising upon the exercise of options on the vesting of restricted stock; and

transactions effected pursuant to any trading plan established pursuant to Rule 10b-5 of the Securities and Exchange Act of 1934. In connection with the offering, the underwriters may engage in stabilizing transactions, over-allotment transactions, syndicate covering transactions and penalty bids in accordance with Regulation M under the Exchange Act.

Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum.

Over-allotment involves sales by the underwriters of securities in excess of the securities the underwriters are obligated to purchase, which creates a syndicate short position. The short position may be either a covered short position or a naked short position. In a covered short position, the amount of securities over-allotted by the underwriters are not greater than the amount of securities that it may purchase in the over-allotment option. In a naked short position, the amount of securities involved is greater than the amount of securities in the over-allotment option. The underwriters may close out any covered short position by either exercising their over-allotment option and/or purchasing securities in the open market.

Syndicate covering transactions involve purchases of securities in the open market after the distribution has been completed in order to cover syndicate short positions. In determining the source of securities to close out the short position, the underwriters will consider, among other things, the price of securities available for purchase in the open market as compared to the price at which it may purchase securities through the over-allotment option. A naked short position occurs if the underwriters sell more securities than could be covered by the over-allotment option. This position can only be closed

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out by buying securities in the open market. A naked short position is more likely to be created if the underwriters are concerned that there could be downward pressure on the price of the securities in the open market after pricing that could adversely affect investors who purchase in the offering.

Penalty bids permit the underwriters to reclaim a selling concession from a syndicate member when the securities originally sold by the syndicate member is purchased in a stabilizing or syndicate covering transaction to cover syndicate short positions.

These stabilizing transactions, syndicate covering transactions and penalty bids may have the effect of raising or maintaining the market price of our common stock and warrants or preventing or retarding a decline in the market price of the common stock and warrants. As a result, the price of our common stock and warrants may be higher than the price that might otherwise exist in the open market. These transactions may be discontinued at any time. The underwriters make no representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of the common stock and warrants. In addition, the underwriters make no representation that they will engage in these stabilizing transactions or that any transaction, once commenced, will not be discontinued without notice.

In connection with this offering, underwriters may engage in passive market making transactions in our common stock on the NASDAQ Stock Market in accordance with Rule 103 of Regulation M under the Securities Exchange Act of 1934, as amended, during a period before the commencement of offers or sales of common stock and extending through the completion of the distribution. A passive market maker must display its bid at a price not in excess of the highest independent bid of that security. However, if all independent bids are lowered below the passive market maker's bid, that bid must then be lowered when specified purchase limits are exceeded.

This prospectus may be made available in electronic format on internet sites or through other online services maintained by the underwriters or by their affiliates. In those cases, prospective investors may view offering terms online and prospective investors may be allowed to place orders online. Other than the prospectus in electronic format, the information on the underwriters' or our website and any information contained in any other website maintained by the underwriters or by us is not part of this prospectus or the registration statement of which this prospectus forms a part, has not been approved or endorsed by us or the underwriters and should not be relied upon by investors.

The underwriters, and their respective affiliates, have provided, and they may in the future provide, various investment banking and other financial services for us for which services they have received, and may receive in the future, customary fees.

Other than the foregoing and the ATM Agreement, the underwriters do not have any material relationship with us or any of our officers, directors or controlling persons, except with respect to the contractual relationship of the underwriters with us entered into in connection with this offering.

Notice to Prospective Investors in the EEA

In relation to each Member State of the European Economic Area (EEA) which has implemented the Prospectus Directive (each, a Relevant Member State) an offer to the public of any securities which are the subject of the offering contemplated by this prospectus may not be made in that Relevant Member State, except that an offer to the public in that Relevant Member State of any securities may be made at any time under the following exemptions under the Prospectus Directive, if they have been implemented in that Relevant Member State:

(a) to legal entities which are authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities;

(b) to any legal entity which has two or more of (1) an average of at least 250 employees during the last financial year, (2) a total balance sheet of more than 43,000,000, and (3) an annual net turnover of more than 50,000,000, as shown in its last annual or consolidated accounts;

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(c) by the underwriters to fewer than 100 natural or legal persons (other than qualified investors as defined in the Prospectus Directive) subject to obtaining the prior consent of the representatives for any such offer; or

(d) in any other circumstances falling within Article 3(2) of the Prospectus Directive;

provided that no such offer of shares shall result in a requirement for the publication by us or any representative of a prospectus pursuant to Article 3 of the Prospectus Directive.

Any person making or intending to make any offer of securities within the EEA should only do so in circumstances in which no obligation arises for us or any of the underwriters to produce a prospectus for such offer. Neither we nor the underwriters have authorized, nor do they authorize, the making of any offer of securities through any financial intermediary, other than offers made by the underwriters which constitute the final offering of securities contemplated in this prospectus.

For the purposes of this provision, and your representation below, the expression an offer to the public in relation to any shares in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and any securities to be offered so as to enable an investor to decide to purchase any shares, as the same may be varied in that Relevant Member State by any measure implementing the Prospectus Directive in that Relevant Member State and the expression Prospectus Directive means Directive 2003/71/EC and includes any relevant implementing measure in each Relevant Member State.

Each person in a Relevant Member State who receives any communication in respect of, or who acquires any securities under, the offer of securities contemplated by this prospectus will be deemed to have represented, warranted and agreed to and with us and each underwriter that:

(A) it is a qualified investor within the meaning of the law in that Relevant Member State implementing Article 2(1)(e) of the Prospectus Directive; and

(B) in the case of any securities acquired by it as a financial intermediary, as that term is used in Article 3(2) of the Prospectus Directive, (i) the securities acquired by it in the offering have not been acquired on behalf of, nor have they been acquired with a view to their offer or resale to, persons in any Relevant Member State other than qualified investors (as defined in the Prospectus Directive), or in circumstances in which the prior consent of the representatives has been given to the offer or resale, or (ii) where securities have been acquired by it on behalf of persons in any Relevant Member State other than qualified investors, the offer of those securities to it is not treated under the Prospectus Directive as having been made to such persons.

In addition, in the United Kingdom, this document is being distributed only to, and is directed only at, and any offer subsequently made may only be directed at persons who are qualified investors (as defined in the Prospectus Directive) (i) who have professional experience in matters relating to investments falling within Article 19 (5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended (the Order) and/or (ii) who are high net worth companies (or persons to whom it may otherwise be lawfully communicated) falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as relevant persons). This document must not be acted on or relied on in the United Kingdom by persons who are not relevant persons. In the United Kingdom, any investment or investment activity to which this document relates is only available to, and will be engaged in with, relevant persons.

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LEGAL MATTERS

The validity of the securities offered in this offering and certain other legal matters will be passed upon for us by Skadden, Arps, Slate, Meagher & Flom LLP, New York, New York. Certain legal matters will be passed upon for the underwriters by LeClairRyan, A Professional Corporation, Newark, New Jersey.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2011, and the effectiveness of our internal control over financial reporting as of December 31, 2011, as set forth in their reports, which are incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements as of December 31, 2011 are incorporated by reference in reliance on Ernst & Young LLP's reports given on their authority as experts in accounting and auditing.

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PROSPECTUS

\$100,000,000

Common Stock

Preferred Stock

Warrants

Debt Securities

Stock Purchase Contracts

Delcath Systems, Inc. (the Company) may offer to sell from time to time common stock, preferred stock, warrants, debt securities and stock purchase contracts. The preferred stock of the Company may be convertible into common stock or preferred stock of another series.

In addition, selling stockholders to be named in a prospectus supplement may offer, from time to time, shares of our common stock. To the extent that any selling stockholder resells any securities, the selling stockholder may be required to provide you with this prospectus and a prospectus supplement identifying and containing specific information about the selling stockholder and the terms of the securities being offered.

The Company may offer securities and selling stockholders may offer shares of our common stock at an aggregate offering price of up to \$100,000,000. The common stock, preferred stock, warrants, debt securities and stock purchase contracts of the Company may be offered separately or together, in multiple series, in amounts, at prices and on terms that will be set forth in one or more prospectus supplements to this prospectus.

This prospectus describes some of the general terms that may apply to these securities and the general manner in which they may be offered. Each time the Company sells securities, a prospectus supplement will be provided that will contain specific information about the terms of any securities offered and the specific manner in which the securities will be offered. The prospectus supplement will also contain information, where appropriate, about material United States federal income tax consequences relating to, and any listing on a securities exchange of, the securities covered by the prospectus supplement. The prospectus supplement may add to, update or change the information in this prospectus. You should read this prospectus and any prospectus supplement carefully before you invest in our securities. This prospectus may not be used to sell securities unless accompanied by a prospectus supplement.

The Company may offer the securities directly to investors, through agents designated from time to time by the Company, or to or through underwriters or dealers. If any agents, underwriters, or dealers are involved in the sale of any of the securities, their names, and any applicable purchase price, fee, commission or discount arrangement with, between or among them will be set forth, or will be calculable from the information set forth, in an accompanying prospectus supplement. For more detailed information, see Plan of Distribution.

Our common stock is traded on the NASDAQ Capital Market under the symbol DCTH. On February 3, 2012, the last reported sale price of our common stock on the NASDAQ Capital Market was \$4.35.

*Investing in our common stock involves a high degree of risk. You should review carefully the risks and uncertainties referenced under the heading **Risk Factors** on page 2 of this prospectus.*

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

The date of this prospectus is February 13, 2012

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission using a shelf registration process. Under this shelf process, we may sell any combination of the securities described in this prospectus in one or more offerings and selling stockholders to be named in a prospectus supplement may, from time to time, sell our common stock up to a total aggregate dollar amount of \$100,000,000. This prospectus provides you with a general description of the securities we may offer. Each time we sell securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add, update or change information contained in this prospectus. You should read both this prospectus and any prospectus supplement together with additional information described under the heading Where You Can Find Additional Information.

You should rely only on the information contained in this prospectus and the accompanying prospectus supplement or incorporated by reference in these documents. No dealer, salesperson or other person is authorized to give any information or to represent anything not contained or incorporated by reference in this prospectus or the accompanying prospectus supplement. If anyone provides you with different, inconsistent or unauthorized information or representations, you must not rely on them. This prospectus and the accompanying prospectus supplement are an offer to sell only the securities offered by these documents, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus or any prospectus supplement is current only as of the date on the front of those documents.

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PROSPECTUS SUMMARY

This summary highlights information contained elsewhere or incorporated by reference into this prospectus. Because it is a summary, it does not contain all of the information that you should consider before investing in our securities. You should read this entire prospectus carefully, including the section entitled Risk Factors, any applicable prospectus supplement and the documents that we incorporate by reference into this prospectus and the prospectus supplement, before making an investment decision.

DELCATH SYSTEMS, INC.

We are a development stage, specialty pharmaceutical and medical device company focused on oncology, initially cancers in the liver. Since our inception, we have directed our research efforts towards the development and clinical study of the Delcath chemosaturation system.

The Delcath chemosaturation system allows the administration of concentrated regional chemotherapy by isolating the circulatory system of the targeted organ. Once the organ is isolated, the Delcath chemosaturation system delivers high doses of chemotherapy agents, currently melphalan hydrochloride, or melphalan, directly to the liver, while limiting systemic exposure and the related side effects by filtering the blood prior to returning it to the patient. The procedure is minimally invasive and repeatable allowing for multiple courses of treatment with chemotherapeutic drugs. We believe that the Delcath chemosaturation system is a platform technology that may have broader applicability, including the use of other drugs to treat the liver, as well as for the treatment of cancers in other organs and regions of the body.

Since our inception we have raised approximately \$149.2 million (net of fundraising expenses) as of September 30, 2011. We have financed our operations primarily through public and private placements of equity securities. We have incurred net losses since we were founded and we expect to continue to incur significant and increasing net losses through 2012. As of September 30, 2011, we have a deficit accumulated during the development stage of approximately \$131.7 million. We expect that the amount of capital required for operations to increase in the foreseeable future, as we commercialize the Delcath chemosaturation system in Europe, continue research and development activities and prepare our submission to the United States Food & Drug Administration (FDA).

In connection with this submission to the FDA, on January 12, 2012, we met with the FDA to conduct the scheduled pre-New Drug Application (NDA) meeting. Based upon the meeting and FDA correspondence received in response to our meeting request and the briefing packet we submitted, we are satisfied with the responses that we received from the FDA to certain questions we had regarding the NDA submission. Accordingly, we will continue with the preparation of our NDA submission as planned and expect to make the submission in the second quarter of 2012.

Our principal executive office is located at 810 Seventh Avenue, 35th Floor, New York, NY 10019. Our telephone number is (212) 489-2100. Our website address is <http://www.delcath.com>. Information contained in, or accessible through, our website does not constitute a part of this prospectus.

Unless the context indicates otherwise, as used in this prospectus, the terms Delcath Systems, we, us and our refer to Delcath Systems, Inc., a Delaware corporation. Delcath® is a registered trademark of Delcath Systems, Inc. and we use The Delcath PHP System and the Delcath Systems logo as trademarks in the United States and other countries. All other trademarks or trade names, if any, referred to in this prospectus are the property of their respective owners.

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RISK FACTORS

Investing in our securities involves a high degree of risk. You should consider carefully the risk factors set forth in the documents and reports filed by us with the Securities and Exchange Commission, which we refer to as the SEC, that are incorporated by reference into this prospectus, as well as any risks described in any applicable prospectus supplement, before deciding whether to buy our securities. Additional risks not known to us or that we believe are immaterial may also significantly impair our business operations and could result in a complete loss of your investment.

DISCLOSURE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, any prospectus supplement and the documents incorporated by reference into this prospectus contain certain forward-looking statements within the meaning of the safe harbor provisions of the Private Securities Litigation Reform Act of 1995 with respect to our business, financial condition, liquidity and results of operations. Words such as anticipates, expects, intends, plans, predicts, believes, seeks, estimates, could, would, will, may, can, continue, potential, should, and the negative of these terms or other comparable terminology often identify forward-looking statements. Statements in this prospectus and the other documents incorporated by reference that are not historical facts are hereby identified as forward-looking statements for the purpose of the safe harbor provided by Section 21E of the Securities Exchange Act of 1934, as amended, and Section 27A of the Securities Act of 1933, as amended. These forward-looking statements are not guarantees of future performance and are subject to risks and uncertainties that could cause actual results to differ materially from the results contemplated by the forward-looking statements, including the risks discussed in this prospectus, in our Annual Report on Form 10-K for the fiscal year ended December 31, 2010 in Item 1A under Risk Factors as well as in Item 7A Quantitative and Qualitative Disclosures About Market Risk, our Quarterly Report on Form 10-Q for the period ended September 30, 2011 and our Quarterly Report on Form 10-Q for the period ended June 30, 2011 in Part II, Item 1A under Risk Factors as well as in Part I, Item 3 Quantitative and Qualitative Disclosures About Market Risk, and the risks detailed from time to time in our future SEC reports. These forward-looking statements include, but are not limited to, statements about:

the progress and results of our research and development programs;

our estimates regarding sufficiency of our cash resources, anticipated capital requirements and our need for additional financing;

the commencement of future clinical trials and the results and timing of those clinical trials;

submission and timing of applications for regulatory approval and approval thereof;

our ability to successfully source certain components of the system and enter into supplier contracts;

our ability to successfully manufacture and commercialize the Delcath chemosaturation system; and

our ability to successfully negotiate and enter into agreements with strategic and corporate partners.

Many of the important factors that will determine these results are beyond our ability to control or predict. You are cautioned not to put undue reliance on any forward-looking statements, which speak only as of the date of this prospectus or, in the case of documents incorporated by reference, as of the date of such documents. Except as otherwise required by law, we do not assume any obligation to publicly update or release any revisions to these forward-looking statements to reflect events or circumstances after the date of this prospectus or to reflect the occurrence of unanticipated events.

Table of Contents**WHERE YOU CAN FIND ADDITIONAL INFORMATION**

This prospectus is part of a registration statement we filed with the SEC. You should rely only on the information contained in this prospectus, any applicable prospectus supplement or documents incorporated by reference into this prospectus. We have not authorized anyone else to provide you with different information. We are not making an offer of these securities in any state where the offer is not permitted. You should not assume that the information in this prospectus is accurate as of any date other than the date on the front page of this prospectus, regardless of the time of delivery of this prospectus or any sale of securities.

We file reports, proxy statements and other information with the SEC. You may read and copy any reports, proxy statements or other information filed by us at the SEC's Public Reference Room at 100 F Street NE, Washington, D.C. 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at (800) SEC-0330. The SEC maintains a website that contains reports, proxy statements and other information regarding issuers that file electronically with the SEC, including Delcath Systems, Inc. The address of the SEC website is <http://www.sec.gov>.

Important Information Incorporated By Reference

The SEC allows us to incorporate by reference information into this prospectus, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The documents incorporated by reference into this prospectus contain important information that you should read about us.

The following documents are incorporated by reference into this document:

SEC Filing (File No. 001-16133)	Date of Filing
Quarterly Report on Form 10-Q for quarter ended March 31, 2011	May 5, 2011
Quarterly Report on Form 10-Q for quarter ended June 30, 2011	August 4, 2011
Quarterly Report on Form 10-Q for quarter ended September 30, 2011	November 11, 2011
Proxy Statement on Schedule 14A for our 2011 Meeting of Stockholders	April 27, 2011
Annual Report on Form 10-K for year ended December 31, 2010	March 8, 2011
	January 25, 2011
	February 23, 2011
	April 1, 2011
	April 14, 2011
	May 4, 2011
	June 10, 2011
	July 11, 2011
	July 14, 2011
	July 19, 2011
	August 8, 2011
	August 11, 2011
	August 25, 2011
	September 6, 2011

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SEC Filing (File No. 001-16133)

Date of Filing

September 15, 2011
 September 26, 2011
 September 28, 2011
 October 4, 2011
 October 13, 2011
 October 28, 2011
 December 8, 2011
 December 29, 2011
 January 13, 2012
 January 31, 2012
 February 2, 2012

Current Reports on Form 8-K and 8-K/A

We also incorporate by reference into this prospectus all documents (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items) that are filed by us with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act (i) after the date of the initial registration statement and prior to effectiveness of the registration statement, or (ii) from the date of this prospectus but prior to the termination of the offering. These documents include periodic reports, such as Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, as well as proxy statements.

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, other than exhibits which are specifically incorporated by reference into such documents. Requests should be directed to Controller at Delcath Systems, Inc., 810 Seventh Avenue, 35th Floor, New York, New York 10019 or by calling us at 212-489-2100.

USE OF PROCEEDS

Unless we provide otherwise in a supplement to this prospectus, we intend to use the net proceeds from the sale of our securities covered by this prospectus for general corporate purposes, including, but not limited to, obtaining regulatory approvals, commercialization of our products, funding of our clinical trials, capital expenditures and working capital. We will not receive any proceeds from the sale of shares of our common stock by any selling stockholder.

SELLING STOCKHOLDERS

This prospectus relates in part to the possible sale by certain of our stockholders, or the selling stockholders, who own shares of common stock granted under one of our stock incentive plans or resulting from the exercise of options granted under one of our stock incentive plans or acquired through an exemption from registration under Section 4(2) of the Securities Act and Regulation D promulgated thereunder, for transactions by an issuer not involving a public offering. These initial purchasers of our securities, as well as their transferees, pledges, donees or successors, all of whom we refer to as selling stockholders, may from time to time offer and sell the securities pursuant to this prospectus and any applicable prospectus supplement.

The applicable prospectus supplement will set forth the name of each of the selling stockholders, the amount of common stock owned by each selling stockholder prior to the offering, the number of shares of our common stock to be offered by each selling stockholder and the amount of the common stock to be owned by each selling stockholder after completion of the offering. The applicable prospectus supplement will also disclose whether any of the selling stockholders has held any position or office with, has been employed by or otherwise has had a material relationship with us during the three years prior to the date of the prospectus supplement.

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DESCRIPTION OF DEBT SECURITIES

The following description, together with the additional information we may include in any applicable prospectus supplement and in any related free writing prospectuses, summarizes the material terms and provisions of the debt securities that we may offer under this prospectus. While the terms summarized below will apply generally to any debt securities that we may offer, we will describe the particular terms of any debt securities in more detail in the applicable prospectus supplement. The terms of any debt securities offered under a prospectus supplement may differ from the terms described below.

We may issue debt securities from time to time in one or more distinct series. The debt securities may be senior debt securities or subordinated debt securities. Senior debt securities may be issued under a senior indenture and subordinated debt securities may be issued under a subordinated indenture. If we issue debt securities pursuant to an indenture, in the applicable prospectus supplement we will specify the trustee under such indenture. We will include in a supplement to this prospectus the specific terms of debt securities being offered, including the terms, if any, on which debt securities may be convertible into or exchangeable for common stock, preferred stock or other debt securities. The statements and descriptions in this prospectus or in any prospectus supplement regarding provisions of debt securities and any indentures are summaries of these provisions, do not purport to be complete and are subject to, and are qualified in their entirety by reference to, all of the provisions of the debt securities and the indentures (including any amendments or supplements we may enter into from time to time which are permitted under the debt securities or any indenture).

Unless otherwise specified in a prospectus supplement, the debt securities will be direct unsecured obligations of the Company. Any debt securities designated as senior will rank equally with any of our other senior and unsubordinated debt. Any debt securities designated as subordinated will be subordinate and junior in right of payment to any senior indebtedness. There may be subordinated debt securities that are senior or junior to other series of subordinated debt securities.

The applicable prospectus supplement will set forth the terms of the debt securities or any series thereof, including, if applicable:

the title of the debt securities and whether the debt securities will be senior debt securities or subordinated debt securities;

any limit upon the aggregate principal amount of the debt securities;

whether the debt securities will be issued as registered securities, bearer securities or both, and any restrictions on the exchange of one form of debt securities for another and on the offer, sale and delivery of the debt securities in either form;

the date or dates on which the principal amount of the debt securities will mature;

if the debt securities bear interest, the rate or rates at which the debt securities bear interest, or the method for determining the interest rate, and the date or dates from which interest will accrue;

if the debt securities bear interest, the dates on which interest will be payable, or the method for determining such dates, and the regular record dates for interest payments;

the place or places where the payment of principal, any premium and interest will be made, where the debt securities may be surrendered for transfer or exchange and where notices or demands to or upon us may be served;

any optional redemption provisions, which would allow us to redeem the debt securities in whole or in part;

any sinking fund or other provisions that would obligate us to redeem, repay or purchase the debt securities;

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if the currency in which the debt securities will be issuable is United States dollars, the denominations in which any registered securities will be issuable, if other than denominations of \$1,000 and any integral multiple thereof, and the denominations in which any bearer securities will be issuable, if other than the denomination of \$5,000;

if other than the entire principal amount, the portion of the principal amount of debt securities which will be payable upon a declaration of acceleration of the maturity of the debt securities;

the events of default and covenants relevant to the debt securities, including, the inapplicability of any event of default or covenant set forth in the indenture relating to the debt securities, or the applicability of any other events of defaults or covenants in addition to the events of default or covenants set forth in the indenture relating to the debt securities;

the name and location of the corporate trust office of the applicable trustee under the indenture for such series of notes;

if other than United States dollars, the currency in which the debt securities will be paid or denominated;

if the debt securities are to be payable, at our election or the election of a holder of the debt securities, in a currency other than that in which the debt securities are denominated or stated to be payable, the terms and conditions upon which that election may be made, and the time and manner of determining the exchange rate between the currency in which the debt securities are denominated or stated to be payable and the currency in which the debt securities are to be so payable;

the designation of the original currency determination agent, if any;

if the debt securities are issuable as indexed securities, the manner in which the amount of payments of principal, any premium and interest will be determined;

if the debt securities do not bear interest, the dates on which we will furnish to the applicable trustee the names and addresses of the holders of the debt securities;

if other than as set forth in an indenture, provisions for the satisfaction and discharge or defeasance or covenant defeasance of that indenture with respect to the debt securities issued under that indenture;

the date as of which any bearer securities and any global security will be dated if other than the date of original issuance of the first debt security of a particular series to be issued;

whether and under what circumstances we will pay additional amounts to non-United States holders in respect of any tax assessment or government charge;

whether the debt securities will be issued in whole or in part in the form of a global security or securities and, in that case, any depositary and global exchange agent for the global security or securities, whether the global form shall be permanent or temporary and, if applicable, the exchange date;

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if debt securities are to be issuable initially in the form of a temporary global security, the circumstances under which the temporary global security can be exchanged for definitive debt securities and whether the definitive debt securities will be registered securities, bearer securities or will be in global form and provisions relating to the payment of interest in respect of any portion of a global security payable in respect of an interest payment date prior to the exchange date;

the extent and manner to which payment on or in respect of debt securities will be subordinated to the prior payment of our other liabilities and obligations;

whether payment of any amount due under the debt securities will be guaranteed by one or more guarantors, including one or more of our subsidiaries;

whether the debt securities will be convertible and the terms of any conversion provisions;

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the forms of the debt securities; and

any other terms of the debt securities, which terms shall not be inconsistent with the requirements of the Trust Indenture Act of 1939, as amended.

This prospectus is part of a registration statement that does not limit the aggregate principal amount of debt securities that we may issue and provides that we may issue debt securities from time to time in one or more series under one or more indentures, in each case with the same or various maturities, at par or at a discount. Unless indicated in a prospectus supplement, we may issue additional debt securities of a particular series without the consent of the holders of the debt securities of such series outstanding at the time of the issuance. Any such additional debt securities, together with all other outstanding debt securities of that series, will constitute a single series of debt securities under the applicable indenture.

We intend to disclose any restrictive covenants for any issuance or series of debt securities in the applicable prospectus supplement.

DESCRIPTION OF CAPITAL STOCK

The following description of our common stock and preferred stock, together with the additional information we include in any applicable prospectus supplement and in any related free writing prospectuses, summarizes the material terms and provisions of the common stock and preferred stock that we may offer under this prospectus. The following description of our capital stock does not purport to be complete and is subject to, and qualified in its entirety by, our Amended and Restated Certificate of Incorporation, as amended, and our Amended and Restated By-Laws, which are exhibits to the registration statement of which this prospectus forms a part, and by applicable law. We refer in this section to our Amended and Restated Certificate of Incorporation, as amended, as our certificate of incorporation, and we refer to our Amended and Restated By-Laws as our by-laws. The terms of our common stock and preferred stock may also be affected by Delaware law.

Authorized Capital Stock

Our authorized capital stock consists of 70,000,000 shares of our common stock, \$0.01 par value per share, and 10,000,000 shares of undesignated preferred stock, \$0.01 par value per share. As of February 3, 2012, we had 48,086,787 shares of common stock outstanding and no shares of preferred stock outstanding.

Common Stock

Voting

Holders of our common stock are entitled to one vote per share on matters to be voted on by stockholders and also are entitled to receive such dividends, if any, as may be declared from time to time by our board of directors in its discretion out of funds legally available therefor. Holders of our common stock have exclusive voting rights for the election of our directors and all other matters requiring stockholder action, except with respect to amendments to our certificate of incorporation that alter or change the powers, preferences, rights or other terms of any outstanding preferred stock if the holders of such affected series of preferred stock are entitled to vote on such an amendment or filling vacancies on the board of directors.

Dividends

Holders of common stock are entitled to share ratably in any dividends declared by our board of directors, subject to any preferential dividend rights of any outstanding preferred stock. Dividends consisting of shares of common stock may be paid to holders of shares of common stock. We do not intend to pay cash dividends in the foreseeable future.

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Liquidation and Dissolution

Upon our liquidation or dissolution, the holders of our common stock will be entitled to receive pro rata all assets remaining available for distribution to stockholders after payment of all liabilities and provision for the liquidation of any shares of preferred stock at the time outstanding.

Other Rights and Restrictions

Our common stock has no preemptive or other subscription rights, and there are no conversion rights or redemption or sinking fund provisions with respect to such stock. Our common stock is not subject to redemption by us. Our certificate of incorporation and bylaws do not restrict the ability of a holder of common stock to transfer the stockholder's shares of common stock. If we issue shares of common stock under this prospectus, the shares will be fully paid and non-assessable and will not have, or be subject to, any preemptive or similar rights.

Listing

Our common stock is listed on The NASDAQ Capital Market under the symbol DCTH.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company.

Preferred Stock

Our board of directors has the authority to issue up to 10,000,000 shares of preferred stock in one or more series and to determine the rights and preferences of the shares of any such series without stockholder approval, none of which are outstanding. Our board of directors may issue preferred stock in one or more series and has the authority to fix the designation and powers, rights and preferences and the qualifications, limitations, or restrictions with respect to each class or series of such class without further vote or action by the stockholders. The ability of our board of directors to issue preferred stock without stockholder approval could have the effect of delaying, deferring or preventing a change of control of us or the removal of existing management.

If we decide to issue any preferred stock pursuant to this prospectus, we will describe in a prospectus supplement the terms of the preferred stock, including, if applicable, the following:

the title of the series and stated value;

the number of shares of the series of preferred stock offered, the liquidation preference per share, if applicable, and the offering price;

the applicable dividend rate(s) or amount(s), period(s) and payment date(s) or method(s) of calculation thereof;

the date from which dividends on the preferred stock will accumulate, if applicable;

any procedures for auction and remarketing;

any provisions for a sinking fund;

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any applicable provision for redemption and the price or prices, terms and conditions on which preferred stock may be redeemed;

any securities exchange listing;

any voting rights and powers;

whether interests in the preferred stock will be represented by depository shares;

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the terms and conditions, if applicable, of conversion into shares of our common stock, including the conversion price or rate or manner of calculation thereof;

a discussion of any material U.S. federal income tax considerations;

the relative ranking and preference as to dividend rights and rights upon our liquidation, dissolution or the winding up of our affairs;

any limitations on issuance of any series of preferred stock ranking senior to or on a parity with such series of preferred stock as to dividend rights and rights upon our liquidation, dissolution or the winding up of our affairs; and

any other specific terms, preferences, rights, limitations or restrictions of such series of preferred stock.

Certain Anti-Takeover Provisions of Delaware Law and our Certificate of Incorporation and Bylaws

We are not subject to Section 203 of the Delaware General Corporation Law, which prohibits Delaware corporations from engaging in a wide range of specified transactions with any interested stockholder, defined to include, among others, any person other than such corporation and any of its majority owned subsidiaries who own 15% or more of any class or series of stock entitled to vote generally in the election of directors, unless, among other exceptions, the transaction is approved by (i) our board of directors prior to the date the interested stockholder obtained such status or (ii) the holders of two thirds of the outstanding shares of each class or series of stock entitled to vote generally in the election of directors, not including those shares owned by the interested stockholder.

Staggered Board of Directors

Our certificate of incorporation and by-laws provide that our board of directors be classified into three classes of directors of approximately equal size. As a result, in most circumstances, a person can gain control of our board only by successfully engaging in a proxy contest at two or more annual meetings.

Authorized But Unissued Shares

Our authorized but unissued shares of common stock and preferred stock are available for future issuances without stockholder approval and could be utilized for a variety of corporate purposes, including future offerings to raise additional capital, corporate acquisitions, employee benefit plans and stockholder rights plans. The existence of authorized but unissued and unreserved common stock and preferred stock could render more difficult or discourage an attempt to obtain control of us by means of a proxy contest, tender offer, merger or otherwise.

DESCRIPTION OF STOCK PURCHASE CONTRACTS

The following description, together with the additional information that we include in any applicable prospectus supplement and in any related free writing prospectuses, summarizes the material terms and provisions of the stock purchase contracts that we may offer under this prospectus. While the terms we have summarized below will apply generally to any stock purchase contracts that we may offer under this prospectus, we will describe the particular terms of any series of stock purchase contracts in more detail in the applicable prospectus supplement. The terms of any stock purchase contracts offered under a prospectus supplement may differ from the terms described below.

We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, the form of stock purchase contract that describes the terms of the particular stock purchase contract we are offering before the issuance of the related stock purchase contract.

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The following summaries of material provisions of the stock purchase contracts are subject to, and qualified in their entirety by reference to, all the provisions of the stock purchase contracts applicable to the stock purchase contracts that we may offer under this prospectus. We urge you to read the applicable prospectus supplements related to the stock purchase contracts that we may offer under this prospectus, as well as any related free writing prospectuses, and the complete stock purchase contracts that contain the terms of the stock purchase contracts.

We may issue stock purchase contracts, including contracts obligating holders to purchase from us and us to sell to the holders, a specified number of shares of common stock or preferred stock at a future date or dates. Alternatively, the stock purchase contracts may obligate us to purchase from holders, and obligate holders to sell to us, a specified or varying number of shares of common stock or preferred stock. The consideration per share of common stock or preferred stock may be fixed at the time the stock purchase contracts are issued or may be determined by a specific reference to a formula set forth in the stock purchase contracts. The stock purchase contracts may provide for settlement by delivery by us or on our behalf of shares of the underlying security, or they may provide for settlement by reference or linkage to the value, performance or trading price of the underlying security. The stock purchase contracts may require us to make periodic payments to the holders of the certain of our securities or vice versa, and such payments may be unsecured or prefunded on some basis and may be paid on a current or on a deferred basis. The stock purchase contracts may require holders to secure their obligations thereunder in a specified manner and may provide for the prepayment of all or part of the consideration payable by holders in connection with the purchase of the underlying security or other property pursuant to the stock purchase contracts.

The securities related to the stock purchase contracts may be pledged to a collateral agent for our benefit pursuant to a pledge agreement to secure the obligations of holders of stock purchase contracts to purchase the underlying security or property under the related stock purchase contracts. The rights of holders of stock purchase contracts to the related pledged securities will be subject to our security interest therein created by the pledge agreement. No holder of stock purchase contracts will be permitted to withdraw the pledged securities related to such stock purchase contracts from the pledge arrangement.

DESCRIPTION OF WARRANTS

The following description, together with the additional information we may include in any applicable prospectus supplement, summarizes the material terms and provisions of the warrants that we may offer under this prospectus and the related warrant agreements and warrant certificates. While the terms summarized below will apply generally to any warrants that we may offer, we will describe the particular terms of any series of warrants in more detail in the applicable prospectus supplement. The terms of any warrants offered under a prospectus supplement may differ from the terms described below.

We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, the form of warrant agreement, including a form of warrant certificate, that describes the terms of the particular warrants we are offering before the issuance of the related warrants. The following summaries of material provisions of the warrants and the warrant agreements are subject to, and qualified in their entirety by reference to, all the provisions of the warrant agreement and warrant certificate applicable to the warrants that we may offer under this prospectus. We urge you to read the applicable prospectus supplements related to the warrants that we may offer under this prospectus, as well as any related free writing prospectuses, and the complete warrant agreements and warrant certificates that contain the terms of the warrants.

General

We may issue warrants for the purchase of common stock or preferred stock in one or more series. We may issue warrants independently or together with common stock and preferred stock, and the warrants may be attached to or separate from these securities.

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We may evidence each series of warrants by warrant certificates that we will issue under a separate agreement. We may enter into a warrant agreement with a warrant agent. We will indicate the name and address and other information regarding the warrant agent in the applicable prospectus supplement relating to a particular warrants.

If we decide to issue warrants pursuant to this prospectus, we will specify in a prospectus supplement the terms of the warrants, including, if applicable, the following:

the offering price and aggregate number of warrants offered;

the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security or each principal amount of such security;

the date on and after which the warrants and the related securities will be separately transferable;

the number of shares of stock purchasable upon the exercise of one warrant and the price at which these shares may be purchased upon such exercise;

the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreement and the warrants;

the terms of any rights to redeem or call the warrants;

any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;

the dates on which the right to exercise the warrants will commence and expire;

the manner in which the warrant agreement and warrants may be modified;

a discussion of any material U.S. federal income tax considerations of holding or exercising the warrants;

the terms of the securities issuable upon exercise of the warrants; and

any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

Before exercising their warrants, holders of warrants may have no rights of holders of the securities purchasable upon such exercise, including, in the case of warrants to purchase common stock or preferred stock, the right to receive dividends, if any, or payments upon our liquidation, dissolution or winding up or to exercise voting rights, if any.

Exercise of Warrants

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Each warrant will entitle the holder to purchase shares of our stock at the exercise price that we describe in the applicable prospectus supplement. Holders of the warrants may exercise the warrants at any time up to the specified time on the expiration date that we set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void.

Holders of the warrants may exercise the warrants by delivering the warrant certificate representing the warrants to be exercised together with specified information, and paying the required amount to the warrant agent in immediately available funds, as provided in the applicable prospectus supplement. If we so indicate in the applicable prospectus supplement, the warrants may also provide that they may be exercised on a cashless or net basis. We will set forth on the reverse side of the warrant certificate, if applicable, and in the applicable prospectus supplement the information that the holder of the warrant will be required to deliver to us or a warrant agent.

Upon receipt of the required payment and the warrant certificate properly completed and duly executed at our offices, the corporate trust office of a warrant agent or any other office indicated in the applicable prospectus

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supplement, we will issue and deliver the common stock or preferred stock purchasable upon such exercise. If fewer than all of the warrants represented by the warrant certificate are exercised, then we will issue a new warrant certificate for the remaining amount of warrants. If we so indicate in the applicable prospectus supplement, holders of the warrants may surrender shares of common stock or preferred stock as all or part of the exercise price for warrants.

Enforceability of Rights by Holders of Warrants

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

PLAN OF DISTRIBUTION

We may sell the securities offered by this prospectus from time to time in one or more transactions, including without limitation:

directly to one or more purchasers;

through agents;

to or through underwriters, brokers or dealers;

through a combination of any of these methods.

A distribution of the securities offered by this prospectus may also be effected through the issuance of derivative securities, including without limitation, warrants, subscriptions, exchangeable securities, forward delivery contracts and the writing of options.

In addition, the manner in which we may sell some or all of the securities covered by this prospectus includes, without limitation, through:

a block trade in which a broker-dealer will attempt to sell as agent, but may position or resell a portion of the block, as principal, in order to facilitate the transaction;

purchases by a broker-dealer, as principal, and resale by the broker-dealer for its account;

ordinary brokerage transactions and transactions in which a broker solicits purchasers; or

privately negotiated transactions.

We may also enter into hedging transactions. For example, we may:

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enter into transactions with a broker-dealer or affiliate thereof in connection with which such broker-dealer or affiliate will engage in short sales of the common stock pursuant to this prospectus, in which case such broker-dealer or affiliate may use shares of common stock received from us to close out its short positions;

sell securities short and redeliver such shares to close out our short positions;

enter into option or other types of transactions that require us to deliver common stock to a broker-dealer or an affiliate thereof, who will then resell or transfer the common stock under this prospectus; or

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loan or pledge the common stock to a broker-dealer or an affiliate thereof, who may sell the loaned shares or, in an event of default in the case of a pledge, sell the pledged shares pursuant to this prospectus.

In addition, we may enter into derivative or hedging transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. In connection with such a transaction, the third parties may sell securities covered by and pursuant to this prospectus and an applicable prospectus supplement or pricing supplement, as the case may be. If so, the third party may use securities borrowed from us or others to settle such sales and may use securities received from us to close out any related short positions. We may also loan or pledge securities covered by this prospectus and an applicable prospectus supplement to third parties, who may sell the loaned securities or, in an event of default in the case of a pledge, sell the pledged securities pursuant to this prospectus and the applicable prospectus supplement or pricing supplement, as the case may be.

A prospectus supplement with respect to each offering of securities will state the terms of the offering of the securities, including:

the name or names of any underwriters or agents and the amounts of securities underwritten or purchased by each of them, if any;

the public offering price or purchase price of the securities and the net proceeds to be received by us from the sale;

any delayed delivery arrangements;

any underwriting discounts or agency fees and other items constituting underwriters' or agents' compensation;

any discounts or concessions allowed or reallowed or paid to dealers; and

any securities exchange or markets on which the securities may be listed.

The offer and sale of the securities described in this prospectus by us, the underwriters or the third parties described above may be effected from time to time in one or more transactions, including privately negotiated transactions, either:

at a fixed price or prices, which may be changed;

at market prices prevailing at the time of sale;

at prices related to the prevailing market prices; or

at negotiated prices.

General

Any public offering price and any discounts, commissions, concessions or other items constituting compensation allowed or reallowed or paid to underwriters, dealers, agents or remarketing firms may be changed from time to time. Underwriters, dealers, agents and remarketing firms that participate in the distribution of the offered securities may be underwriters as defined in the Securities Act. Any discounts or commissions they receive from us and any profits they receive on the resale of the offered securities may be treated as underwriting discounts and commissions under the Securities Act. We will identify any underwriters, agents or dealers and describe their commissions, fees or discounts in the applicable prospectus supplement or pricing supplement, as the case may be.

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Underwriters and Agents

If underwriters are used in a sale, they will acquire the offered securities for their own account. The underwriters may resell the offered securities in one or more transactions, including negotiated transactions. These sales may be made at a fixed public offering price or prices, which may be changed, at market prices prevailing at the time of the sale, at prices related to such prevailing market price or at negotiated prices. We may offer the securities to the public through an underwriting syndicate or through a single underwriter. The underwriters in any particular offering will be mentioned in the applicable prospectus supplement or pricing supplement, as the case may be.

Unless otherwise specified in connection with any particular offering of securities, the obligations of the underwriters to purchase the offered securities will be subject to certain conditions contained in an underwriting agreement that we will enter into with the underwriters at the time of the sale to them. The underwriters will be obligated to purchase all of the securities of the series offered if any of the securities are purchased, unless otherwise specified in connection with any particular offering of securities. Any initial offering price and any discounts or concessions allowed, reallocated or paid to dealers may be changed from time to time.

We may designate agents to sell the offered securities. Unless otherwise specified in connection with any particular offering of securities, the agents will agree to use their best efforts to solicit purchases for the period of their appointment. We may also sell the offered securities to one or more remarketing firms, acting as principals for their own accounts or as agents for us. These firms will remarket the offered securities upon purchasing them in accordance with a redemption or repayment pursuant to the terms of the offered securities. A prospectus supplement or pricing supplement, as the case may be, will identify any remarketing firm and will describe the terms of its agreement, if any, with us and its compensation.

In connection with offerings made through underwriters or agents, we may enter into agreements with such underwriters or agents pursuant to which we receive our outstanding securities in consideration for the securities being offered to the public for cash. In connection with these arrangements, the underwriters or agents may also sell securities covered by this prospectus to hedge their positions in these outstanding securities, including in short sale transactions. If so, the underwriters or agents may use the securities received from us under these arrangements to close out any related open borrowings of securities.

Dealers

We may sell the offered securities to dealers as principals. We may negotiate and pay dealers' commissions, discounts or concessions for their services. The dealer may then resell such securities to the public either at varying prices to be determined by the dealer or at a fixed offering price agreed to with us at the time of resale. Dealers engaged by us may allow other dealers to participate in resales.

Direct Sales

We may choose to sell the offered securities directly. In this case, no underwriters or agents would be involved.

Institutional Purchasers

We may authorize agents, dealers or underwriters to solicit certain institutional investors to purchase offered securities on a delayed delivery basis pursuant to delayed delivery contracts providing for payment and delivery on a specified future date. The applicable prospectus supplement or pricing supplement, as the case may be, will provide the details of any such arrangement, including the offering price and commissions payable on the solicitations.

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We will enter into such delayed contracts only with institutional purchasers that we approve. These institutions may include commercial and savings banks, insurance companies, pension funds, investment companies and educational and charitable institutions.

Indemnification; Other Relationships

We may have agreements with agents, underwriters, dealers and remarketing firms to indemnify them against certain civil liabilities, including liabilities under the Securities Act. Agents, underwriters, dealers and remarketing firms, and their affiliates, may engage in transactions with, or perform services for, us in the ordinary course of business. This includes commercial banking and investment banking transactions.

Market-Making, Stabilization and Other Transactions

There is currently no market for any of the offered securities, other than the common stock which is listed on the NASDAQ Capital Market. If the offered securities are traded after their initial issuance, they may trade at a discount from their initial offering price, depending upon prevailing interest rates, the market for similar securities and other factors. While it is possible that an underwriter could inform us that it intends to make a market in the offered securities, such underwriter would not be obligated to do so, and any such market-making could be discontinued at any time without notice. Therefore, no assurance can be given as to whether an active trading market will develop for the offered securities. We have no current plans for listing of the debt securities, preferred stock or warrants on any securities exchange or on the National Association of Securities Dealers, Inc. automated quotation system; any such listing with respect to any particular debt securities, preferred stock or warrants will be described in the applicable prospectus supplement or pricing supplement, as the case may be.

In connection with any offering of common stock, the underwriters may purchase and sell shares of common stock in the open market. These transactions may include short sales, syndicate covering transactions and stabilizing transactions. Short sales involve syndicate sales of common stock in excess of the number of shares to be purchased by the underwriters in the offering, which creates a syndicate short position. Covered short sales are sales of shares made in an amount up to the number of shares represented by the underwriters' over-allotment option. In determining the source of shares to close out the covered syndicate short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the over-allotment option. Transactions to close out the covered syndicate short involve either purchases of the common stock in the open market after the distribution has been completed or the exercise of the over-allotment option. The underwriters may also make naked short sales of shares in excess of the over-allotment option. The underwriters must close out any naked short position by purchasing shares of common stock in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the shares in the open market after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of bids for or purchases of shares in the open market while the offering is in progress for the purpose of pegging, fixing or maintaining the price of the securities.

In connection with any offering, the underwriters may also engage in penalty bids. Penalty bids permit the underwriters to reclaim a selling concession from a syndicate member when the securities originally sold by the syndicate member are purchased in a syndicate covering transaction to cover syndicate short positions. Stabilizing transactions, syndicate covering transactions and penalty bids may cause the price of the securities to be higher than it would be in the absence of the transactions. The underwriters may, if they commence these transactions, discontinue them at any time.

Fees and Commissions

In compliance with the guidelines of the Financial Industry Regulatory Authority (the "FINRA"), the aggregate maximum discount, commission or agency fees or other items constituting underwriting compensation

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to be received by any FINRA member or independent broker-dealer will not exceed 8% of any offering pursuant to this prospectus and any applicable prospectus supplement or pricing supplement, as the case may be; however, it is anticipated that the maximum commission or discount to be received in any particular offering of securities will be significantly less than this amount.

LEGAL MATTERS

Unless otherwise indicated in the applicable prospectus supplement, Skadden, Arps, Slate, Meagher & Flom LLP, New York, New York will provide opinions regarding the authorization and validity of the securities. Skadden, Arps, Slate, Meagher & Flom LLP may also provide opinions regarding certain other matters. Any underwriters will also be advised about legal matters by their own counsel, which will be named in the prospectus supplement.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2010, and the effectiveness of our internal control over financial reporting as of December 31, 2010, as set forth in their reports, which are incorporated by reference in the registration statement. Our financial statements as of December 31, 2010 are incorporated by reference in reliance on Ernst & Young LLP's reports given on their authority as experts in accounting and auditing.

The audited financial statements and internal control over financial reporting incorporated by reference in this prospectus and elsewhere in the registration statement, as amended, have been so incorporated by reference in reliance upon the report of CCR LLP, upon the authority of Grant Thornton LLP, independent registered public accountants and successor to the practice of CCR LLP, as experts in accounting and auditing in giving said report.

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**Units consisting of Common Stock
and Warrants**

PROSPECTUS SUPPLEMENT

Joint Book-Runners

Cowen and Company

Wedbush PacGrow Life Sciences

Co-Manager

Roth Capital Partners

May , 2012.