As filed with the Securities and Exchange Commission on August 23, 2000 Registration No. 333-39470

## SECURITIES AND EXCHANGE COMMISSION Washington, D.C. 20549

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Amendment No. 1

to

FORM SB-2 REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933 DELCATH SYSTEMS, INC. (Exact name of Registrant as specified in its charter)

Delaware (State or Other Jurisdiction of Incorporation or organization) 3841 (Primary Standard Industrial Classification Code Number)

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06-1245881 (I.R.S. Employer Identification No.)

1100 Summer Street Stamford, Connecticut 06905 (203) 323-8668 (Address, including zip code, and telephone number, including area code, of registrant's executive offices) M. S. KOLY Chief Executive Officer Delcath Systems, Inc. 1100 Summer Street Stamford, Connecticut 06905 (203) 323-8668 (Name, address, including zip code, and telephone number, including area code of agent for service)

Copies to:

Stephen A. Zelnick, Esq.	Robert J. Mittman, Esq.
Morse, Zelnick, Rose & Lander, LLP	Blank Rome Tenzer Greenblatt LLP
450 Park Avenue	405 Lexington Avenue
New York, NY 10022	New York, NY 10174
(212) 838-8040	(212) 885-5000
(212) 838-9190 (Facsimile)	(212) 885-5001 (Facsimile)

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

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, as amended (the "Securities Act"), check the following box. [X] If this Form is filed to register additional securities for an offering

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

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

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

offering. [] If delivery of the prospectus is expected to be made pursuant to Rule 434 under the Securities Act, please check the following box. []

THE REGISTRANT HEREBY AMENDS THIS REGISTRATION STATEMENT ON SUCH DATE OR DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL THE REGISTRANT SHALL FILE A FURTHER AMENDMENT WHICH SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(a) OF THE SECURITIES ACT OR UNTIL THIS REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE SECURITIES AND EXCHANGE COMMISSION, ACTING PURSUANT TO SAID SECTION 8(a), MAY DETERMINE. The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

#### SUBJECT TO COMPLETION

### DATED AUGUST 23, 2000

## [GRAPHIC OMITTED]

### 2,000,000 Shares of Common Stock

## \$6.00 per Share

Delcath Systems, Inc. is offering 2,000,000 shares of its common stock. This is our initial public offering and there currently is no public market for our common stock. We expect that the initial public offering price will be \$6.00 per share. The offering price may not reflect the market price of our shares after the offering. We anticipate that our common stock will be listed on the Nasdaq SmallCap Market under the symbol "DCTH."

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Investing in the common stock involves risks. See "Risk Factors" beginning on page 6.

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	Public Offering Price	Underwriting Discounts and Commissions	Proceeds to Company	
Per Share	\$6.00	\$.60	\$5.40	
Total	\$12,000,000	\$1,200,000	\$10,800,000	

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

We have granted Whale Securities Co., L.P., the representative of the underwriters, a 45-day option to purchase up to an additional 300,000 shares to cover over-allotments. The underwriters are offering the shares on a firm commitment basis. The underwriters expect to deliver the shares to purchasers against payment on \_\_\_\_\_, 2000.

Whale Securities Co., L.P.

, 2000

### [FOR EDGAR ONLY] (Inside front cover of gatefold)

### The Delcath System Procedure Isolating the Liver For Chemotherapy Treatment

[Diagram of interior cross section of a human torso showing the liver, heart and major arteries and veins. The Delcah system is shown with the Delcath catheters fully inserted in place. Arrows with numbers keyed to text at the bottom trace the flow of chemotherapy through the liver as directed by the Delcath system.]

1. An infusion catheter is inserted into the artery through which blood normally flows to the liver.

2. A second catheter -- the Delcath double balloon catheter -- is inserted through the inferior vena cava. Blood normally flows from the liver into the inferior vena cava to the heart which circulates the blood throughout the body.

3. The balloons on the double balloon catheter are then inflated using the caudal and cephalad extensions. The balloons prevent the normal flow of blood from the liver to the heart because the inferior vena cava is blocked. Once the balloons are inflated, the activated charcoal filters are opened and the priming line, which is used during catheter positioning, is clamped.

4. A chemotherapeutic agent is infused into the liver through the infusion catheter.

5. The blood in the liver, which is now infused with a chemotherapeutic agent, cannot flow to the heart. Blood exits the liver through perforations on the double balloon catheter and flows into this catheter out of the body. During the procedure, samples of the isolated blood can be obtained through the sampling extension.

6. Once out of the body, the infused blood is circulated through activated charcoal filters to remove most of the chemotherapeutic agent.

7. The filtered blood is returned to the patient through the jugular vein which leads to the superior vena cava and the heart. The heart restores the cleansed blood to normal circulation.

[FOR EDGAR ONLY]

(Left back of gatefold)

This diagram illustrates normal blood flow. Blood normally travels from the hepatic (liver) veins into the inferior vena cava and towards the heart.

This diagram illustrates the blood flow

During drug delivery, the Delcath double balloon catheter isolates the hepatic blood for 60 minutes. The two balloons obstruct the normal flow and divert the hepatic blood through openings in the catheter. This blood travels through the catheter to the filtration system outside the patient's body.

[FOR EDGAR ONLY]

(Right back of gatefold)

## CT scans showing the results of treatment using the Delcath system on a single patient.

[CT scan of liver of patient before treatment, with the tumors marked in red]

Pre-Treatment. Two large metastatic tumors in the liver.

[CT scan of same patient after treatment showing the reduction of tumors]

 $\label{eq:post-Treatment.} {\sc Significant\ reduction\ in\ size\ of\ tumors.}$ 

The above CT scans show the results of treatment using the Delcath System on a single patient, as reported in "Percutaneous hepatic vein isolation and high-dose hepatic arterial infusion chemotherapy for unresectable liver tumors," by Dr. T.S. Ravikumar and associates in the Journal of Clinical Oncology, December 1994. The scans should not be viewed as evidence that the Delcath system will generally shrink tumors in patients, but are presented because they highlight the reason Delcath is sponsoring Phase III clinical trials designed to demonstrate whether results seen in some Phase I/II patients will be repeated in a statistically relevant number of new patients.

#### PROSPECTUS SUMMARY

This is a summary of the information contained in this prospectus. To understand this offering fully, you should read the entire prospectus, especially the risk factors.

Unless the context indicates to the contrary, all per share data and information relating to our common stock gives effect to a one-for-2.2881 reverse stock split of our common stock which will occur immediately before the date of this prospectus.

Unless the context indicates to the contrary, the terms "Delcath," "we," "us," and "our" refer to Delcath Systems, Inc.

#### Our Business

Delcath has developed a drug-delivery system to isolate the liver from the general circulatory system and to administer chemotherapy and other therapeutic agents directly to the liver. Using the Delcath system, blood flowing into the liver, after being infused with chemotherapy agents, is redirected out of the patient's body, passed through filters which remove most of the chemotherapy agents and cleansing the blood before its return into the patient's circulatory system protects other parts of the body from the harmful side-effects of chemotherapy. We believe that the use of the Delcath system in treatment of liver cancer will allow higher dosages of chemotherapy to be administered to the liver than can be administered with conventional intravenous delivery.

The Delcath system is not currently approved for marketing by the United States Food and Drug Administration, and it cannot be marketed in the United States without FDA pre-marketing approval. With the proceeds of this offering, we plan to conduct Phase III clinical trials under protocols which have been approved by the FDA. The Phase III trials will seek to demonstrate the safety and efficacy of the Delcath system in administering the chemotherapy agent, doxorubicin, to treat cancerous tumors that have originated in the liver, commonly known as primary liver cancer, and cancerous tumors from malignant melanoma that have spread to the liver. We believe that the Delcath system may provide cost savings in the treatment of liver cancer to the extent that it can reduce treatment and hospitalization costs associated with the side-effects of chemotherapy.

## Our Market Opportunity

Liver cancer is the third most common form of cancer, with a worldwide incidence of primary liver cancer estimated to be 1,000,000 new patients per year and an estimated 1,250,000 deaths worldwide caused by all forms of liver cancer. The American Cancer Society has projected that in the United States there will be approximately 15,300 new cases of primary liver cancer and 47,700 new cases of malignant melanoma in 2000.

## Corporate Information

We were incorporated in Delaware on August 5, 1988 under the name BGH Medical Products. On May 7, 1990 we changed our name to Delcath Systems, Inc. Our executive offices are located at 1100 Summer Street, Stamford, Connecticut 06905. Our telephone number at this location is (203) 323-8668. Our web site is located at www.delcath.com. Information contained on our web site does not constitute a part of this prospectus.

The O	ffering
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	ine offering
Common stock offered by Delcath	2,000,000 shares
Common stock to be outstanding after this offering	5,437,185 shares
	The number of shares of common stock outstanding after this offering includes 1,926,426 shares to be issued immediately before the closing of this offering upon the conversion of all our outstanding convertible preferred stock, including 870,234 shares issued in payment of accumulated dividends as of the date of this prospectus, assuming this offering closes on September 30, 2000;
	The number of shares of common stock outstanding after this offering does not include:
	<ul> <li>559,416 shares reserved for issuance upon the exercise of options granted under our incentive and non-incentive stock option plans, exercisable at a weighted average exercise price of \$3.27 per share;</li> </ul>
	o 21,852 shares reserved for issuance upon the exercise of non-plan options exercisable at a price of \$2.29 per share;
	<ul> <li>0 21,468 shares reserved for issuance upon exercise of outstanding warrants with exercise prices of \$8.58 and \$11.74 per share;</li> </ul>
	o 300,000 shares reserved for issuance upon exercise of options available for future grant under our 2000 stock option plan;
	o 200,000 shares reserved for issuance upon exercise of the representative's warrant; and
	o 300,000 shares reserved for issuance in this offering to cover over-allotments, if any, by the underwriter.
Use of proceeds	We intend to use the net proceeds of this offering for research and development, introducing our Delcath system into foreign markets and for working capital and general corporate purposes.
Risk factors	An investment in the common stock is speculative and involves a high degree of risk. You should purchase the shares only if you can afford a complete loss of your investment. You should consider carefully the risks listed in the "Risk Factors" section of this prospectus before making an investment in our shares.
Proposed Nasdaq SmallCap Market symbol	DCTH

Notice to California investors: Each purchaser of our common stock in California must be an accredited investor as that term is defined in Rule 501(a) of Regulation D promulgated under the Securities Act of 1933, or satisfy one of the following suitability standards:

- o minimum gross income of \$65,000 and a net worth, exclusive of home, home furnishings and automobiles, of \$250,000; or
- o minimum net worth, exclusive of home, home furnishings and automobiles, of \$500,000.

Notice to Ohio, South Carolina and Washington investors: Each purchaser of our common stock in Ohio, South Carolina and Washington must be an accredited investor as that term is defined in Rule 501(a) of Regulation D promulgated under the Securities Act.

# Summary Financial Data

The following summary financial data as of December 31, 1999, and for the years ended December 31, 1998 and 1999, are derived from our audited financial statements. The summary financial data as of June 30, 2000, and for the six months ended June 30, 1999 and 2000 are derived from our unaudited financial statements. This information should be read in conjunction with the financial statements, including the notes, and "Plan of Operation" appearing elsewhere in this prospectus.

Statement of Operations Data:

	Years Ended December 31,		Six Mont June	
	1998	1999	1999	2000
Total costs and expenses Operating loss Net loss Net loss per share Weighted average number of shares of	\$ 2,124,443 (2,124,443) (2,049,980) (2.01)	\$ 598,126 (598,126) (572,581) (.54)	\$ 206,182 (206,182) (200,410) (.19)	\$ 404,807 (404,807) (391,771) (.32)
common stock outstanding	1,021,437	1,062,605	1,042,283	1,239,547

Balance Sheet Data:

The pro forma information gives effect to: o the payment in cash of \$496,390 in accumulated preferred stock dividends, assuming this offering closes on September 30, 2000.

The as adjusted information gives effect to:

o the pro forma adjustments and sale of the 2,000,000 shares offered by this prospectus, including the receipt of estimated net proceeds of \$10,000,000.

	As of December 31, 1999		000	
		Actual	Pro Forma	As Adjusted
Cash and cash equivalents Total assets Total liabilities Stockholders' equity	\$561,078 600,821 112,748 488,073	\$417,549 807,659 209,532 598,127	\$ (78,841) 311,269 209,532 101,737	\$10,212,567 10,311,269 209,532 10,101,737

#### RISK FACTORS

The shares offered by this prospectus are speculative and involve a high degree of risk. In addition to other information in this prospectus, you should consider carefully the following risks before making an investment decision.

Risks related to our financial condition

We expect to incur continuing losses and our losses are expected to increase as we begin our Phase III clinical trials.

We expect to incur significant and increasing losses while generating minimal revenues over the next few years. Our future profitability will depend on our ability to successfully complete Phase III clinical trials of our Delcath system, obtain FDA pre-marketing approval for the system and successfully market it in the United States and internationally. From our inception on August 5, 1988 through June 30, 2000, we have incurred cumulative losses of \$11,703,733, substantially all of which were incurred in connection with our product development efforts. For the years ended December 31, 1998 and December 31, 1999 we incurred net losses of \$2,049,980 and \$572,581.

If the proceeds of this offering are not sufficient to complete our Phase III clinical trials and our efforts to raise additional financing are unsuccessful, we will likely be required to cease operations.

Based upon our assumptions, we expect that the net proceeds of this offering will enable us to complete our Phase III clinical trials and obtain FDA pre-marketing approval for the use of doxorubicin with our Delcath system. We cannot assure you that the proceeds of this offering will be sufficient for these purposes because of unanticipated delays or expenses, increased regulatory requirements by the FDA or other factors which we cannot foresee or control. If we do not obtain any financing that we may require, we will not be able to complete Phase III clinical trials and obtain FDA pre-marketing approval for the Delcath system which could result in the cessation of our business and the loss of your entire investment.

If we do not raise the additional capital required to commercialize the Delcath system, our potential to generate future revenues will be significantly limited.

The proceeds of this offering will be insufficient to fund the costs of commercializing the Delcath system. We will require significant additional capital to fund the costs associated with widescale marketing of the Delcath system. We have no commitments for any additional financing. If we are unable to obtain additional financing as needed, we will not be able to sell the system on a commercial scale and our business will be adversely impacted.

Risks related to FDA and foreign regulatory approval

If Phase III clinical trials prove unsuccessful, we will be unable to obtain FDA pre-marketing approval and will be unable to sell the Delcath system in the United States.

We cannot market or sell the Delcath system in the United States without FDA pre-marketing approval. If Phase III clinical trials are unsuccessful, we will be unable to provide the FDA with the clinical data required to demonstrate that the Delcath system is safe and effective and to obtain approval to market the Delcath system in the United States. If we are unable to market the Delcath system in the United States, it is likely that our business will cease, resulting in the loss of your entire investment.

The FDA may reject the results of our clinical trials in whole or in part, which could result in the FDA refusing to grant marketing approval or limiting the circumstances under which the Delcath system may be used.

Pre-marketing approval requires a determination by the FDA that the data developed by our clinical trials show that the use of doxorubicin in our system is safe and effective in the treatment of primary liver cancer

and melanoma which has spread to the liver. Separate FDA pre-marketing approval is required for the treatment of each of these sources of liver cancer with the Delcath system and one approval is not contingent upon the other. The FDA requires that we demonstrate, for each of primary liver cancer and metastatic melanoma in a statistically rigorous manner, increased patient survival times for approval of our pre-market application. If regulatory approval is granted, approval may require limitations on the indicated uses for which the Delcath system may be marketed. Failure to obtain FDA pre-marketing approval to market the Delcath system, or obtaining FDA pre-marketing approval with substantial limitations on its indicated uses, could result in the cessation of our business and the loss of your entire investment.

If we do not obtain FDA pre-marketing approval, we may not be able to sell the Delcath System in foreign markets, which will limit our sales opportunities.

If we do not obtain FDA pre-marketing approval because our clinical trials are unsuccessful, we may not be able to obtain regulatory approval to market the Delcath system in foreign markets. If the FDA does not approve the Delcath system, we will not be able to export the Delcath system from the United States unless approval has been obtained from one of a number of developed industrialized nations. We have not begun to seek foreign regulatory approval and may not be able to obtain approval from one of those designated nations. If we are unable to market the Delcath system internationally, our market opportunity will be materially limited.

There are many factors that could lengthen the process of conducting Phase III clinical trials and obtaining FDA pre-marketing approval and as a result, delay our ability to market the Delcath system and generate revenues.

We expect that once Phase III clinical trials begin, they will take at least 12 months to complete. We expect to begin the clinical trials during the first quarter of 2001. However, we may experience delays in beginning, conducting and completing the trials because of factors that include, but are not limited to, delays in designing the trials to conform to the trial protocols, complying with the requirements of investigational review boards at the sites where the trials will be conducted, our ability to identify clinical test sites and sponsoring physicians and the ability of the clinical test sites to identify patients to enroll in the trials. Further, the FDA monitors the progress of the clinical trials and may alter, suspend or terminate the trials based on the data that has been accumulated to that point and its assessment of the relative risks and benefits to the patients involved in the trials.

After acquiring sufficient data, we believe that our collation, analysis and submission of the trial results to the FDA will take an additional three months. Once we submit the data from the clinical trials to the FDA, we estimate that the FDA will respond to our submission within three months. However, the FDA may take longer than three months to evaluate our submission and may require that additional trials be conducted.

We have only limited experience in arranging for clinical trials and in evaluating and submitting the data gathered from clinical trials. Further, we cannot control when the FDA will respond to our submission. Any significant delay in completing clinical trials or in the FDA responding to our submission or a requirement by the FDA for us to conduct additional trials will delay the commercialization of the Delcath system and our ability to generate revenues.

Our dependence on third parties to conduct the Phase III clinical trials may result in significant delays or the failure to complete the trials.

We will rely on third-party contract research organizations, hospitals and other research institutions to conduct the Phase III clinical trials. We are also dependent on a sufficient number of patients agreeing to participate in our trials. These factors may cause delays in completing, or the failure to complete, our clinical trials. There is risk that hospitals and research institutions will not approve the conduct of trials at their facilities and that contract research organizations will fail to meet their contractual obligations or fail to meet regulatory standards in the performance of their obligations.

The contract research organizations and physicians conducting the clinical trials are not our employees. As a result, we have limited control over their activities and can expect that only limited amounts of their

time will be dedicated to the clinical trials. Failure of the research organizations to perform as expected or failure of a sufficient number of patients to volunteer for our trials could result in a delay in completing the trials, submitting our trial results to the FDA, obtaining FDA pre-marketing approval and/or commercializing the Delcath system.

The process of obtaining FDA pre-marketing approval for using the Delcath system with other chemotherapy agents and for treatment of other diseases will require significant additional time and financing.

The FDA pre-marketing approval we are currently seeking is limited to administration of doxorubicin with our Delcath system to treatment of liver cancer patients. If we are granted this approval, we plan to subsequently seek additional FDA pre-marketing approvals for using the Delcath system with other chemotherapy agents for treatment of other liver cancers and with anti-viral drugs for treatment of other diseases, such as hepatitis. In many instances, the process of applying for and obtaining regulatory approvals involves rigorous pre-clinical and clinical testing. The time resources and funds required for completing necessary testing and obtaining approvals is significant, and FDA pre-marketing approval may never be obtained for some medical devices or drug delivery systems. If we fail to raise the additional capital required or enter into strategic partnerships to finance this testing or if we fail to obtain the required approvals, our potential growth and the expansion of our business would likely be limited.

Even if our Delcath system is approved by the FDA, we will remain subject to extensive regulation, which failure to comply with may result in significant sanctions that could substantially limit our ability to market the Delcath system.

The manufacturing, assembly, labeling, marketing, distribution and advertising of products and treatment methods like the Delcath system is subject to extensive regulation by federal, state and local government regulatory authorities in the United States and other countries. Even if FDA pre-marketing approval is granted to our Delcath system, we will still be subject to stringent regulations, including medical device quality system regulation and good manufacturing practice, which include testing, design, quality control and documentation procedures. Compliance with applicable regulatory requirements is subject to continual review and may be monitored through periodic inspections by the FDA. Similarly, sales of the Delcath system outside of the United States are also subject to manufacturing standards promulgated by the International Standards Organization and marketing requirements of the European community or local laws. In addition, if Delcath assumes responsibility for assembly of its system, those activities will be subject to regulation and control under the Occupational Safety and Health Act. Discovery of previously unknown problems with a product, manufacturer or facility, or failure to comply with regulatory requirements, may result in restrictions on a product or a manufacturer, including substantial fines, suspensions of marketing approval and refusal to grant approval to new products, injunctions, seizures, recalls of products, operating restrictions, civil penalties and criminal charges against us.

Third-party reimbursement may not be available to purchasers of the Delcath system, or may be inadequate, which would hamper our sales efforts.

Our ability to commercialize the Delcath system in the United States and in foreign markets, if regulatory approval of the system is obtained, will depend, in part, on the extent to which third-party reimbursement for the cost of the Delcath system will be available to purchasers. Physicians, hospitals and other health care providers may be reluctant to purchase our products if they do not receive substantial reimbursement for the cost of the procedures using our products from third-party payors, including Medicare, Medicaid and private health insurance plans.

Because the Delcath system currently is characterized by the FDA as an experimental device, its use is not reimbursable in the United States. We will not begin to seek to have third-party payors reimburse the use of the Delcath system until after its use is approved by the FDA. Each third-party payor independently determines whether and to what extent to reimburse for a medical procedure or product. We cannot assure you that third-party payors in the United States or abroad will cover procedures using the Delcath system. Further,

third-party payors may deny reimbursement if they determine that the Delcath system was not used in accordance with established payor protocols regarding cost effective treatment methods, or was used for forms of cancer or with drugs not specifically approved by the FDA.

Risks related to manufacturing, commercialization and market acceptance of the Delcath system.

Because manufacturers must demonstrate compliance with specifications by the FDA, if we change any manufacturer, the completion of the clinical trials and/or the commercialization of the Delcath system would likely be delayed.

Manufacturers of the components of the Delcath system must demonstrate to the FDA that these components are manufactured in accordance with manufacturing and performance specifications for the Delcath system on file with the FDA. In the case of the double balloon catheter, in particular, this process can be time consuming. Many of the components of the Delcath system are manufactured by sole-source suppliers. The completion of the clinical trials and/or the commercialization of the Delcath system will likely be delayed if it becomes necessary for us to change any manufacturer.

We may encounter difficulties in obtaining adequate supplies of components for the Delcath system, which could result in significant delays in the completion of the Phase III clinical trials and the commercialization of the Delcath system.

We do not have any contracts with suppliers for the manufacture of components for the Delcath system. To date, we have only had components of the Delcath system manufactured for us in small quantities for use in pre-clinical studies and clinical trials. We will require greater quantities for the Phase III clinical trials and significantly greater quantities to commercialize the product. If we are unable to obtain adequate supplies of components from our existing suppliers, or need to switch to an alternate supplier, the completion of our clinical trials and commercialization of the Delcath system could be delayed.

The Delcath system is our only product and if we are unsuccessful in developing and commercializing it, our business will cease.

The Delcath system for the administration of chemotherapy agents to a liver isolated by the system is the only product we are seeking to commercialize in the foreseeable future. Accordingly, our future financial performance will depend upon the successful and timely completion of clinical trials, commercial introduction and consumer acceptance of the Delcath system. If we do not successfully commercialize this system we will not generate significant revenues and our business will cease.

We may not be successful in commercializing the Delcath system because we lack sales, marketing and distribution experience and will be dependent upon third parties to market the Delcath system in foreign markets.

We have not previously sold, marketed or distributed any products and currently do not have the personnel, resources, experience or other capabilities to adequately market the Delcath system. We intend to directly market and sell the Delcath system in the United States through a direct sales force. As a result, our success will depend upon our ability to attract and retain skilled sales and marketing personnel. Competition for such personnel is intense, and we cannot assure you that we will be successful in attracting or retaining such personnel. Our inability to attract and retain skilled sales and marketing personnel could materially adversely affect our business, financial condition and results of operations.

If we enter foreign markets, we intend to do so through marketing agreements with third parties. Any revenues we receive from the sale of the Delcath system in foreign markets will depend upon the efforts of these parties and may be less than we would otherwise receive if we marketed the product through our own sales force.

We cannot assure you that we will be able to establish in-house marketing, sales and distribution capabilities or relationships with third parties to effectively fulfill these functions in foreign markets. Our failure to establish marketing capabilities or to enter into marketing arrangements with third parties would have a material adverse effect on our business, financial condition and results of operations.

There may be low demand for the Delcath system which will result in a significant limitation on our potential to generate revenues.

The Delcath system may not gain significant market acceptance among physicians, patients and healthcare payors. Market acceptance of the Delcath system will depend upon:

- o the ability of our clinical trials to demonstrate a significant reduction in the mortality rate for the kinds of cancers treated at a cost effective price;
- o our ability to educate physicians on the use of the system and its benefits compared to other treatment alternatives; and
- o our ability to convince healthcare payors that use of the Delcath system results in reduced treatment costs of patients.

This will require substantial efforts and expenditures. We only have limited experience in these areas and we cannot assure you that we will be successful in achieving these goals. Moreover, the Delcath system replaces treatment methods in which many hospitals have made a significant investment. Hospitals may be unwilling to replace their existing technology in light of their investment and experience with competing technologies. Many doctors and hospitals are reluctant to use a new medical technology until its value has been demonstrated. The lack of acceptance of the Delcath system by the healthcare market would have a material adverse effect on our business, financial condition and results of operations.

The Delcath system may be rendered obsolete and noncompetitive by technological change.

Technological developments are expected to continue at a rapid pace in both industry and academia which could result in a short product life cycle for our Delcath system. The healthcare industry is characterized by extensive research efforts, rapid technological progress and intense competition from numerous organizations, including biotechnology firms and academic institutions. There is continuous research in the medical community on different ways to treat or prevent cancer. Specifically, many large pharmaceutical companies and research institutions are developing systems and devices to improve the outcome of chemotherapy treatment for cancer. Some are developing chemotherapy agents with reduced toxicity, which may make them more desirable treatment alternatives than doxorubicin. Some pharmaceutical companies are also developing products to reduce the toxicity and side-effects of chemotherapy treatment. In addition, gene therapy, vaccines, use of radio frequency waves and other minimally invasive procedures are currently being developed as alternatives to chemotherapy.

We may not be able to acquire a significant share of the market because of the numerous cancer treatment alternatives and the strength of our competitors, and therefore may not be able to achieve meaningful revenues or profitability.

The Delcath system competes with all forms of liver cancer treatments which are alternatives to resection, or surgical removal, of the tumor, including intravenous chemotherapy treatment, radiation, targeted chemotherapy delivery through implanted infusion pumps and radio frequency waves. Many of our competitors have substantially greater financial, technological, research and development, marketing and personnel resources. In addition, some of our competitors have considerable experience in conducting clinical trials and other regulatory approval procedures. As a result, our competitors may develop more efficacious or more affordable products or treatment methods, or achieve earlier product development, patent protection, regulatory approval or product commercialization than we do, in which case our chances to acquire a significant share of the market and achieve meaningful revenues or profitability will be substantially limited.

Other risks relating to business.

We rely heavily on our Chief Executive Officer and Chief Technical Officer for the development and oversight of our business.

Our success will depend largely on the continuing efforts of Samuel Herschkowitz, our Chief Technical Officer and M.S. Koly, our Chief Executive Officer. Our business may be adversely affected if the services of either officer become unavailable to us. While we have obtained a key-man life insurance policy on the life of each of Dr. Herschkowitz and Mr. Koly in the amount of \$2,000,000, this amount may not be sufficient to offset the loss of their services. Because of our limited resources we may be unable to enforce our intellectual property rights.

Our success depends significantly on our ability to protect our proprietary rights to the technologies used in our product, and we may be unable to do so. If a third party violates our intellectual property rights, we may be unable to enforce our rights because of our limited resources. Third parties may copy or obtain and use our proprietary technologies, ideas, know-how and other proprietary information without authorization, design around our existing patents or independently develop technologies similar or superior to our technologies. In addition, the confidentiality and non-competition agreements between us and our key employees, distributors, consultants, labs, institutions, researchers conducting trials and manufacturers may not provide meaningful protection of our proprietary technologies or other intellectual property if unauthorized use or disclosure occurs.

We may be found to infringe on patents issued to others or need to acquire licenses under patents belonging to others, which, in either case, may result in substantial expenses to us or significantly limit our activities.

Our commercial success will depend, in part, on our ability to avoid infringing patents issued to others. If we are determined to be infringing on any third party patents, we could be required to pay substantial damages, alter our products or processes, obtain licenses under patents belonging to others or curtail our activities. We may not be able to obtain required licenses or alter our products or processes on acceptable terms or at all. The medical device industry is characterized by a substantial amount of litigation over patent and other intellectual property rights. Determining whether a product infringes a patent involves complex legal and factual issues, and the outcome of patent litigation actions is often uncertain.

We are uninsured against product liability and may be exposed to significant monetary damage claims.

Clinical trials, manufacturing, marketing and product sales may expose us to liability claims from the use of the Delcath system. Though participants in clinical trials are generally required to execute consents and waivers of liability they may still be able to assert product liability claims against us. Claims for damages, whether or not successful, could cause delays in the clinical trials and result in the loss of physician endorsement. We do not currently carry product liability insurance and we may not be able to acquire product liability insurance at sufficient coverage levels or at an acceptable cost. If we are unable to obtain sufficient insurance coverage at an acceptable cost, we may not be able to commercialize the Delcath system. A successful product liability claim or recall would have a material adverse effect on our business, financial condition and results of operations.

Risks related to this offering, our share price and corporate control

The offering price of our common stock was arbitrarily determined and may not be indicative of their value.

The initial public offering price of our common stock has been arbitrarily determined by negotiation between us and the underwriters and is not necessarily related to our assets, book value or potential earnings or any other recognized criteria of value. Additionally, the initial public offering price of our common stock may not be indicative of the prices that may prevail in the public market.

Your investment will be subject to immediate dilution of 69.0%.

Following this offering the net tangible book value of a share of common stock will be \$1.86 and you will have paid \$6.00 per share. As a result, you will experience immediate and substantial dilution of \$4.14 per share, or 69.0%, between the net tangible book value per share of common stock after this offering and the initial public offering price per share. This dilution is due to the fact that our earlier investors paid less than the initial public offering price when they purchased their shares of common stock and because we have incurred losses since our inception.

Because we currently have no specific use for a substantial portion of the net proceeds from this offering there is a greater risk that they may not be used effectively.

Approximately \$2,000,000 (20.0%) of the net proceeds from this offering have been allocated to working capital and general corporate purposes. Additionally, the anticipated application of the net proceeds is only an estimate and may be adjusted from time to time as our management determines to be appropriate. Accordingly, we will have broad discretion as to the use of the net proceeds, including uses with which the stockholders may not agree.

### CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements. These statements relate to future events or our future financial performance, objectives, expectations and intentions. In some cases, you can identify forward-looking statements by terminology such as "may," "will," "should," "expects," "plans," anticipates," "believes," "estimates," "predicts," "potential" or "continue" or the negative of these terms or other comparable terminology. These statements involve known and unknown risks, unknown certainties and other factors, including the risks outlined under "Risk Factors," that may cause our or our industry's actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements. You should not place undue reliance on forward-looking statements in this prospectus which speak only as of the date they are made.

USE OF PROCEEDS

The net proceeds to Delcath from the sale of shares being offered by this prospectus, after deducting the underwriting discount and estimated expenses of this offering, are estimated to be 10,000,000.

We expect to use these net proceeds approximately as follows:

Application of Net Proceeds	Approximate Dollar Amount	Approximate Percentage of Net Proceeds
Research and development:	¢ c 500 000	65 <b>0</b> %
Phase III clinical trials using the Delcath system with doxorubicin Research and development stage clinical trials for other chemotherapy	\$ 6,500,000	65.0%
agents	600,000	6.0
Reduce the cost of the Delcath filtration system	400,000	4.0
Introduce the Delcath system into foreign markets	500,000	5.0
Working capital and general corporate purposes	2,000,000	20.0
Total	\$ 10,000,000 ======	100.0% =====

Phase III clinical trials using the Delcath system with doxorubicin. These costs represent:

- o the costs of recruiting medical centers to conduct the trials and patients to participate in the trials;
- o the costs of treating patients, including the costs of the Delcath system and payments for unreimbursed medical expenses for patients receiving treatment with the system; and
- o the costs of approximately \$950,000 for the fees and expenses of the clinical research organization which we anticipate hiring to conduct the trials, collect and process the data and prepare and file a pre-market approval application and approximately \$550,000 for associated overhead, including the costs of additional personnel and consultants.

We estimate that the average costs to treat a patient will be under \$20,000, and we expect to treat up to 274 patients.

Research and development stage clinical trials for other chemotherapy agents. This amount represents the costs of conducting research and development stage clinical trials for the use of other chemotherapy agents with the Delcath system for the treatment of liver cancer. These costs represent the costs of non-animal testing, animal testing, testing with humans, monitoring the testing and collecting and processing data. Additional financing will be required to conduct Phase II and III clinical trials.

Reduce the cost of the Delcath filtration system. This amount represents the costs to design, develop and test a filter which will cost less than the third-party filter currently used in the Delcath system and include the salaries of an engineer and technician.

Introduce the Delcath system into foreign markets. These costs represent the salaries of five employees to be hired, travel and promotional material to establish alliances with leading hospitals in countries being targeted and enlist their support in obtaining regulatory approval in their territories and to establish strategic partnerships with domestic and/or foreign marketing firms.

Working capital and general corporate purposes. These costs include general and administrative costs, including the salaries of our executive officers. Pending the above uses, the net proceeds of this offering will be invested in short-term, interest-bearing, investment-grade securities.

If the representative exercises the over-allotment option in full, we will realize additional net proceeds of 1,566,000, which will be added to working capital purposes.

The above allocation represents our best estimate of the allocation of the net proceeds of this offering based upon the current status of our business. We based this estimate on assumptions, including that the

Delcath system will have obtained FDA pre-marketing approval within 24 months from the closing of this offering. If any of these factors change, we may find it necessary to reallocate a portion of the proceeds within the above described categories or use portions of the proceeds for other purposes. Our estimates may prove to be inaccurate, new programs or activities may be undertaken which will require considerable additional expenditures or unforeseen expenses may occur.

Based upon our current plans and assumptions relating to our business plan, we anticipate that the net proceeds of this offering will satisfy our capital requirements for at least 12 months following the closing of this offering. If our plans change or our assumptions prove to be inaccurate, we may need to seek additional financing sooner than currently anticipated or curtail our operations. We cannot assure you that the proceeds of this offering will be sufficient to fund our clinical trials with respect to the use of the Delcath system with doxorubicin to treat liver cancer. We also cannot assure you that additional financing will become available if needed.

We will invest proceeds not immediately required for the purposes described above principally in United States government securities, short-term certificates of deposit, money market funds or other short-term interest-bearing investments.

## DILUTION

The difference between the initial public offering price per share and the net tangible book value per share of common stock after this offering constitutes the dilution to investors in this offering. Net tangible book value per share is determined by dividing total tangible assets less total liabilities by the number of outstanding shares of common stock.

At June 30, 2000, we had a net tangible book value of \$306,764 or \$.22 per share. At June 30, 2000, our net tangible book value deficit would have been (\$189,626) or (\$.06) per share after giving pro forma effect to:

- o the conversion of all outstanding shares of our convertible preferred stock into 1,056,192 shares of common stock;
- o the payment of \$1,489,170 of estimated accumulated dividends assuming this offering closes on September 30, 2000 through the issuance of 870,234 shares of common stock and the payment of \$496,390 of estimated accumulated dividends in cash;
- o the issuance of 125,000 shares to Morse, Zelnick, Rose and Lander LLP for legal services, at the date of this prospectus.

After also giving effect to the sale of the 2,000,000 shares being offered at an initial public offering price of \$6.00 per share and after deducting estimated underwriting discounts and expenses of this offering, our adjusted net tangible book value at June 30, 2000 would have been \$10,101,737 or \$1.86 per share, representing an immediate increase in net tangible book value of \$1.92 per share to the existing stockholders and an immediate dilution of \$4.14 or 69.0% per share to new investors.

The following table illustrates the above information with respect to dilution to new investors on a per share basis:

Initial public offering price Pro forma net tangible book value deficit at June 30, 2000 Increase in pro forma net tangible book value attributable to new investors	\$( .06) 1.92	\$6.00
Adjusted pro forma net tangible book value after offering		1.86
Dilution to new investors		 \$4.14
		=====

The following table sets forth, on a pro forma basis as of June 30, 2000, with respect to our existing stockholders and new investors, a comparison of the number of shares of common stock we issued, the percentage ownership of those shares, the total consideration paid, the percentage of total consideration paid and the average price per share.

	Shares Purchased		Total Conside	Average Price Per	
	Number	Percent	Amount	Percent	Share
Existing stockholders New investors	3,437,185 2,000,000	63.2% 36.8	\$10,566,686 12,000,000	46.8% 53.2	\$3.07 6.00
Total	5,437,185	100.0% =====	\$22,566,686	100.0% =====	

The above table assumes no exercise of the underwriter's over-allotment option. If the representative exercises the over-allotment option in full, we estimate that the new investors will have paid \$13,800,000 for the 2,300,000 shares of common stock being offered, representing approximately 56.6% of the total consideration for 40.1% of the total number of shares of common stock outstanding. In addition, the above table does not give effect to the shares issuable upon exercise of outstanding options and warrants. To the extent that any of these options or warrants are exercised, there will be further dilution to the new investors.

## 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. Our board of directors will have the sole discretion in determining whether to declare and pay dividends in the future. The declaration of dividends will depend on our profitability, financial condition, cash requirements, future prospects and other factors deemed relevant by our board of directors. Our ability to pay cash dividends in the future could be limited or prohibited by the terms of financing agreements that we may enter into or by the terms of any preferred stock that we may authorize and issue.

### CAPITALIZATION

The following table sets forth our capitalization as of June 30, 2000:

o on an actual basis;

o on a pro forma basis to reflect:

- o the issuance of 1,056,192 shares upon conversion of all of our preferred stock;
- o the issuance of 870,234 shares as payment of \$992,780 of estimated accumulated dividends on our preferred stock as of the date of this prospectus, assuming this offering closes on September 30, 2000;
- o the payment of \$496,390 for the remaining accumulated dividends on our preferred stock as of the date of this prospectus, assuming this offering closes on September 30, 2000;
- o the issuance of 125,000 shares to Morse, Zelnick, Rose and Lander LLP for legal services, at the date of this prospectus which will be charged to paid-in capital as an expense of this offering; and
- o on an as adjusted basis to give effect to the pro forma adjustments and to the sale of shares, at an assumed initial public offering price of \$6.00 per share, after deducting the underwriting discounts and estimated offering expenses payable by us.

The following table excludes from the common stock outstanding 602,736 shares of common stock reserved for issuance upon exercise of outstanding options and warrants.

	June 30, 2000					
		Actual	Pro Forma		As Adjuste	
Long-term debt	\$	0	\$	0	\$	0
<pre>Stockholders' equity: Class A convertible preferred stock, par value \$.01; 5,000,000 shares authorized, 2,000,000 issued and outstanding (actual); no shares issued or outstanding (pro forma and as adjusted) Class B convertible preferred stock, par value \$.01; 5,000,000 shares authorized, 416,675 shares issued and outstanding (actual); no shares issued or outstanding (pro forma and as</pre>		20,000				
<ul> <li>Common stock, par value \$.01; 15,000,000 shares authorized,</li> <li>1,385,759 shares issued and outstanding (actual); 3,437,185 and 5,437,185 shares issued and outstanding (pro forma and</li> </ul>		4,167				
as adjusted) Additional paid-in capital Accumulated deficit		13,857 L2,263,836 L1,703,733)			2	,
Total stockholders' equity	\$	598,127	\$	101,737	\$ 1	L0,101,737
Total capitalization	\$ ====	598,127	\$ ====	101,737	\$ 1 ====	L0,101,737

## SELECTED FINANCIAL DATA

The selected financial data set forth below should be read in conjunction with Management's "Plan of Operation" included elsewhere in this prospectus. The operating data for each of the years in the two-year period ended December 31, 1999 and for the period from inception through December 31, 1999, and the balance sheet data at December 31, 1999, are derived from our financial statements which have been audited by KPMG LLP, independent accountants, and are included in this prospectus. The operating data for the six month periods ended June 30, 1999 and 2000 and for the period from inception through June 30, 2000 and the balance sheet data as at June 30, 2000 are derived from our unaudited financial statements. The unaudited financial statements have been prepared on substantially the same basis as the audited financial statements and, in the opinion of management, include all adjustments, consisting only of normal recurring adjustments, necessary for the fair presentation of the results of operations for these periods. Historical results are not necessarily indicative of results for the entire year.

Operating Data:

	Years Ended D	ecember 31,
	1998	1999
Costs and expenses: Legal, consulting and		
accounting	\$ 574,299	\$ 626,366
Stock option compensation	750 000	
expense (reversal) Compensation and related	759,229	(456,185)
expenses	466,644	200,128
Other operating expenses	324,271	227,817
Total costs and expenses	2,124,443	
Operating loss	(2,124,443)	(598,126)
Interest income	74,463	
Interest expense		(17,925)
Net loss	\$ (2,049,980)	
	=======	
Net loss per share	\$ (2.01) ========	,
Weighted average number of		
shares of common stock out-		
standing	1,021,437	
	Cumulative fro Inception	
	TUCEPLION	JIX MUITLIS

	(August 5, 1988) to			(August 5, 1988) to		
	December 31, 1999	1999		June 30, 2000		
Costs and expenses: Legal, consulting and						
accounting Stock option compensation	\$ 4,517,169	\$ 389,253	\$ 172,926	\$ 4,690,095		
expense (reversal) Compensation and related	2,520,170	(456,185)		2,520,170		
expenses	2,488,170	123,733	104,765	2,592,935		
Other operating expenses	2,191,276	149, 381	127,116	2, 318, 392		
Total costs and expenses	11,716,785	206,182	404,807	12,121,592		
Operating loss	(11,716,785)	(206,182)	(404,807)	(12,121,592)		
Interest income Interest expense	537,696 (132,873)	23,697 (17,925)	13,036	550,732 (132,873)		
Net loss	\$ (11,311,962) ====================================	\$ (200,410)	\$ (391,771)	\$ (11,703,733)		
Net loss per share		\$ (.19) =======	\$ (.32) ======			
Weighted average number of shares of common stock out-						
standing		1,042,283				
		=========	=========			

Cumulative from

Inception

Balance Sheet Data:

	As of	As of
	December 31, 1999	June 30, 2000
Cash and cash equivalents	\$561,078	\$417,549
Total assets	600,821	807,659
Total liabilities	112,748	209,532
Stockholders' equity	488,073	598,127

### PLAN OF OPERATION

### Background

We were founded in 1988 by a team of physicians. Since our inception, we have been a development stage company engaged primarily in developing and testing the Delcath system for the treatment of liver cancer. A substantial portion of our historical expenses have been in support of the development and the clinical trials of our product. To date, we have been dependent upon venture capital financing to fund our activities. Without an FDA pre-marketing approved product, we have generated minimal revenues from product sales. We have been unprofitable to date and have had losses of \$2,049,980 and \$572,581 for the years ended December 31, 1998 and 1999 and \$391,771 for the six months ended June 30, 2000. Cumulative losses from inception through June 30, 2000 were \$11,703,733. We expect to incur additional losses over the next three years and anticipate these losses will increase significantly in this period due to continued requirements for product development, clinical studies, regulatory activities, manufacturing and establishment of a sales and marketing organization. The amount of future net losses and time required to reach profitability are uncertain. Our ability to generate significant revenue and

We incurred non-cash compensation expense in connection with the grants of options to purchase common stock to founders, employees, and directors because those options had a weighted average exercise price below the fair value of the common stock at the dates of the grants. This compensation expense from inception on August 5, 1988, through June 30, 2000 totaled \$2,520,170.

### Liquidity and Capital Resources

We have financed our operations to date primarily through private placements of our common and preferred stock. Through June 30, 2000, we raised \$9,816,686 through the sale of our class A preferred stock, class B preferred stock and common stock. Cash used to fund operations from inception through June 30, 2000 was \$8,981,127. Our cash and cash equivalents totaled \$417,549 at June 30, 2000, a decrease of \$143,529 from December 31, 1999.

Since January 1, 1998, our principal source of cash has been the following financing transactions:

- o In January 1998, we sold 43,704 shares of common stock at a price of \$11.44 per share to Johnson & Johnson Development Corporation, and received proceeds of \$500,000.
- o In April 1998, we issued 10,926 shares of common stock upon exercise of options at a price of \$6.18 per share for proceeds of \$67,500.
- o In September 1998, we sold 4,370 shares of common stock to an individual at a price of \$13.04 per share and received proceeds of \$57,000.
- o In April 1999, we issued 2,913 shares of common stock upon exercise of warrants at a price of \$8.58 per share, and received proceeds of \$24,998.
- o In June 1999, we sold 59,514 shares of common stock at a price of \$13.04 per share and received proceeds of \$776,192.
- o In April 2000, we sold 292,426 shares of common stock at a price of \$1.72 per share, as part of a rights offering to our existing stockholders and option holders, and received proceeds of \$501,825.

Over the next 12 months, we expect to continue to incur expenses related to the research and development of our technology, including:

- o phase III clinical trials using doxorubicin with the Delcath system.
- o pre-clinical and clinical trials for the use of other chemotherapy agents with the Delcath system for the treatment of liver cancer; and

o the development of additional products and components, in particular a filter which will be more affordable than the third-party filter currently used in the Delcath system.

We expect to begin doxorubicin trials during the first quarter of 2001. These trials will take at least 12 months to complete. The collation, analyis and submission of the results of the trials to the FDA will take an additional three months and we estimate that the FDA will respond to our submission within three months;

We expect to incur significant additional operating losses over each of the next several years and expect cumulative losses to increase significantly as we continue to expand our research and development, clinical trials and marketing efforts. During the next 12 months, we expect to purchase approximately \$150,000 in computer, laboratory and testing equipment, primarily for testing of a lower cost filter. We also expect to hire approximately 12 additional employees in the areas of research and development, regulatory and clinical management, marketing and administrative functions at an estimated annual expense of \$600,000. The number and timing of such hiring will vary depending upon the success of the international marketing efforts and progress of the clinical trials.

Immediately prior to the closing of this offering, all of our preferred stock will convert into shares of common stock. As part of this conversion, the preferred stockholders will receive an estimated 870,234 shares of common stock and \$496,390 in cash in payment of accumulated dividends, assuming the offering closes on September 30, 2000.

We believe that existing cash and cash equivalents, together with net proceeds of approximately \$10,000,000 from this offering, will be sufficient to finance our operations for at least twelve months from the date of this prospectus. Our future liquidity and capital requirements, however, will depend on numerous factors, including:

- o the progress of our research and product development programs, including clinical studies;
- o the timing and costs of various United States and foreign regulatory filings;
- o the timing and effectiveness of product commercialization activities, including marketing arrangements overseas;
- o the timing and costs involved in obtaining regulatory approvals, if ever, and complying with regulatory requirements;
- o the timing and costs involved in preparing, filing, prosecuting, defending and enforcing intellectual property rights; and
- o the effect of competing technological and market developments.

If the proceeds of this offering, together with our currently available funds, are not sufficient to satisfy our spending plans, we will be required to revise our capital requirements or to seek additional funding through borrowings and/or additional sales of securities. We cannot assure you that the proceeds of this offering will be sufficient to fund our clinical trials with respect to the use of the Delcath system with doxorubicin to treat liver cancer. We also cannot assure you that additional financing will become available if needed.

## Overview

Delcath has developed a system, the Delcath system, to isolate the liver from the general circulatory system and to administer chemotherapy and other therapeutic agents directly to the liver.

The Delcath system is not currently approved for marketing by the United States Food and Drug Administration, and it cannot be marketed in the United States without FDA pre-marketing approval. With the proceeds of this offering, we plan to conduct Phase III clinical trials designed to secure marketing approval for the system in the United States and possibly in foreign markets.

Delcath was originally formed by a team of physicians on August 5, 1988 as BGH Medical Products, Inc., a Delaware corporation. On August 22, 1988, BGH Medical Products Inc., a Connecticut corporation, was merged into it. On May 7, 1990, the surviving Delaware corporation changed its name to Delcath Systems, Inc.

### Strategy

Our objective is to establish the use of the Delcath system as the standard technique for delivering chemotherapy agents to the liver and to expand the Delcath technology so that it may be used in the treatment of other liver diseases and of cancers in other parts of the body. Our strategy includes the following:

- o Complete clinical trials to obtain FDA pre-marketing approval for use of the Delcath system with doxorubicin to treat primary liver cancer and malignant melanoma that has spread to the liver. Our highest priority is completing the Phase III clinical trials, data preparation, statistical analysis and regulatory documents associated with an application for pre-market approval of commercial sale of the Delcath system in the United States. FDA pre-marketing approval of our application will permit us to market the Delcath system to administer doxorubicin in the treatment of primary liver cancer and melanoma that has spread to the liver.
- o Obtain approval to market the Delcath system in the United States for the treatment of other forms of liver cancer using other chemotherapy agents and treatment of hepatitis using anti-viral drugs. In addition to researching the use of other chemotherapeutic agents with the Delcath system to treat cancer, we plan to research the use of other compounds with the Delcath system to treat other diseases, such as hepatitis. Our timing to begin these studies will depend on our ability to establish strategic alliances with pharmaceutical manufacturers or other strategic partners in conjunction with our research into other therapeutic compounds or raise additional funds for these purposes. FDA pre-marketing approval will be required to market the Delcath system for these uses.
- o Introducing the Delcath system into foreign markets. We will seek to establish strategic relationships with domestic and foreign firms that have recognized presence or experience in foreign markets that we intend to target. Our strategy is to focus on markets that have a high incidence of liver cancer and the means to provide and pay for cancer treatments. According to the World Health Organization, many Asian and European countries, including China, Japan, Hong Kong, the Philippines, France, Germany, Italy and Spain have a higher incidence of liver cancer than the United States. We intend to seek to enter into arrangements with strategic partners who have experience with obtaining regulatory approval or marketing medical devices in those markets.
- o Reduce the cost of the Delcath system's filtration system. The filters we currently use to detoxify blood outside the body comprise a significant portion of the cost of the Delcath system kit. We are researching technologies which may enable filters to be produced at a lower cost.
- o Leverage our core double balloon catheter technology to expand our product offerings to include systems for administering chemotherapy agents in other parts of the body. Early studies have indicated that the same principles employed in liver isolation may be applied to other organs. By
  - 20

modifying the catheter, including the spacing, size and number of the balloons, the Delcath system initially may be adapted for use in treatment of cancers in other areas of the body, including the limbs, kidneys, lungs, and other organs of the abdominal cavity. Future studies may investigate the use of the Delcath system in other organs as well.

We have not yet begun to conduct this research and do not intend to do so until we obtain additional financing or enter strategic relationships.

#### The Cancer Treatment Market

The American Cancer Society projects that about 1,200,000 Americans will be diagnosed with cancer in 2000. According to the American Cancer Society's "Cancer Facts and Figures -- 2000", cancer remains the second leading cause of death in the United States. While researchers continue to develop innovative new treatments for some forms of this disease, surgical resection, chemotherapy, radiation and hormone therapy continue to be the most commonly used treatments.

The financial burden of cancer is great for patients, their families and society. The National Cancer Institute, in the American Cancer Society's "Facts and Figures," estimates the overall costs of cancer to be \$107 billion, including \$37 billion in direct medical costs, \$11 billion for indirect morbidity costs attributable to lost productivity due to illness, and \$59 billion for indirect mortality costs attributable to lost productivity due to death.

### The Liver Cancer Market

Liver cancer is one of the most prevalent and lethal forms of cancer throughout the world. There are two forms of liver cancer: primary and metastatic. Primary liver cancer originates in the liver. Secondary, or metastatic, liver cancer results from the spread of cancer from other places in the body to the liver. In the liver, primary tumors can be removed only when they are located in one of the liver's two lobes, which occurs in less than 20% of the cases of primary liver cancer. A significant number of patients treated for primary and metastatic liver cancer will experience a recurrence of their disease.

Metastatic liver cancer is characterized by microscopic pieces of other forms of cancer that detach from the primary site and travel via the blood stream and lymphatic system into the liver, where they grow into new tumors. This growth often continues even after removal of the primary cancer or cancerous organ. When cancer cells enter the liver and develop into tumors, they tend to grow very quickly. In many cases, the patient dies not from the primary cancer, but from the tumors in the liver; the liver becomes the "life limiting organ." People cannot survive without a liver capable of performing its critical biologic functions: facilitating the conversion of food into energy and filtering toxic agents from the blood. The liver is one of the three most common sites to which cancer may spread. Due to numerous factors, including the absence of viable treatment options, metastatic liver cancer often causes death.

According to a recent report, liver cancer is the third most common form of cancer worldwide. The worldwide incidence of primary liver cancer is estimated to be 1,000,000 new patients each year and there are an estimated 1,250,000 deaths worldwide caused by all forms of liver cancer. According to a 1999 article in the New England Journal of Medicine, researchers reported that annual new diagnoses of liver cancer increased from 1.4 cases per 100,000 persons in the late 1970s to 2.4 cases per 100,000 persons in the 1990s.

Liver cancer is among the most virulent forms of cancer. Approximately 94% of patients diagnosed with primary liver cancer will die within five years and approximately 75% will die within one year from diagnosis.

Primary liver cancer is particularly prevalent in Southern Europe, Asia and developing countries, where the primary risk factors for the disease are present. These risk factors include: hepatitis-B, hepatitis-C, relatively high levels of alcohol consumption, aflatoxin, cigarette smoking and exposure to industrial pollutants.

Our current product is designed to treat primary liver cancer and melanoma which has spread to the liver.

#### Liver Cancer Treatments

The prognosis for primary and secondary liver cancers is poor. Although limited treatment options are currently available for liver cancer, they are typically ineffective, are generally associated with significant side-effects and can even cause death. Traditional treatment options include surgery, chemotherapy, cryosurgery, percutaneous ethanol injection and radiation.

### Surgery

While surgery is considered the "gold standard" treatment option to address liver tumors, more than 80% of liver cancer patients are unresectable, which means they do not qualify for surgical removal. This is most often due to the following:

- o Operative risk: limited liver function or poor patient heath threatens survival as a result of the surgery; or
- o Technical feasibility: the proximity of a cancerous tumor to a critical organ or artery, or the size, location on the liver or number of tumors makes surgery not feasible.

For the few patients who qualify for surgery, there are significant complications related to the procedure and the operative mortality rate is 2%. Recurrence of tumors is common and in that event, surgery typically cannot be repeated.

We believe that delivery of drugs with the Delcath system may enable surgical resection in some of the cases which are currently inoperable by reducing the size and number of tumors sufficiently to make resection feasible. Shrinking a tumor using chemotherapy and then removing the tumor is a procedure known as adjuvant therapy. After resection, chemotherapy can be administered through the Delcath system with the objective of destroying micrometastases in the liver that may remain undetected, thus preventing or delaying any recurrence of tumor growth.

## Chemotherapy

The most prevalent form of liver cancer treatment is intravenous chemotherapy. The effectiveness of this treatment, however, is limited by its side-effects. Generally, the higher the dosage of chemotherapy administered, the greater its ability to kill cancer cells. However, due to the toxic nature of chemotherapy agents, the higher the dosage administered, the greater damage chemotherapy agents cause to healthy tissues. As a result, the dosage of chemotherapy required to kill cancer cells can be lethal to patients.

The side-effects caused by doxorubicin, the drug we are seeking to have approved for use in the Delcath system, is representative of the side-effects associated with many chemotherapy agents. Doxorubicin causes irreversible heart tissue damage. Depending on dosage levels, the damage caused by doxorubicin can be serious and lead to congestive heart failure. Doxorubicin can also cause severe mucositis leading to ulceration of the mouth and digestive organs, damage to a patient's immune system through destruction of bone marrow cells, as well as acute nausea, severe vomiting, dermatological problems and hair loss. The use of doxorubicin can be fatal even when it is administered with careful patient monitoring.

The limited effectiveness of intravenous chemotherapy treatment and its debilitating, often life-threatening side-effects makes the decision to undergo chemotherapy treatment difficult. In some instances, in an attempt to shrink tumors, a physician may prescribe a radically high-dose of chemotherapy, despite its side-effects. In other cases, recognizing the inevitable result of liver cancer, the physician and patient choose only to manage the patient's discomfort from cancer with pain killers while foregoing treatment.

To address this trade-off between the efficacy of intravenous chemotherapy treatment and its dire side-effects, physicians have experimented with techniques to isolate the liver from the general circulatory system and to achieve a targeted delivery of chemotherapy agents to the liver. In the 1980s, a physician developed a procedure in which he surgically diverted the blood flow from the liver while infusing high dosages of chemotherapy agents into the liver. A filtration circuit reduced drug concentrations before returning the diverted blood to the patient. The treatment, however, was not embraced by the medical community because it

is highly invasive, resulting in prolonged recovery times, long hospital stays and excessive costs. Other physicians have experimented with the delivery of chemotherapy agents to the liver by catheter, attempting to use one or more catheters to remove chemotherapy agents before they enter the general circulatory system. We are unaware of any system, however, which contains the patented attributes of the Delcath design.

## Cryosurgery

Cryosurgery is the destruction of cancer cells using sub-zero temperatures in an open surgical procedure. During cryosurgery, multiple stainless steel probes are placed into the center of the tumor and liquid nitrogen is circulated through the end of the device, creating an iceball. Cryosurgery involves a cycle of treatments in which the tumor is frozen, allowed to thaw and then refrozen.

While cryosurgery is considered to be relatively effective, we believe adoption of this procedure has been limited because:

- o It is not an option for patients who cannot tolerate an open surgical procedure;
- It involves significant complications which are similar to other open surgical procedures, as well as liver fracture and hemorrhaging caused by the cycle of freezing and thawing;
- o It is associated with mortality rates estimated to be between one and five percent; and
- o It is expensive compared to other alternatives.

### Percutaneous Ethanol Injection

Percutaneous ethanol injection, or PEI, involves the injection of alcohol into the center of the tumor. The alcohol causes cells to dry out and cellular proteins to disintegrate, ultimately leading to tumor cell death.

While PEI can be successful in treating some patients with primary liver cancer, it is generally considered ineffective on large tumors as well as metastatic tumors. Patients are required to receive multiple treatments, making this option unattractive for many patients. Complications include pain and alcohol introduction to bile ducts and major blood vessels. In addition, this procedure can cause cancer cells to be deposited along the needle tract when the needle is withdrawn.

### Radiation Therapy

Radiation therapy uses high dose x-rays to kill cancer cells. Radiation therapy is not considered an effective means of treating liver cancer and is rarely used for this purpose. Radiation is often used as an adjunct to other cancer treatments.

## Implanted Infusion Pumps

Implanted Infusion Pumps can be used to better target the delivery of chemotherapy agents to the tumor. Arrow International markets an implantable pump typically used to treat colorectal cancer which has metastasized to the liver. This pump, however, lacks a means of preventing the entry of chemotherapy agents into the patient's general circulation after it passes through the liver. This technique does not enable physicians to prescribe higher doses of chemotherapy.

#### Other Methods of Treatment

Still other liver cancer treatments include: liver transplants, embolization, tumor ablation through the use of radio frequency waves and the use of biological response modulators, monoclonal antibodies and liposomes. The effectiveness of these treatments is limited, many have dose limiting side effects, and none is widely used.

#### The Delcath System

The Delcath system is designed to address the critical shortcomings of conventional intravenous chemotherapy delivery. The Delcath system isolates the liver from the general circulatory system during liver cancer treatments with chemotherapy and then returns the blood exiting the liver to the general circulatory system only after the chemotherapy agent has been substantially removed by filtration outside the body. We believe that such protection from the side-effects of chemotherapy, that is provided by the Delcath system to other parts of the body, allows for higher chemotherapy doses to be administered to the liver than can be administered by conventional intravenous delivery. By filtering out a substantial portion of the chemotherapy agent before the blood is returned to the blood stream, other organs of the body are protected from the harmful side-effects of chemotherapy, and in particular from the cumulative harmful effect that doxorubicin has on the heart muscle.

The Delcath system kit includes the following disposable components:

- o Infusion catheter -- a thin-walled arterial infusion catheter used to deliver chemotherapy to the liver;
- o Double balloon catheter -- a multi-passageway catheter used to isolate and divert the drug-laden blood exiting the liver;
- o Extracorporeal filtration circuit -- a blood tubing circuit incorporating the disposable components used with a blood pump to push the isolated blood through the system's filters and guide the cleansed blood back to the patient;
- o Filters -- activated carbon blood filters used to remove most of the chemotherapy agent from the isolated blood after it has flowed through the liver and before it returns to the patient's general circulation; and
- o Return catheter -- a thin-walled blood sheath used to deliver the filtered blood from the extracorporeal filtration circuit back into one of the major veins returning blood to the right atrium of the heart.

The double balloon catheter has one large passageway and three smaller passageways. Each of two low-pressure balloons is inflated through one of the three smaller passageways. Blood flows out of the liver through the large passageway to the filtration system. A separate access port attaches to the large passageway and is designed for sampling fluid or flushing the system. The third smaller passageway allows blood exiting the legs and kidneys to bypass the liver and return to the heart.

The Delcath procedure involves a series of three catheter insertions, each of which is made through the skin. During test procedures, patients are treated with intravenous sedation and local anesthesia at catheter insertion sites. In some cases general anesthesia has been used. An infusion catheter is inserted into the artery through which blood normally flows to the liver. A second catheter -- the Delcath double balloon catheter -- is inserted through the inferior vena cava. The balloons on the double balloon catheter are then inflated. This procedure prevents the normal flow of blood from the liver to the heart through the inferior vena cava because the inferior vena cava has been blocked. A chemotherapy agent is then infused into the liver through the infusion catheter. The infused blood is prevented from flowing to the heart, but exits the liver through perforations on the double balloon catheter and flows through this catheter out of the body where the infused blood is pumped through activated charcoal filters to remove most of the chemotherapy agent. The filtered blood is returned to the patient through the jugular vein which leads to the superior vena cava and the heart, thus restoring the cleansed blood to normal circulation. Infusion is administered over a period of 30 minutes. Filtration occurs during infusion and for 30 minutes afterward. The catheters are removed and manual pressure is maintained on the catheter puncture sites for approximately 15 minutes. The entire procedure takes approximately two to three hours to administer.

During Phase I and II clinical trials, patients remained in the hospital overnight for observation after undergoing treatment with the Delcath system. Once physicians become familiar with using the Delcath system, we expect the procedure to be performed on an outpatient basis, with the patient resuming normal activities the day after the procedure is performed. We expect a patient to undergo an average of four treatments, one every three weeks. A new Delcath system kit is used for each treatment.

Integral to our research and development efforts is our program of clinical research with prominent researchers and physicians conducted at Yale University, M.D. Anderson Cancer Center, and the Robert Wood Johnson Medical School/Cancer Institute of New Jersey.

#### Our Phase III Clinical Trials

Phase III human clinical trials are a prerequisite for FDA pre-marketing approval of Delcath's pre-marketing application. During these trials, administration of doxorubicin through the Delcath system must be proven to be safe and effective for the treatment of liver cancer. The FDA requires us to demonstrate that delivering doxorubicin using the Delcath system results in patient survival times that are longer than those obtained from administering chemotherapy agents intravenously.

We have conducted Phase I and II human clinical trials at three United States medical centers under investigational device and investigational new drug exemptions granted by the FDA. The trials were designed to demonstrate the system's "functionality," or its ability to administer to and extract from the liver approved and marketed chemotherapy agents. Forty-four patients participated in the trials. Twenty-one of these test subjects had primary liver cancer or melanoma which had spread to the liver and were treated with doxorubicin. The remaining 23 test subjects suffered from other forms of liver cancer, and/or were treated with another chemotherapy agent, 5-FU. These trials demonstrated that the Delcath system was capable of extracting approximately 70% to 85% of the chemotherapy agent administered to the liver. Therefore, the Delcath system permits the delivery of higher dosages of chemotherapy agents to the cancer site.

We believe the results of the clinical trials we have conducted indicate that the Delcath system delivered:

o more chemotherapy agent to the tumor site; and

o less chemotherapy agent to the general circulation than delivered by administration of the same dose by intravenous means.

In addition, clinicians involved in the Phase I and Phase II clinical trials observed:

o reduction in tumor size; and

o the safety of the system at higher dosage levels of chemotherapy than those used in conventional intravenous chemotherapy delivery.

Further, though not demonstrated in a statistically significant manner because of the limited number of patients, clinicians observed survival times of patients treated with the Delcath system which exceeded those that would generally be expected in patients receiving chemotherapy treatment through conventional intravenous means of delivery.

The following table illustrates the survival periods of patients treated with the Delcath system since their diagnosis:

Expected Survival Less than 9 months

#### Percentage

Survival Time Since Diagnosis (Months)

Based on the results of our Phase I and Phase II clinical trials, we submitted to the FDA our application for pre-market approval of the Delcath system as a medical device. In response to our application, the FDA classified the Delcath system as a drug delivery system and requires us to obtain approval of a new drug application, or a supplemental new drug application, for the chemotherapy agent being administered by the Delcath system. These applications must demonstrate the efficacy of a particular drug when administered through the Delcath system. To do so, we must demonstrate, in a statistically meaningful manner, that administering chemotherapy agents with the Delcath system results in survival times of patients that are longer than those obtained from administering chemotherapy agents.

With a substantial portion of the proceeds from this offering, we intend to conduct Phase III human clinical trials designed to demonstrate that administering doxorubicin with the Delcath system to treat primary liver cancer and malignant melanoma that has spread to the liver results in patient survival times that are longer than those obtained from administering chemotherapy agents intravenously.

In December 1999, the FDA approved the protocols for conducting the Phase III clinical trials.

We expect the Phase III clinical trials to be conducted in at least 10 medical centers and to involve approximately 274 test subjects, of which 124 will be treated for primary liver cancer and 150 will be treated for malignant melanoma that has spread to the liver. Half of these test subjects will be treated with doxorubicin administered using the Delcath system and half, the control group, will be treated with chemotherapy agents delivered intravenously. We have identified and approached a number of medical centers that have expressed an interest in conducting the clinical trials. We expect that within 90 days after the closing of this offering we will begin to enter agreements with medical centers to conduct the clinical trials. As a result, we expect clinical trials to begin during the fourth quarter of this year. However, our timetable is subject to uncertainty and we cannot assure you that we can meet our planned schedule. We cannot assure you that all of the medical centers we have identified will be available to conduct the clinical trials when we are in a position to have them commence or that we will be ready to commence the trials within any particular time period.

We intend to hire a contract research firm to conduct these trials. However, we have not begun negotiations with a contract research organization and we cannot assure you that we will be able to engage an organization on acceptable terms and conditions in a timely manner or at all.

We believe that we will acquire sufficient data to obtain FDA pre-marketing approval of the Delcath system within 12 months of the commencement of the clinical trials. After acquiring sufficient data, we believe that our collation, analysis and submission of the trial results to the FDA will take an additional three months. Given the short life expectancy of liver cancer patients, we believe that the FDA will review our pre-market application expeditiously and will respond to our submission within three months. The trials may take longer to complete, however, because of difficulties we may encounter in entering into agreements with clinical testing sites to conduct the trials and the difficulties these sites may encounter in enrolling patients. The FDA may take longer than three months from the date we submit our trial results before granting marketing approval, or may not grant approval at all.

### Research for Hepatitis Treatment

Another disease which attacks the liver is viral hepatitis. The incidence of viral hepatitis in the United States and worldwide is increasing. The long-range effects of some forms of hepatitis can include massive death of liver cells, chronic active hepatitis, cirrhosis and hepatoma. The current treatment for viral hepatitis is limited and includes long-term injections of interferon alpha, which is similar to chemotherapy in its toxicity and dosage limitations. We plan to seek a strategic partner to conduct clinical trials to determine the feasibility of using the Delcath system to administer anti-viral drugs, including interferon alpha, in the treatment of viral hepatitis. We have not entered into any arrangements, understandings or agreements with potential strategic partners.

## Sales and Marketing

We intend to focus our marketing efforts on the 34 comprehensive cancer centers in the United States recognized by the National Cancer Institute, beginning with the hospitals participating in the Phase III clinical trials. We will focus these efforts on two distinct groups of medical specialists in these comprehensive cancer centers:

- o oncologists who have primary responsibility for the patient; and
- o interventional radiologists who are members of the hospital staff and work with catheter-based systems.

Upon diagnosis of cancer, a patient is usually referred to a medical oncologist. This physician generally provides palliative treatments and refers the patient to a surgical oncologist if surgery appears to be an option. Both medical and surgical oncologists will be included in our target market. Generally, oncologists do not position catheters, instead enlisting the assistance of an interventional radiologist.

We plan to hire a marketing director at such time as we receive an indication from the FDA that approval of the Delcath system is forthcoming and then hire a sales manager and three sales representatives to market the system in the United States. Since we plan to sell the Delcath system to a large number of hospitals and physician practices, we do not expect to be dependent upon one or a few customers only.

In addition, we plan to utilize distributors and/or one or more corporate marketing partners to market products outside the United States. We believe distribution or corporate partnering arrangements will be cost effective, will be implemented more quickly than a direct sales force established by us in such countries and will enable us to capitalize on local marketing expertise in the countries we target.

#### Nissho Agreement

In December 1996, we entered into an agreement with Nissho Corporation, a large manufacturer and distributor of medical devices and pharmaceuticals based in Osaka, Japan which grants to Nissho the exclusive right to distribute the Delcath system in Japan, China, Korea, Hong Kong and Taiwan until December 31, 2004. Nissho, which has previously invested \$1,000,000 in Delcath, has advised us that it expects to commence the clinical trials in Japan by the end of 2000. Nissho may also seek to conduct clinical trials in the other countries in the territory.

Products covered by the agreement include the Delcath system for the treatment of cancer in the liver and the lower extremities, as well as new products which may be added by mutual agreement. Nissho is required to purchase products from Delcath in connection with clinical trials and for resale in its market at prices to be determined by mutual agreement. Nissho has agreed, in its territory, not to engage in the business of manufacturing, distributing or selling systems similar to the Delcath system for the liver or other organs or body regions.

## Third-Party Reimbursement

Currently, because the Delcath system is characterized by the FDA as an experimental device, its use is not reimbursable in the United States. We will not seek to have third-party payors, such as Medicare, Medicaid and private health insurance plans, reimburse the use of the Delcath system until after its use is approved by the FDA. Even if approved by the FDA, these payors may require us, as a condition to reimbursement, to provide extensive supporting scientific, clinical and cost effectiveness data for our Delcath system to the American Medical Association. New products are under increased scrutiny with respect to a determination as to whether or not they will be covered by the various healthcare plans and with respect to the level of reimbursement which will be applicable to respective covered products and procedures. Third-party payors may deny reimbursement for the treatment and medical costs associated with the Delcath system, notwithstanding FDA or other regulatory approval, if it is determined that the Delcath system is unnecessary, inappropriate, not cost effective, experimental or for a non-approved indication. Third-party payors currently provide reimbursement for many of the components of the Delcath system is unecess of the Delcath system is use the delcath system based on established general reimbursement codes, in connection with their use in liver perfusion and other therapies.

We believe that the Delcath system will provide significant cost savings to the extent that it can reduce treatment and hospitalization costs associated with the side-effects of chemotherapy. Our planned wholesale price for the Delcath system kit is \$4,000. A patient normally undergoes four treatments with the Delcath system, each requiring a new system kit. Each treatment with the system costs approximately \$12,000, resulting in a total treatment cost of approximately \$48,000. This compares to a total cost of conventional aggressive chemotherapy treatment of approximately \$160,000 to \$180,000, which includes the hospitalization and treatment costs associated with the side-effects of the systemic delivery of chemotherapy agents.

#### Manufacturing

We plan to utilize contract manufacturers to produce the components of the Delcath system. In order to maintain quality control, we plan to perform final assembly and packaging in our own facility. If we undertake these operations our facility will be required to comply with the FDA's good manufacturing practice regulations. If we sell the Delcath system in some foreign markets, our facility will also need ISO 9000 approval from the European Union.

The double balloon catheter will be manufactured domestically by the Burron OEM division of B. Braun Medical, Inc. of Germany. The double balloon catheter must be manufactured in accordance with manufacturing and performance specifications that are on file with the FDA. Burron has demonstrated that the components it manufactures meet these specifications. Burron's manufacturing facility is ISO 9000 approved, which will allow the use of the catheter in European markets. B. Braun has experience in obtaining regulatory approval for medical products in European markets and has indicated informally, that it will assist us in this process. We have not entered into a written agreement with Burron to manufacture the catheter either for the Phase III clinical trials or for commercial sale. To ensure sufficient supply of catheters to complete the clinical trials, we intend to purchase our total trial requirements before commencement of the trials.

Medtronic USA, Inc. manufactures the components of the blood filtration circuit located outside of the body, including the medical tubing through which a patient's blood flows and various connectors, as well as the blood filtration pump head. Medtronic is a manufacturer of components used for extracorporeal blood circulation during cardiac surgery. The components manufactured by Medtronic have been cleared by the FDA for other applications and can, therefore, be sourced off the shelf. These components, however, must comply with manufacturing and performance specifications for the Delcath system that are on file with the FDA. Medtronic has demonstrated that the components it manufactures meet these specifications. Medtronic's manufacturing facility is also ISO 9000 approved and, thus, the components it manufactures may be used in European markets.

The activated charcoal filters used in the Delcath system are manufactured by Asahi Medical Products of Japan. These filters have been cleared by the FDA for other applications and can be sourced off the shelf. Asahi has demonstrated that the filters it supplies fall within the performance parameters and meet the specifications on file with the FDA. We have not entered into a written agreement with Asahi to supply the filters either for the Phase III clinical trials or for commercial sale.

### Competition

Competition in the cancer treatment industry, and specifically the markets for systems and devices to improve the outcome of chemotherapy treatment for cancer, is intense. We believe that the primary competitive factors for products addressing cancer include safety, efficacy, ease of use, reliability and price. We also believe that physician relationships, especially relationships with leaders in the interventional radiology and oncology communities, are important competitive factors.

Delcath competes with all forms of liver cancer treatments which are alternatives to resection including radiation, implanted infusion pumps, liver transplants, embolization, cryosurgery, radiowave ablation and the use of biological response modulators, monoclonal antibodies and liposomes.

Many large pharmaceutical companies and research institutions are developing systems and devices to improve the outcome of chemotherapy treatment for cancer. Arrow International currently markets an implantable infusion pump, which has been successful in facilitating regional drug delivery. However, Arrow's pump lacks a means of preventing the entry of these agents into the patient's general circulation after they pass through the liver. Other companies, including Merck & Co., Inc., are developing various chemotherapy agents with reduced toxicity, while other companies are developing products to reduce the toxicity and side-effects of chemotherapy treatment. In addition, gene therapy, vaccines and other minimally invasive procedures are currently being developed as alternatives to chemotherapy.

# United States Food and Drug Administration

General. The manufacture and sale of medical devices and drugs are subject to extensive governmental regulation in the United States and in other countries. The Delcath system is regulated in the United States as a drug delivery system by the FDA under the Federal Food, Drug, and Cosmetic Act. As such, it requires approval by the FDA of a pre-marketing application and a new drug application prior to commercial distribution.

Doxorubicin, the drug that we are initially seeking to have approved for delivery by the Delcath system, is a widely used chemotherapy agent which has been approved by the FDA since 1974. Like all approved drugs, the approved labeling includes indications for use, method of action, dosing, side-effects and contraindications. Because the Delcath system delivers doxorubicin through a mode of administration and at dose levels which differ from those currently approved, we must obtain approval for revised labeling of a doxorubicin product permitting for its use with the Delcath system. This will require the filing of a supplemental or an original new drug application for the administration of doxorubicin through the Delcath system.

Under the Federal, Food, Drug, and Cosmetic Act, the FDA regulates the pre-clinical and clinical testing, design, manufacture, labeling, distribution, sales, marketing, post-marketing reporting, advertising and promotion of medical devices and drugs in the United States. Noncompliance with applicable requirements could result in different sanctions such as:

- o the refusal of the government to grant approvals;
- o suspension or withdrawal of clearances or approvals;
- o total or partial suspension of production, distribution, sales and marketing;
- o fines;
- o injunctions;
- o civil penalties;
- o recall or seizure of products; and
- o criminal prosecution of a company and its officers and employees.

Our contract manufacturers also are subject to numerous federal, state and local laws relating to such matters as safe working conditions, manufacturing practices, environmental protection, fire hazard control and disposal of hazardous or potentially hazardous substances.

Medical Devices. The Delcath system is a Class III medical device. It is subject to the most stringent controls applied by the FDA to reasonably assure safety and effectiveness. An application for pre-market approval must be supported by data, typically including the results of animal and laboratory testing and human clinical trials. The conducting of Phase III trials is subject to regulations and to continuing oversight by Institutional Review Boards and the FDA. These regulations include required reporting of adverse effects from use of the device during the trials. Before commencing clinical trials, we obtained an investigational device exemption providing for the initiation of clinical trials. We also obtained approval of our investigational plan, including the proposed protocols and informed consent statement that patients signed before undergoing treatment with the Delcath system, by the institutional review boards at the sites where the trials were conducted. Under the Federal Food, Drug, and Cosmetic Act, clinical studies for "significant risk" Class III devices require obtaining such approval by institutional review boards and the filing with the FDA of an investigational device exemption at least 30 days before initiation of the studies.

Given the short life expectancy of liver cancer patients, we believe the FDA will review our pre-market application expeditiously and respond to our submission of the Delcath system for commercial sale within three months. However, approval of the Delcath system may take longer if the FDA requests substantial additional information or clarification, or if any major amendments to the application are filed. In addition, the FDA may refer this matter to an advisory committee of experts to obtain views about the Delcath system. This process is referred to as "panel review", and could delay the approval of the Delcath system. The FDA will usually inspect the applicant's manufacturing facility to ensure compliance with quality systems regulations prior to approval of an application. The FDA also may conduct bioresearch monitoring inspections of the studies were conducted in compliance with the applicable FDA regulations, including good clinical practice regulations.

If the FDA's evaluations of the application, clinical study sites and manufacturing facilities are favorable, the FDA will issue either an approval letter, or an "approvable letter" containing a number of conditions that must be met in order to secure approval of an application. If and when those conditions have been fulfilled to the satisfaction of the FDA, the agency will issue an order approving the application, authorizing commercial marketing of the device under specified conditions of use. If the FDA's evaluation of the application, the clinical study sites or the manufacturing facilities are not favorable, the FDA will deny approval of the application or issue a "not approvable letter." The FDA may also determine that additional pre-clinical testing or human clinical trials are necessary.

The FDA's regulations require agency approval of an application supplement for changes to a device if they affect the safety and effectiveness of the device, including new indications for use; labeling changes; the use of a different facility or establishment to manufacture, process, or package the device; changes in vendors supplying components for the device; changes in manufacturing methods or quality control systems; and changes in performance or design specifications. Changes in manufacturing procedures or processes may be implemented and the device distributed 30 days after the FDA is provided with notice of these changes unless the FDA advises the pre-market approval application holder within 30 days of receipt of the notice that the notice is inadequate or that preapproval of an application supplement is required.

Approved medical devices remain subject to extensive regulation. Advertising and promotional activities are subject to regulation by the FDA and, in some instances, by the Federal Trade Commission. Other applicable requirements include the FDA's medical device reporting regulations, which require that we provide information to the FDA on deaths or serious injuries alleged to have been associated with the use of marketed devices, as well as product malfunctions that would likely cause or contribute to a death or serious injury if the malfunction were to recur. If safety or efficacy problems occur after the product reaches the market, the FDA may take steps to prevent or limit further marketing of the product. Additionally, the FDA actively enforces regulations or uses that have not been cleared or approved by the FDA. Further, the Food, Drug, and Cosmetic Act authorizes the FDA to impose post-market surveillance requirements with respect to a Class III device which is reasonably likely to have a serious adverse health consequence or which is intended to be implanted in the human body for more than one year or to be a life sustaining or life supporting device used outside a device user facility.

The Food, Drug, and Cosmetic Act regulates a device manufacturer's quality control and manufacturing procedures by requiring the manufacturer to demonstrate and maintain compliance with quality systems including good manufacturing practice requirements as specified in the FDA quality systems regulations. These regulations require, among other things, that:

- o there are in place design controls, including initial design and design changes;
- o the manufacturing process be regulated, controlled, and documented by the use of written procedures; and
- o the ability to produce devices which meet the manufacturer's specifications be validated by extensive and detailed testing of every aspect of the process. The FDA monitors compliance with quality systems regulations, including good manufacturing practice requirements, by conducting periodic inspections of manufacturing facilities. If violations of the applicable regulations are found during FDA inspections, the FDA will notify the manufacturer of such violations and the FDA, administratively or through court enforcement action, can prohibit further manufacturing, distribution, sales and marketing of the device until the violations are cured. If violations are not cured within a reasonable length of time after the FDA provides notification of such violations, the FDA is authorized to withdraw approval of the pre-market approval application.

Investigational devices that require FDA pre-marketing approval in the United States but have not received such approval, may be exported to countries belonging to the European Union, European Economic Area, and to some other specified countries, provided that the device is intended for investigational use in accordance with the laws of the importing country; has been manufactured in accordance with the FDA's good manufacturing practices or ISO standards; is labeled on the outside of the shipping carton "for export only," is not sold or offered for sale in the United States; and complies with the specifications of the foreign purchaser. The export of an investigational device for investigational use to any other country requires prior authorization from the FDA. An investigational device may be exported for commercial use only as described below, under "Foreign Regulation." Drugs. We, or a manufacturer of a chemotherapy agent, must obtain FDA pre-marketing approval of a supplemental or original new drug application for a chemotherapy product providing for its use with the Delcath system before the system may be marketed in the United States to deliver that agent to the liver or any other site. We have budgeted the coverage of the filing costs associated with obtaining such approval which, after it has been obtained, would not have a negative effect on the manufacturers of doxorubicin. Rather, they will have the opportunity to expand the use of the drug as a result of changing their label to include the Delcath labeling.

Clinical trials to support the relabeling of doxorubicin to provide for its use with the Delcath system must be conducted in accordance with the FDA's investigational new drug regulations. Phase III clinical trial protocols have been approved by the FDA under the Company's investigational new drug application. FDA regulations also require that prior to initiating the trials the sponsor of the trials obtain investigational review board approval from each investigational site that will conduct the trials. We have identified ten medical centers that have expressed an interest in conducting the trials. The investigational review boards at two of these medical centers have given their approval to have the clinical trials conducted at their institutions. We are seeking the approval of investigational review boards at additional medical centers by assembling and providing them with information with respect to the trials.

The FDA requires that, in order to obtain approval to relabel doxorubicin for delivery using the Delcath system, we demonstrate that delivering doxorubicin using the system results in patient survival times that are longer than those obtained from administering chemotherapy agents intravenously.

The approved Phase III trial protocols are designed to obtain approval of both a new drug application, or a supplemental new drug application, and a pre-marketing approval application providing for the use of doxorubicin with the Delcath system. The trial protocols were approved by both the FDA division that approves new drugs and the division that reviews applications to market new devices. All of the data generated in the trials will be submitted to both of these FDA divisions.

If we successfully complete the clinical trials, we believe the manufacturer of doxorubicin will submit to the FDA a new drug application or supplemental new drug application and pre-market approval to deliver doxorubicin to the liver through the Delcath system. Under the Food, Drug, and Cosmetic Act, the Delcath system cannot be marketed until the new drug application, or supplemental new drug application, and the pre-marketing approval application approvals are obtained, and then only in conformity with conditions of use set forth in the approved labeling.

Foreign Regulation. In order for us to market our products in Asia, Europe, Latin America and other foreign jurisdictions, we must obtain required regulatory approvals or clearances and otherwise comply with extensive regulations regarding safety and manufacturing processes and quality. These regulations, including the requirements for approvals or clearances to market, may differ from the FDA regulatory scheme. In addition, there may be foreign regulatory barriers other than pre-market approval or clearance.

In April 1996, FDA legislation was enacted that permits that a medical device which requires FDA pre-marketing approval but which has not received such approval to be exported to any country for commercial use, provided that the device:

o complies with the laws of that country;

- o has valid marketing authorization or the equivalent from the appropriate authority in any of a list of industrialized countries including Australia, Canada, Israel, Japan, New Zealand, Switzerland, South Africa and countries in the European Economic Union; and
- o meets other regulatory requirements regarding labeling, compliance with the FDA's good manufacturing practices or ISO manufacturing standards and notification to the FDA.

We must obtain a CE mark in order for us to market and sell the Delcath system in the European Union, except for limited use as a clinical trial device. Supplemental device approvals also might be required to market and sell the Delcath system.

## Patents, Trade Secrets and Proprietary Rights

Our success depends in large part on our ability to obtain patents, maintain trade secret protection and operate without infringing on the proprietary rights of third parties. Because of the length of time and expense associated with bringing new products through development and regulatory approval to the marketplace, the health care industry has traditionally placed considerable importance on obtaining patent and trade secret protection for significant new technologies, products and processes. We hold the following six United States patents, as well as three corresponding foreign patents in Canada, Europe and Japan:

Summary Description of Patents	Patent No.
Isolated perfusion method for cancer treatment	U.S. #5,069,662
Isolated perfusion device catheter for use in isolated perfusion in cancer treatment	U.S. #5,411,479
Device and method for isolated pelvic perfusion	U.S. #5,817,046
Catheter design to allow blood flow from renal veins and limbs to bypass occluded segment of IVC	U.S. #5,893,841
Balloon inside catheter to restrict blood flow or prevent catheter from moving	U.S. #5,897,533
Catheter with slideable balloon to adjust isolated segment	U.S. #5,919,163

We plan to vigorously enforce our intellectual property rights. In addition, we will conduct searches and other activity relating to the protection of existing patents and filing of new applications.

Litigation may be necessary to enforce any patents issued or assigned to us or to determine the scope and validity of third party proprietary rights. Litigation would be costly and divert our attention from our business. If others file patent applications with respect to inventions for which we already have issued patents or have patent applications pending, we may be forced to participate in interference proceedings declared by the United States Patent and Trademark Office to determine priority of invention, which would also be costly and divert our attention from our business.

In addition to patent protection, we rely on unpatented trade secrets and proprietary technological expertise. We rely, in part, on confidentiality agreements with our marketing partners, employees, advisors, vendors and consultants to protect our trade secrets and proprietary technological expertise.

## Legal Proceedings

We are not involved in any legal proceedings and we are not aware of any such proceedings being contemplated.

#### Employees

As of April 30, 2000, we had five employees, four of whom are full-time. We intend to recruit additional personnel in connection with the research, development, manufacturing and marketing of our products. None of our employees is represented by a union, and we believe relationships with our employees are good. Our success will depend, in large part, upon our ability to attract and retain qualified employees. We face competition in this regard from other companies, research institutions and other organizations.

In addition to our full time employees, we engage the services of medical and scientific consultants.

#### Facilities

We occupy approximately 3,300 square feet of office space in Stamford, Connecticut, pursuant to an informal arrangement with the landlord. According to this agreement we prepaid our rent, which is approximately \$7,500 a month, through December 2000. We have occupied these facilities since 1992. We believe that we will require additional space in 2001, and are beginning site selection for rental property in the same building or nearby and believe that satisfactory space is available at commercially reasonable rates.

#### MANAGEMENT

### Executive Officers, Directors and Key Employees

Our executive officers and directors and their respective ages are as follows:

Name	Age	Positions
Samuel Herschkowitz, M.D	50	Chairman of the Board and Chief Technical Officer
M. S. Koly	64	Chief Executive Officer, President, Treasurer and Director
Joseph P. Milana, CPA	37	Chief Financial Officer
Jonathan A. Foltz, CFA	38	Director of Operations
William I. Bergman	68	Director
Frank G. Mancuso, Jr	41	Director
James V. Sorrentino, Ph.D	63	Director

Samuel Herschkowitz, M.D. has been Chairman of the Board of Delcath since 1998 and Delcath's Chief Technical Officer since 1991. In 1987, he co-founded Venkol Ventures L.P. and Venkol Ventures, Ltd., two affiliated venture capital funds specializing in medical technology investments, which are no longer active. Dr. Herschkowitz is board certified in psychiatry and neurology. He is an assistant professor at New York University Medical Center, and has held academic positions at Beth Israel Hospital, Mount Sinai Medical School and Downstate Medical Center. Dr. Herschkowitz graduated from Syracuse University and received his medical degree from Downstate Medical Center College of Medicine.

M. S. Koly has been Chief Executive Officer and Treasurer of Delcath since 1998 and has served as a Director since 1988. From 1987 until June 1998, Mr. Koly managed Venkol Ventures, L.P. and Venkol Ventures, Ltd., firms he co-founded with Dr. Herschkowitz. From 1983 to 1987, Mr. Koly was president of Madison Consulting Corporation, a firm he founded. From 1978 to 1983, Mr. Koly was president of Becton-Dickinson Respiratory Systems. Prior to that time, he held various senior management positions at Abbott Laboratories, Stuart Pharmaceuticals and National Patent Development Corp. He received a B.A. from American University and an M.B.A. in marketing and finance from Northwestern University.

Joseph P. Milana, CPA, has been the Controller of Delcath since 1995. From 1984 to 1995, Mr. Milana was with KPMG LLP, most recently as a senior tax manager. He received a B.B.A. in accounting and an M.S. in taxation from Pace University, and received a CPA designation from the state of New York. Mr. Milana currently devotes one day a week to Delcath matters and will become a full-time employee once Delcath becomes a public company.

Jonathan A. Foltz, CFA, has been our Director Of Operations since 1992. Mr. Foltz was senior associate of Venkol Ventures from 1989 to 1992. During 1988 to 1989, he provided investment and acquisition research, consulting to corporations and brokerage firms including First Montauk Securities, Inc., Gilford Securities Inc., Texas American Energy Corporation and Computer Memories Inc. He was the research director of Nicholas, Lawrence and Co., a regional stock brokerage firm, reorganizing and managing their equity research department. Mr. Foltz earned a B.S. in finance and computer science from Lehigh University, an M.B.A. from the University of Connecticut and is a chartered financial analyst.

William I. Bergman has been a director of Delcath since 1996. A retired executive, Mr. Bergman was with Richardson-Vicks from 1956 through 1990 most recently as Vice President-controller of North American Operations, vice president-marketing of colds care business and Canadian operations, president and general manager of Vicks health care division, assistant general manager of Vicks International, and executive vice president of Richardson-Vicks Inc. Following the acquisition of Vicks by The Procter & Gamble Company in 1986, he became the president of Richardson-Vicks, U.S.A. and vice president of The Procter & Gamble Company prior to retirement in 1990. He is also a director of ZymeTx, Inc. a biotech company involved in the development of viral diagnostics. His education includes a B.S. from Drexel University and the advanced management program at Harvard University.

Frank G. Mancuso, Jr., has been a director of Delcath since 1998. Mr. Mancuso has been President of FGM Entertainment since 1985. In the past five years, he has produced numerous movies and television series within his own companies and for Paramount Pictures and MGM/United Artists. He has a B.A. from Upsala College.

James V. Sorrentino, Ph.D., has been a director of Delcath since 1996. Since 1992, Dr. Sorrentino has been President of Healthcare Products Development, Inc., a clinical research organization that designs, organizes and manages clinical trials for the pharmaceutical and biological industry. From 1974 to 1992, he held several research positions with Richardson-Vicks Inc., including director of over-the-counter products, Vice President & director of research and development. After Richardson-Vicks Inc. was acquired by The Procter & Gamble Company, he served as director of worldwide clinical development, non-prescription drug products of The Procter & Gamble Company. He received an A.B. in Biology, an M.S. in bacteriology, and a Ph.D. in virology/immunology from the Catholic University of America.

We have agreed, for a period of three years from the date of this prospectus, if so requested by the representative of the underwriters, to nominate and use our best efforts to elect a designee of the underwriter as a director of Delcath or, at the representative's option, as a non-voting advisor to our board of directors. The representative has not yet exercised its right to designate a person.

### Classified Board of Directors

Our board of directors is divided into three classes of directors serving staggered three-year terms. As a result, approximately one-third of the board of directors will be elected each year. These provisions, together with the provision of our amended and restated certificate of incorporation and by-laws, allow the board of directors to fill vacancies on or increase the size of the board of directors, and may deter a stockholder from removing incumbent directors and filling such vacancies with its own nominees in order to gain control of the board. The staggering of the election of our directors may have the effect of delaying, deferring or discouraging a change of control.

Each of our directors has been elected to serve until his successor has been elected and duly qualified. The directorship terms of Dr. Herschkowitz and Mr. Koly will expire at the annual meeting of stockholders in 2003; the directorship term of Mr. Mancuso will expire at the annual meeting of stockholders in 2001; and the directorship terms of Dr. Sorrentino and Mr. Bergman will expire at the annual meeting of stockholders in 2002.

We have established an audit committee and a stock option and compensation committee.

The audit committee approves the selection of our independent accountants and meets and interacts with the independent accountants to discuss questions in regard to the financial reporting. In addition, the audit committee reviews the scope and results of the audit with the independent accountants, reviews with management and the independent accountants our annual operating results, considers the adequacy of our internal accounting procedures and considers and reports to the board of directors with respect to other auditing and accounting matters, fees to be paid to our independent auditors and the performance of our independent auditors. After this offering, the audit committee will consist of Messrs. Bergman and Mancuso and Dr. Sorrentino.

The stock option and compensation committee reviews and recommends to the board of directors the salaries, benefits and stock option grants of all employees, consultants, directors and other individuals compensated by us. The stock option and compensation committee also administers our stock option and other employee benefits plans. The compensation committee currently consists of Mr. Koly, Dr. Sorrentino and Mr. Bergman. Mr. Bergman currently chairs the compensation committee.

## Director Compensation

Directors who are employees of Delcath do not currently receive any compensation for serving on the board of directors. Non-employee directors have received compensation at the rate of \$750 for each meeting of the board of directors attended in person or participated in telephonically. Currently, non-employee directors do not receive any compensation. A new compensation rate for these directors will be established in our next shareholders meeting. In addition, each non-employee director received a one-time grant in January 1999 of options to purchase 43,704 shares of common stock at a price of \$3.89 per share, all of which are vested. Each non-employee director received a separate one-time grant in December 1999 of options to purchase 28,408 shares of common stock at a price of \$2.29 per share, half of which are vested, the remainder to vest in December 2000.

Scientific Advisors and Consultants

We seek to expand the breadth of expertise and experience available to us through the use of consultants and advisors. We coordinate these advisors, including nine M.D.s and Ph.D.s to organize, conduct, and monitor clinical and pre-clinical testing, regulatory filings and responses, product development and manufacturing, and publication and presentation of the results of our research. These individuals bring a broad range of competencies to our operations. The scientific advisors are independent professionals who meet on an individual basis with management when so requested. We seek as scientific advisors recognized experts in relevant sciences or clinical medicine to advise us about present and long-term scientific planning, research and development.

There is no fixed term of service for the scientific advisors. Current members may resign or be removed at any time, and additional members may be appointed. Members do not serve on an exclusive basis with Delcath, are not under contract, other than with respect to confidentiality obligations, and are not obligated to present corporate opportunities to us. To our knowledge, none of the members is working on the development of competitive products. Inventions or products developed by a scientific advisor who is not otherwise affiliated with us will not become our property.

Scientific advisors who are not affiliated with us are paid a per diem fee for their services. All members receive reimbursement for expenses incurred in traveling to and attending meetings on behalf of Delcath.

Our scientific advisors and collaborators include the following doctors in the fields of surgical oncology and interventional radiology:

Name	Title	Specialty	Relationship to Delcath
Morton G. Glickman, M.D.	Associate Dean, Yale University School of Medicine	Cardiovascular and Interventional Radiology	Founder and stockholder
William N. Hait, M.D., Ph.D.	Director, The Cancer Institute of New Jersey	Medical Consultant and Scientific Advisor	Founder and stockholder
T.S. Ravikumar, M.D.	Chairman, Department of Surgery, Montefiore Medical Center	Surgical Oncology	Principal Investigator of the Delcath system

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Morton G. Glickman, M.D. was educated at Cornell University (B.A.) and Washington University (M.D.). He also received an honorary M.A. from Yale. He was a resident at the University of California. He served as the chief of neuro and vascular radiology at San Francisco General Hospital from 1969 to 1973, and has held numerous academic and professional appointments at Yale University School of Medicine, currently serving as associate dean and vice chairman of diagnostic radiology and surgery. Dr. Glickman is a founder of Delcath.

William N. Hait, M.D., Ph.D. was educated at the University of Pennsylvania (B.A.) and The Medical College of Pennsylvania (M.D., Ph.D.). He was a resident in internal medicine and held numerous academic and professional appointments at Yale University School of Medicine, including chief of medical oncology. Dr. Hait is currently director of The Cancer Institute of New Jersey. Dr. Hait is a founder of Delcath.

T.S. Ravikumar, M.D. was educated in India at Madras University and Madras Medical College. He was the associate director of The Cancer Institute of New Jersey from 1993 through 1998. He also served as a resident in general surgery at Maimonides Medical Center at S.U.N.Y. -- Downstate and was a fellow in surgical oncology at the University of Minnesota. Dr. Ravikumar won a National Reserve Service Award in

surgical oncology, and served as a fellow at Brigham and Women's Hospital and the Dana Farber Cancer Institute from 1982 through 1984. He has had a number of academic appointments, including at Harvard Medical School, Yale University School of Medicine, and hospital appointments, including at Yale Comprehensive Cancer Center and Robert Wood Johnson University Hospital.

In addition, Delcath uses the services of the following medical and scientific consultants for technical expertise:

Name	Title	Specialty
Anil R. Diwan, Ph.D.	Principal, Applied Biotech Concepts	Filtration Consultant
Harvey J. Ellis, C.C.P.	Chief of Cardiac Perfusion, Bridgeport Hospital	Perfusion Consultant
Durmus Koch	President, Bipore, Inc.	Manufacturing
James H. Muchmore, M.D.	Associate Professor of Surgery, Tulane University School of Medicine	Oncology and Perfusion Consultant
Gabriela Nicolau, Ph.D.	Director, Pharmacokinetics and Drug Metabolism, Innapharma	Metabolism and Pharmacokinetics
John Quiring, Ph.D.	Principal, QST Consulting	Biostatistician
Executive Compensation		

The following table sets forth all compensation earned by our Chief Executive Officer for the years ended December 31, 1998 and 1999. No other executive officer of Delcath earned more than \$100,000 during the year ended December 31, 1999.

Summary Compensation Table

				Lone-Term Compensation	
	Annual Compensation		on	Shares of Common Stock Underlying	
Name 	Year	Salary	Bonus	Options	
M.S. Koly, Chief Executive Officer, President and Treasurer	1999 1998	\$101,250 60,000	\$0 0	177,003	

The following tables show information with respect to incentive and non-qualified stock options granted during the fiscal year ended December 31, 1999 to the executives and the aggregate value at June 30, 2000 of those options. The per share exercise price of all options was equal to the estimated fair market value of a share of common stock on the date of grant. No options granted to any named executives have been exercised.

Option/SAR Grants in Fiscal Year Ending December 31, 1999

Name	Number of Shares of Common Stock Underlying Option	Percent of Total Options Granted to Employees in 1999	Exercise Price (\$/Sh)	Expiration Date
M.S. Koly	77,094	22.5%	3.89	January 2004
M.S. Koly	32,166	9.4%	3.89	January 2004
M.S. Koly	67,742	19.7%	2.29	December 2004

Aggregated Fiscal Year End Option Values

Number of Shares of Common Stock Underlying Unexercised Options at June 30, 2000		ck Underlying I Options at	Value of Unexercised In-the-Money Options at June 30, 2000		
Name	Exercisable	Unexercisable	Exercisable	Unexercisable	
M.S. Koly M.S. Koly M.S. Koly	51,396 32,166 33,871	25,698 0 33,871	\$108,445 \$ 67,870 \$125,661	\$ 54,223 0 \$125,661	

#### Employment Agreements

Delcath has entered into employment agreements with M.S. Koly and Sam Herschkowitz. Under the agreements, each officer will serve for a three-year term, beginning on the closing of this offering, with an automatic one-year renewal, unless either party provides notice of termination. Mr. Koly will receive a base salary of \$175,000 per year and Dr. Herschkowitz will receive a base salary of \$120,000 per year. Mr. Koly is required to devote his full business time to our business and affairs, and Dr. Herschkowitz is required to devote a substantial part of his business time to our business and affairs. In addition to his responsibilities at Delcath, Dr. Herschkowitz lectures and instructs students as an assistant professor at New York University on one day per week basis and conducts a clinical medical practice prior to 8:30 a.m. in the morning and after 6:00 p.m. in the evening.

## Key-man Life Insurance

We have obtained "key-man" life insurance on each of the lives of Mr. Koly and Dr. Herschkowitz in the amount of 22,000,000.

### Stock Option Plans

On October 15, 1992, our board of directors and stockholders adopted our 1992 incentive stock option plan and our 1992 non-incentive stock option plan. On June 15, 2000, the board of directors adopted our 2000 stock option plan. Our 2000 stock option plan will be submitted for stockholder approval at our next annual meeting. We have reserved 299,375 shares of common stock for issuance upon exercise of options granted from time to time under the 1992 incentive stock option plan, 260,041 shares of common stock for issuance upon exercise of options granted from time to time under the 1992 non-incentive stock option plan and 300,000 shares of common stock for issuance from time to time under the 2000 stock option plan. The stock option plans are intended to assist us in securing and retaining key employees, directors and consultants by allowing them to participate in our ownership and growth through the grant of incentive and non-qualified options. Under the 1992 incentive stock option plan we may grant incentive stock options only to key employees and employee directors. Under the 1992 non-incentive stock option plan, we may grant non-qualified options to our employees, officers, directors, consultants, agents and independent contractors. Under the 2000 stock option plan, we may grant incentive or non-qualified options to our officers, employees, directors, consultants, agents and independent contractors. The stock option plans are administered by a committee, currently the stock option and compensation committee, appointed by our board of directors.

Subject to the provisions of each of the stock option plans, the committee will determine who shall receive options, the number of shares of common stock that may be purchased under the options, the time and manner of exercise of options and exercise prices. The term of options granted under each of the stock option plans may not exceed ten years, or five years for an incentive stock option granted to an optionee owning more than 10% of our voting stock. The exercise price for incentive stock options shall be equal to or greater than 100% of the fair market value of the shares of the common stock at the time granted; provided that incentive stock options granted to an optionee owning more than 10% of our voting stock shall be exercisable at a price equal to or greater than 110% of the fair market value of the common stock on the date of the grant. The exercise price for non-qualified options will be set by the committee, in its discretion, but in no event shall the exercise price be less than the fair market value of the shares of common stock on the date of grant. Shares of common stock received upon exercise of options granted under each of the plans will be subject to restrictions on sale or transfer.

As of the date of this prospectus, we have granted incentive stock options to purchase 299,375 shares of common stock under our 1992 incentive stock option plan at a weighted average price of \$3.18 and non-incentive stock options to purchase 260,041 shares of common stock under our 1992 non-incentive stock option plan at a weighted average price of \$3.36. All of these options have been granted to our officers and directors and terminate on the fifth anniversary of their vesting date. We will not grant any additional options under these plans. As of the date of this prospectus, we have not granted any options under our 2000 stock option plan. For a period of one year following the effective date of this offering, we will not grant options to our employees, promoters or affiliates which, when added to options previously granted, will exceed 15% of our then outstanding shares of common stock.

Each of our stock option plans includes a provision that an optionholder, upon exercise of an option, must execute a stockholder's agreement containing provisions to be determined by Delcath at the time of such exercise.

### Limitation on Liability and Indemnification Matters

As authorized by the Delaware General Corporation Law, our certificate of incorporation provides that none of our directors shall be personally liable to us or our stockholders for monetary damages for breach of fiduciary duty as a director, except for liability for:

- o any breach of the director's duty of loyalty to Delcath or its stockholders;
- o acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law;
- o unlawful payments of dividends or unlawful stock redemptions or repurchases; or
- o any transaction from which the director derived an improper personal benefit.

This provision limits our rights and the rights of our stockholders to recover monetary damages against a director for breach of the fiduciary duty of care except in the situations described above. This provision does not limit our rights or the rights of any stockholder to seek injunctive relief or rescission if a director breaches his duty of care. In addition, our certificate of incorporation provides that if the Delaware General Corporation Law is amended to further limit the liability of a director, then the liability of the directors shall be eliminated or limited to the fullest extent permitted by such amendment. These provisions will not alter the liability of directors under federal securities laws.

Our certificate of incorporation further provides for the indemnification of any and all persons who serve as our director, officer, employee or agent to the fullest extent permitted under the Delaware General Corporation Law.

We maintain a policy of insurance under which our directors and officers are insured, subject to the limits of the policy, against certain losses arising from claims made against our directors and officers by reason of any acts or omissions covered under this policy in their capacities as directors or officers, including liabilities under the Securities Act.

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

#### PRINCIPAL STOCKHOLDERS

The following table presents information known to us, as of the date of this prospectus and as adjusted to reflect the sale by us of 2,000,000 shares common stock offered under this prospectus, relating to the beneficial ownership of common stock by:

- o each person who is known by us to be the beneficial holder of more than 5% of our common stock;
- o each of our directors; and
- o our directors and executive officers as a group.

We believe that all persons named in the table have sole voting and investment power with respect to all shares beneficially owned by them, except as noted.

A person is deemed to be the beneficial owner of securities that can be acquired by that person within 60 days from the date of this prospectus upon the exercise of options, warrants or convertible securities. Each beneficial owner's percentage ownership is determined by assuming that options, warrants or other convertible securities that are held by that person, but not those held by any other person, and which are exercisable within 60 days of the date of this prospectus, have been exercised and converted. The table also assumes

- o a base of 3,437,185 shares outstanding before this offering; and
- o a base of 5,437,185 shares outstanding immediately after this offering, before any consideration is given to outstanding options or warrants.

The number of shares beneficially owned by each individual includes shares to be issued in partial payment of accrued dividends.

The address for each listed director and officer is c/o Delcath Systems, Inc., 1100 Summer Street, Stamford, Connecticut 06905.

	Number of Shares	Percentage of Shares Beneficially Owned		
Name of Beneficial Owner	Beneficially Owned	Before Offering	After Offering	
M.S. Koly Venkol Trust Samuel Herschkowitz, M.D Frank G. Mancuso, Jr James V. Sorrentino, Ph.D William I. Bergman All directors and executive officers as a group (six	1,917,331 1,777,429 335,172 127,378 72,767 66,649	53.9% 51.7 9.5 3.6 2.1 1.9	34.5% 32.7 6.1 2.3 1.3 1.2	
persons)	2,271,960	59.5%	39.1%	

M.S. Koly's beneficially owned shares include;

- o 7,609 shares of the 15,218 shares held by Venkol Inc. as nominee for M.S. Koly;
- o 14,859 shares held by M. Ted Koly, M.S. Koly's minor son;
- o 117,434 shares issuable upon exercise of options; and
- o 1,773,933 shares and 3,496 shares issuable upon exercise of warrants held by Venkol Trust.

Mr. Koly is the trustee of Venkol Trust and is deemed the beneficial owner of its shares. His beneficially owned shares exclude 59,596 shares issuable upon exercise of options which become exercisable on December 7, 2000.

Samuel Herschkowitz's beneficially owned shares include;

- o 7,609 shares of the 15,218 shares held by Venkol Inc. as nominee for Dr. Herschkowitz;
- o 229,010 shares held by Venkol Trust as to which Dr. Herschkowitz has a beneficial remainder interest; and

o 83,694 shares which are issuable upon exercise of options.

His beneficially owned shares exclude 23,382 shares issuable upon exercise of options which become exercisable on December 7, 2000.

Frank G. Mancuso's beneficially owned shares include;

- o 18,327 shares held by Venkol Trust as to which Mr. Mancuso has a beneficial remainder interest;
- o 57,908 shares issuable upon exercise of options; and
- o 1,804 shares issuable upon exercise of warrants.

His beneficially owned shares exclude 14,204 shares issuable upon exercise of options which become exercisable on December 7, 2000.

James V. Sorrentino's and William I. Bergman's beneficially owned shares include 57,908 shares issuable upon exercise of options. Their beneficially owned shares exclude 14,204 shares issuable upon exercise of options which become exercisable on December 7, 2000.

The number of shares beneficially owned by all directors and executive officers as a group include 1,773,933 shares and 3,496 shares issuable upon exercise of warrants held by Venkol Trust.

Upon the closing of this offering, our officers, directors and principal stockholders will beneficially own approximately 39.1% of our outstanding common stock, and 37.2% if the representative's over-allotment option is exercised in full. Consequently, these persons, as a group, will be able to control the outcome of all matters submitted for stockholder action, including the election of members to our board of directors and the approval of significant change-in-control transactions. Therefore, they will effectively control our management and affairs. This may have the effect of delaying or preventing a change in control.

## CERTAIN TRANSACTIONS

From September 1997 through January 1998, we sold 111,446 shares of common stock to 11 investors for an aggregate consideration to us of \$1,275,000. One of the investors was Johnson & Johnson Development Corporation, which invested \$500,000. As part of that offering, Venkol Ventures, L.P. and Venkol Ventures, Ltd. purchased an aggregate of 26,223 shares of common stock for approximately \$300,000 and Mr. Mancuso, a director of Delcath, purchased 8,741 shares of common stock for \$100,000.

In November 1998, Venkol Ventures, L.P. and Venkol Ventures, Ltd. distributed their shares in Delcath to their limited partners or their designees. The majority of shares were transferred to the Venkol Trust, which is managed by M.S. Koly, our Chief Executive Officer and a director. The shares transferred to the trust include all of our shares of Preferred A stock, 51,418 shares of our Preferred B stock and 45,694 common shares.

All of our preferred stockholders have agreed to convert their preferred stock into 1,056,192 shares of common stock. The preferred stockholders have also agreed to accept 870,234 shares of common stock as payment of \$992,780 of estimated accumulated dividends, and a cash dividend of \$496,390 in payment of the balance of the accrued dividend, assuming this offering closes on September 30, 2000. Venkol Trust holds all 2,000,000 shares of our class A preferred stock and will receive 874,087 shares of common stock on conversion of those shares, 776,177 shares of common stock in partial payment of accumulated dividend, assuming this offering closes on September 30, 2000. Venkol Trust not stock in partial payment of the balance of the accrued dividend, assuming this offering closes on September 30, 2000. Frank Mancuso, Jr. and Venkol Trust own 19,608 and 117,650 shares of our class B shares of preferred stock and will receive 8,570 and 51,418 shares of common stock in payment of \$25,825 and \$154,952 of accumulated dividends and cash dividends of approximately \$12,912 and \$77,476, in payment of the balance of the accrued dividends, assuming this offering closes on September 30, 2000.

In June 1999, we sold an aggregate of 59,514 shares of common stock and three-year warrants to purchase an aggregate of 6,609 shares of common stock at \$11.74 per share for aggregate proceeds of \$776,192. Mr. Mancuso made a \$75,000 investment for which he received 5,750 shares of common stock and warrants to purchase 639 shares of common stock.

In April 2000, we issued 292,426 shares of common stock to existing security holders and their designees for proceeds of \$501,825 in a rights offering. Each of M.S. Koly, Samuel Herschkowitz, our Chairman and Chief Technical Officer, and James Sorrentino, a director of Delcath, purchased 14,859 shares for \$25,500, and William Bergman, a director of Delcath, purchased 8,741 shares for \$15,000.

We believe that each of the transactions with our officers, directors and principal stockholders and their affiliates were on terms no less favorable than could have been obtained from unaffiliated third parties. All future transactions, including loans between us and our officers, directors and stockholders beneficially owning 5% or more of our outstanding voting securities, or their affiliates, will be on terms no less favorable to us than could be obtained in arm's length transactions from unaffiliated third parties. Further, all transactions and loans and any foregiveness of indebtedness owed by any of our officers, directors and stockholders beneficially owning 5% or more of our outstanding voting securities, or their affiliates, to us, must be approved by a majority of our independent directors who do not have an interest in the transactions and who have access, at our expense, to either our legal counsel or independent legal counsel.

### DESCRIPTION OF SECURITIES

Upon the closing of this offering, the authorized capital stock of Delcath will consist of 15,000,000 shares of common stock, \$.01 par value per share, and 10,000,000 shares of preferred stock, \$.01 par value per share, whose rights and designation have not yet been established. There will be no preferred stock outstanding immediately after the closing of this offering. The description in the sections below of Delcath's certificate of incorporation and by-laws refers to Delcath's Amended and Restated Certificate of Incorporation and Amended and Restated By-Laws, respectively, as they will be in effect upon the closing of this offering.

### Common Stock

Immediately prior to the closing of this offering, there will be 3,437,185 shares of common stock outstanding. After giving effect to the issuance of the 2,000,000 shares of common stock offered by this prospectus, assuming the underwriters do not exercise their overallotment option, there will be 5,437,185 shares of common stock outstanding upon the closing of this offering. As of the date of this prospectus, we have approximately 70 stockholders of record, assuming the conversion of all of our preferred stock into common stock.

Holders of common stock are entitled to one vote for each share on all matters submitted to a stockholder vote. Holders of common stock do not have cumulative voting rights. Therefore, holders of a majority of the shares of common stock voting for the election of directors can elect all of the directors. Holders of common stock are entitled to share in all dividends that the board of directors, in its discretion, declares from legally available funds. In any liquidation, dissolution or winding up of Delcath, each outstanding share entitles its holder to participate pro rata in all assets that remain after payment of liabilities and after providing for each class of stock, if any, having preference over the common stock.

Holders of common stock have no conversion, preemptive or other subscription rights, and there are no redemption provisions applicable to the common stock. The rights of the holders of common stock are subject to any rights that may be fixed for holders of preferred stock, when and if any preferred stock is issued. All outstanding shares of common stock are, and the shares underlying all options and warrants will be, duly authorized, validly issued, fully paid and non-assessable upon our issuance of these shares.

### Preferred Stock

Under Delcath's certificate of incorporation, Delcath's board of directors is authorized, subject to limitations prescribed by law, without further stockholder approval, from time to time to issue up to an aggregate of 10,000,000 shares of preferred stock. The preferred stock may be issued in one or more series. Each series may have different rights, preferences and designations and qualifications, limitations and restrictions that may be established by Delcath's board of directors without approval from the stockholders. These rights, designations and preferences include:

o number of shares to be issued;

- o dividend rights;
- o right to convert the preferred stock into a different type of security;
- o voting rights attributable to the preferred stock;
- o right to set aside assets for payments relating to the preferred stock; and
- o prices to be paid upon redemption of the preferred stock or a bankruptcy type event.

If Delcath's board of directors decides to issue any preferred stock, it could have the effect of delaying or preventing a third-party from taking control of Delcath. This is because the terms of the preferred stock could be designed to make it prohibitively expensive for any unwanted third party to make a bid for the shares of Delcath. In addition, the issuance of preferred stock with voting or conversion rights could adversely affect the voting power or other rights of the holders of our common stock. We have no present plans to issue any new shares of preferred stock.

There are currently 874,087 shares of Class A preferred stock and 182,105 shares of Class B preferred stock outstanding which will all be converted into shares of common stock immediately prior to the closing of this offering. The holders of the Class A preferred stock and Class B preferred stock are entitled to receive dividends on a cumulative basis at a rate of 11% and 8%, per share per year, as and when declared by the Board of Directors. Upon the conversion of the currently outstanding shares of Class A preferred stock and Class B preferred stock, the holders of these shares will receive an additional 870,234 shares of common stock and payment in cash of \$496,390 as accumulated dividends as of the date of this prospectus, assuming this offering closes on September 30, 2000. The holders of the Class A preferred stock have a liquidation preference over the holders of the Class B preferred stock and the common stockholders and the holders of the Class B preferred stock have a liquidation preference over the common stockholders. In addition to special voting rights to elect directors to the Board of Directors, each Class A preferred stockholder is entitled to ten times the number of votes per share of common stock into which the Class A preferred stock is convertible and each Class B preferred stockholder is entitled to the number of votes per share of common stock into which the Class B preferred stock is convertible.

Upon the closing of this offering and the payment of all accrued dividends, all of the shares of the Class A preferred stock and the Class B preferred stock will automatically convert into shares of common stock.

### Options and Warrants

We have reserved 21,852 shares of common stock for issuance upon exercise of non-plan options. These options are exercisable at any time on or prior to February 4, 2002 at a price of \$2.29 per share. We have also reserved for issuance 21,468 shares of common stock for issuance upon outstanding warrants to purchase common stock at \$8.58 and \$11.74 per share which expire, respectively, on January 16, 2001 and March 2, 2002. Also, the representative of the underwriters will receive five-year warrants to purchase 200,000 shares. The exercise of any of these options and warrants will dilute the percentage ownership of our other stockholders.

Anti-Takeover Effects of Delaware Law and Delcath's Amended and Restated Certificate of Incorporation and By-Laws

We are subject to the provisions of Section 203 of the Delaware General Corporation Law. That section provides, with exceptions, that a Delaware corporation may not engage in any of a broad range of business combinations with a person or his affiliate or associate who is an owner of 15% or more of the outstanding voting stock of the corporation for a period of three years from the date that this person became an interested stockholder.

Our board of directors is divided into three classes of directors serving staggered three-year terms. As a result, approximately one-third of the board of directors will be elected each year. These provisions, when coupled with the provisions of our amended and restated certificate of incorporation authorizing the board of directors to fill vacant directorships or increase the size of the board of directors, may deter a stockholder from removing incumbent directors and simultaneously gaining control of the board of directors by filling the vacancies created by that removal with its own nominees.

#### Transfer Agent and Warrant Agent

The transfer agent for our common stock and warrants is American Stock Transfer & Trust Company, 40 Wall Street, New York, New York 10005.

#### SHARES ELIGIBLE FOR FUTURE SALE

After the closing of this offering, we will have 5,437,185 shares of common stock issued and outstanding of which the 2,000,000 shares offered by this prospectus will be freely tradable without restriction or further registration under the Securities Act, except for any shares purchased by any affiliate of us. An affiliate of us is generally a person who has a controlling position with regard to us. Any shares purchased by our affiliates will be subject to the resale limitations of Rule 144 promulgated under the Securities Act.

All of the approximately 3,437,185 remaining shares of common stock that will be outstanding, are restricted securities as that term is defined under Rule 144.

Approximately 2,010,574 of these shares are immediately eligible for sale and the remaining 1,426,611 shares will become eligible, at various times, beginning 90 days following the date of this prospectus, in each case, subject to the contracted provisions below.

The holders of all of our common stock, including each of our officers, directors and principal stockholders, have agreed not to sell or dispose of any of the shares of common stock held by them, including in accordance with Rule 144, for a period of twelve months following the date of this prospectus without the prior written consent of the representative of the underwriters. For the second year following the closing, our officers, directors and principal shareholders have agreed that, without the representative's written consent, they will not sell any shares of common stock during any three-month period in excess of the amount they would be allowed to sell if they were deemed an affiliate of ours and the shares were deemed restricted as defined under Rule 144 of the Securities Act. This volume is the greater of:

- o 1% of the then outstanding common stock; and
- o the average weekly trading volume of the common stock during the four calendar weeks preceding a sale.

In general, under Rule 144, as currently in effect, beginning 90 days after the date of this prospectus, a person or group of persons whose shares are aggregated, who has beneficially owned restricted shares for at least one year, including the holding period of any prior owner except an affiliate of us, would be entitled to sell, within any three month period, a number of shares that does not exceed the greater of:

- o 1% of the then outstanding common stock; or
- o The average weekly trading volume of our common stock during the four calendar weeks preceding the sale, provided, that, public information about us as required by Rule 144 is available and the seller complies with manner of sale provisions and notice requirements.

The volume limitations described above, but not the one-year holding period, also apply to sales of our non-restricted securities by affiliates of us.

A person who is not an affiliate, has not been an affiliate within three months before the sale and has beneficially owned the restricted securities for at least two years, is entitled to sell the restricted shares under Rule 144 without regard to any of the limitations described above.

Before this offering, there was no public market for our common stock. We cannot predict the effect, if any, that sales of, or the availability for sale of, our common stock will have on the market price of our common stock prevailing from time to time. Nevertheless, the possibility that substantial amounts of common stock in the public market, including shares issuable upon the exercise of outstanding warrants or options, could adversely affect the prevailing market price of our common stock and could impair our ability to raise capital in the future through the sale of securities.

## UNDERWRITING

Whale Securities Co., L.P.is acting as representative of the several underwriters named below. The underwriters have agreed, jointly and severally, subject to the terms and conditions contained in the underwriting agreement relating to this offering, to purchase the 2,000,000 shares of common stock offered by us. The number of shares of common stock that each underwriter has agreed to purchase appears opposite its name below:

Underwriter

Number of Shares

Whale Securities Co., L.P.

Total	2,000,000
	=========

The underwriting agreement provides that the obligations of the underwriters are subject to the delivery of an opinion of our counsel and to various other conditions. The underwriters are committed to purchase and pay for all of the shares offered by this prospectus if any of those shares are purchased.

The representative has advised us that the underwriters propose to offer our shares to the public at the public offering price indicated on the cover page of this prospectus. The underwriters may allow selected dealers who are members of the National Association of Securities Dealers, Inc., known as the NASD, concessions, not in excess of \$.\_\_\_ per share, of which not in excess of \$.\_\_\_ per share may be reallowed to other dealers who are members of the NASD.

We have granted to the representative an option, exercisable not later than 45 days after the date of this prospectus, to purchase up to 300,000 shares at the public offering price indicated on the cover page of this prospectus, less the underwriting discounts and commissions. The representative may exercise this option only to cover over-allotments, if any, made in connection with the sale of the common shares offered by this prospectus. If the representative exercises its over-allotment in full, the total price to the public would be \$13,800,000, the total underwriting discounts and commissions would be \$1,380,000 and the total proceeds to us, before payment of the expenses of this offering, would be \$12,420,000.

We have agreed to pay to the representative a non-accountable expense allowance equal to 3% of the gross proceeds from the sale of the shares offered by us, including any securities sold pursuant to the representative's over-allotment option, of which \$50,000 has been paid as of the date of this prospectus. We have also agreed to pay all expenses in connection with qualifying the shares offered under the laws of the states as the representative may designate, including expenses of counsel retained for this purpose by the underwriters. We estimate our expenses of this offering to be \$2,000,000, including the underwriters' discounts and commission, or \$2,234,000 if the representative's over-allotment option is completely exercised.

At the closing of this offering, we will sell to the representative and its designees, for an aggregate of \$100, representative's warrants to purchase up to 200,000 shares. The representative's warrants are exercisable at any time, in whole or in part, during the five-year period commencing on the date of this prospectus at an exercise price of \$9.90 per share, 165% of the public offering price per share. During the first year following the date of this prospectus, the representative's warrants are assignable or transferable only to the officers and partners of the representative or the underwriters and members of the selling group. During the exercise period, the holders of the representative's warrants will have the opportunity to profit from a rise in the market price of the shares, which will dilute the interests of our stockholders. We expect that the representative's warrants will be exercised when we would, in all likelihood be able to obtain any needed capital on terms more favorable to us than those provided in the representative's warrants. Any profit realized by the representative on the sale of the representative's warrants or the underlying shares of common stock

may be deemed additional underwriting compensation. The representative's warrants contain a cashless exercise provision. We have agreed that, upon the request of the holders of the majority of the representative's warrants, we will, at our own expense, on one occasion during the exercise period register the representative's warrants and the shares underlying the representative's warrants under the Securities Act. We have also agreed to include the representative's warrants and all underlying shares in any appropriate registration statement which is filed by us under the Securities Act during the seven years following the date of this prospectus.

We have agreed, for a period of three years from the date of this prospectus, if so requested by the representative, to nominate and use our best efforts to elect a designee of the representative as a director of Delcath or, at the representative's option, as a non-voting advisor to our board of directors. Our officers, directors and current stockholders have agreed to vote their shares in favor of the representative's designee. The representative has not yet exercised its right to designate a person.

The holders of all of our outstanding shares of common stock, options and warrants have agreed not to sell or dispose in another manner any of those securities in the public markets for a period of twelve months from the date of this prospectus without the representative's prior written consent. For the second year following the closing, our officers, directors and principal stockholders have agreed that without the representative's written consent they will not sell any shares of common stock during any three-month period in excess of the amount they would be allowed to sell if they were deemed an affiliate of ours and the shares were deemed restricted as defined under Rule 144 of the Securities Act. This amount is the greater of:

- o 1% of the then outstanding common stock; and
- o the average weekly trading volume of the common stock during the four calendar weeks preceding the sale.

We have agreed to indemnify the underwriters against civil liabilities, including liabilities under the Securities Act.

The representative has informed us that it does not expect sales of the securities offered to discretionary accounts to exceed 1% of the shares offered by this prospectus.

Before this offering, there has been no public market for our common stock. Accordingly, the initial public offering price of the common stock has been determined by negotiation between us and the representative and may not necessarily be related to our asset value, net worth or other established criteria of value. Factors considered in determining this price include our financial condition and prospects, an assessment of our management, market prices of similar securities of comparable publicly-traded companies, financial and operating information of companies engaged in activities similar to our business and the general condition of the securities market.

In connection with this offering, the underwriters may engage in passive market making transactions in the shares on Nasdaq in accordance with Rule 103 of Regulation M promulgated under the Exchange Act.

In connection with this offering, the underwriters may engage in transactions that stabilize, maintain or affect in another manner the price of our common stock. These transactions may include stabilization transactions permitted by Rule 104 of Regulation M, under which persons may bid for or purchase shares to stabilize the market price. Specifically, the underwriters may over-allot in connection with this offering, creating a short position in our common stock for its own account. In addition, to cover over-allotments or to stabilize the price of our common stock, the underwriters may bid for, and purchase, shares in the open market. The underwriters may also reclaim selling concessions allowed to a dealer for distributing the common stock, in this offering, if the underwriters repurchased previously distributed shares in transactions to cover short positions, in stabilize or maintain the market price of our common stock above independent market levels. The underwriters are not required to engage in these activities, and may end any of these activities at any time.

# LEGAL MATTERS

The validity of the common stock and warrants offered hereby will be passed upon for Delcath by Morse, Zelnick, Rose & Lander, LLP, New York, New York. Morse, Zelnick, Rose & Lander, LLP owns an aggregate 125,000 shares of our common stock. Blank Rome Tenzer Greenblatt LLP, New York, New York, has served as counsel to the underwriters in connection with this offering.

## EXPERTS

The financial statements of Delcath Systems, Inc. as of December 31, 1999 and for each of the years in the two year period ended December 31, 1999 and for the period from August 5, 1988 (inception) to December 31, 1999 included in this prospectus have been so included in reliance on the report of KPMG LLP, independent certified public accountants, given on the authority of such firm as experts in auditing and accounting.

# AVAILABLE INFORMATION

Delcath has filed with the Securities and Exchange Commission, a registration statement on Form SB-2, including exhibits and schedules thereto, under the Securities Act with respect to the shares to be sold in this offering. This prospectus which constitutes a part of the registration statement, does not contain all the information set forth in the registration statement and the exhibits filed with it, portions of which have been omitted as permitted by the rules and regulations of the SEC. For further information with respect to Delcath and the shares to be sold in this offering, reference is made to the registration statement and to the exhibits filed with it. Statements contained in this prospectus as to the contents of any contract, agreement or other document referred to, are not necessarily complete. In each instance we refer you to the copy of the contracts, agreements and or other documents filed as exhibits to the registration statement, and these statements are deemed qualified in their entirety by reference to the contract or document.

You may inspect, without charge, all or any portion of the registration statement or any reports, statements or other information Delcath files at the SEC's public reference room at Room 1024, Judiciary Plaza, 450 Fifth Street, N.W., Washington, D.C. 20549 and at the regional offices of the SEC located at Seven World Trade Center, 13th Floor, Suite 1300, New York, New York 10048 and Citicorp Center, 500 West Madison Street, Suite 1400, Chicago, Illinois 60661. Copies of these documents may also be obtained from the SEC's Public Reference Room at 450 Fifth Street, N.W., Room 1024, Washington, D.C. 20549 upon payment of the prescribed fees. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330.

In addition, registration statements and other filings made with the SEC through its electronic data gathering, analysis and retrieval systems are publicly available through the SEC's site located at www.sec.gov. The registration statement, including all exhibits and schedules and amendments, has been filed with the commission through the Electronic Data Gathering, Analysis and Retrieval system.

On the date of this prospectus, we will become subject to the reporting requirements of the Exchange Act and in accordance with these requirements, will file reports, proxy statements and other information with the SEC. We intend to furnish our stockholders with annual reports containing audited financial statements and other periodic reports as we deem appropriate or as may be required by law.

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Statements of Operations for each of the years in the two-year period ended December 31, 1999, and cumulative from inception (August 5, 1988) to December 31, 1999, and for the six-month periods ended June 30, 1999 and 2000 (unaudited) and cumulative from inception (August 5, 1988) to June 30, 2000 (unaudited)	F-4
Statements of Stockholders' Equity for each of the years in the two-year period ended December 31, 1999 and cumulative from inception (August 5, 1988) to June 30, 2000 (unaudited)	F-5
Statements of Cash Flows for each of the years in the two-year period ended December 31, 1999, and cumulative from inception (August 5, 1988) to December 31, 1999, and the six-month periods ended June 30, 1999 and 2000 (unaudited) and cumulative from inception (August 5, 1988) to June 30, 2000 (unaudited)	F-6
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(When the reverse stock split as described in Note 2 of the accompanying financial statements has been consummated, we will be in a position to render the following opinion.)

/s/ KPMG LLP

KPMG LLP

The Board of Directors Delcath Systems, Inc.:

We have audited the accompanying balance sheet of Delcath Systems, Inc. (a development stage enterprise) as of December 31, 1999 and the related statements of operations, stockholders' equity, and cash flows for each of the years in the two-year period ended December 31, 1999 and for the period from August 5, 1988 (inception) to December 31, 1999. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

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

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Delcath Systems, Inc. (a development stage enterprise) as of December 31, 1999 and the results of its operations and its cash flows for each of the years in the two-year period ended December 31, 1999 and for the period August 5, 1988 (inception) to December 31, 1999, in conformity with generally accepted accounting principles.

May 5, 2000

New York, New York

# DELCATH SYSTEMS, INC. (A DEVELOPMENT STAGE COMPANY)

Balance Sheets

Assata		cember 31, 1999	June 30, 2000	
Assets			(unaudited)	
Current assets: Cash and cash equivalents Interest receivable Prepaid rent Prepaid insurance Deferred IPO costs		561,078 3,326  4,167 	417,549 975 43,689 23,333 291,363	
Total current assets		568,571	776,909	
Furniture and fixtures, net Due from affiliate		8,250 24,000	6,750 24,000	
Total assets	\$	600,821	807,659 ======	
Liabilities and Stockholders' Equity				
Current liabilities: Accounts payable and accrued expenses	\$	112,748	209,532	
Total current liabilities		112,748	209,532	
Commitments and contingencies (note 4)				
<pre>Stockholders' equity (note 2): Class A preferred stock, \$.01 par value: 5,000,000 shares authorized; 2,000,000 shares issued and outstanding (liqui- dation preference of \$2,216,637 at December 31, 1999) Class B preferred stock, \$.01 par value: 5,000,000 shares authorized; 416,675 shares issued and outstanding (liquida-</pre>		20,000	20,000	
tion preference of \$1,625,033 at December 31, 1999) Common stock, \$.01 par value: 15,000,000 shares authorized;		4,167	4,167	
1,093,333 and 1,385,759 shares issued and outstanding Additional paid-in capital Deficit accumulated during development stage	(:	10,933 11,764,935 11,311,962)	13,857 12,263,836 (11,703,733)	
Total stockholders' equity		488,073	598,127	
Total liabilities and stockholders' equity	\$		807,659	

See accompanying notes to financial statements.

# (A DEVELOPMENT STAGE COMPANY)

# Statements of Operations

	Years ended December 31,				
	1998	1999			
Costs and expenses:					
Legal, consulting and accounting fees	\$ 574,299	626,366			
Stock option	φ 314,233	020,000			
compensation expense					
(reversal) Compensation and related	759,229	(456,185)			
expenses	466,644	200,128			
Other operating expenses	324,271				
Tatal sasts and					
Total costs and expenses	2,124,443	598,126			
	2,124,440				
Operating income (loss)	(2,124,443)				
Interest income	74,463	43,470			
Interest expense		(17,925)			
Net income (loss)	\$ (2,049,980)	(572,581)			
	============	=======			
Common share data: Basic and diluted income					
(loss) per share	\$ (2.01)	(0.54)			
	======	=======			
Weighted average number of shares of common					
stock outstanding	1,021,437	1,062,605			
5	. ,	. ,			

	Cumulative from inception (August 5, 1988) to	June	30,	(August 5, 1988)	
	December 31, 1999		2000	20	
		(Unaudi		(Unaudited)	
Costs and expenses: Legal, consulting and					
accounting fees Stock option compensation expense	4,517,169	389,253	172,926	4,690,095	
(reversal) Compensation and related	2,520,170	(456,185)		2,520,170	
expenses	2,488,170	123,733	104,765	2,592,935	
Other operating expenses	2,191,276	149,381		2,318,392	
Total costs and					
expenses	11,716,785	206,182	404,807	12,121,592	
Operating income (loss) Interest income Interest expense	(11,716,785) 537,696 (132,873)	(206,182) 23,697 (17,925)	(404,807) 13,036	(12,121,592) 550,732 (132,873)	
Net income (loss)	(11,311,962) =========	(200,410) =======			
Common share data: Basic and diluted income (loss) per share		(0.19)	(0.32)		
Weighted average number of shares of common stock outstanding		1,042,283	1,239,547		

See accompanying notes to financial statements.

# DELCATH SYSTEMS, INC. (A DEVELOPMENT STAGE COMPANY)

# Statements of Stockholders' Equity

Six months ended June 30, 2000 (unaudited) and years ended December 31, 1999 and 1998 and cumulative from inception (August 5, 1988) to December 31, 1999 and June 30, 2000 (unaudited)

	Common stock \$.01 par value				
	Issue	ed	In treas	sury	
	No. of shares	Amount	No. of shares	Amount	
Shares issued in connection with the formation of	700 070	<b>*</b> 7 007			
the Company as of August 22, 1988	786,678	\$ 7,867			
Sale of preferred stock, August 22, 1988					
Shares returned as of March 9, 1990			(524,451)	(5,245)	
Sale of stock, October 2, 1990Sale of stock, January 23, 1991			21,852 58,924	219 589	
Sale of stock, August 30, 1991			1,714	17	
Sale of stock, December 31, 1992			131,113	1,311	
Sale of stock, July 15, 1994			130,763	1,308	
Sale of stock, December 19, 1996			50,046	500	
Shares issued in connection with conversion of			50,040	500	
short-term borrowings as of December 22, 1996	74,086	741	124,619	1,246	
Sale of stock, December 31, 1997	67,742	677	124,015	1,240	
Exercise of stock options	17,482	175	4,370	44	
Shares issued as compensation	2,970	30	1,050	11	
Amortization of compensatory stock options	2,010		1,000		
granted					
Forfeiture of stock options Shares issued in connection with exercise of					
warrants Deficit accumulated from inception to December	27,318	273			
31, 1997					
,					
Balance at December 31, 1997	976,276	9,763			
Sale of stock, January 16, 1998	43,704	437			
Sale of stock, September 24, 1998	4,370	44			
Shares returned, April 17, 1998 Amortization of compensatory stock options	(4,370)	(44)			
granted					
Forfeiture of stock options					
Exercise of stock options	10,926	109			
Net loss for year ended December 31, 1998					
Balance at December 31, 1998	1,030,906	10,309			
Sale of stock, June 30, 1999 Amortization of compensatory stock options	59,514	595			
granted					
Forfeiture of stock options Shares issued in connection with exercise of					
warrants	2,913	29			
Net loss for year ended December 31, 1999					
Balance at December 31, 1999	1,093,333	10,933			
Sale of stock, April 14, 2000 Net loss for six months ended June 30, 2000	292,426	2,924			
(unaudited)					
· · · · · · · · · · · · · · · · · · ·					
Balance at June 30, 2000	1,385,759	\$13,857			
·	========	======	=======	======	

		Class A preferred stock		Class B preferred stock		
	Outstan	ding	<b>\$.01</b> pa	\$.01 par value		r value
	No. of shares	Amount	No. of shares	Amount	No. of shares	Amount
Shares issued in connection with the formation of the Company as of August 22, 1988	786,678	\$ 7,867				
Sale of preferred stock, August 22, 1988			2,000,000	20,000		
Shares returned as of March 9, 1990	(524,451)	(5,245)	_,,	,		
Sale of stock, October 2, 1990	21,852	219				
Sale of stock, January 23, 1991	58, 924	589			416,675	4,167
Sale of stock, August 30, 1991	1,714	17				
Sale of stock, December 31, 1992	131,113	1,311				
Sale of stock, July 15, 1994	130,763	1,308				
Sale of stock, December 19, 1996	50,046	500				
Shares issued in connection with conversion of						
short-term borrowings as of December 22, 1996	198,705	1,987				
Sale of stock, December 31, 1997	67,742	677				
Exercise of stock options	21,852	219				
Shares issued as compensationAmortization of compensatory stock options	4,020	41				
granted						
Forfeiture of stock options Shares issued in connection with exercise of						
warrants Deficit accumulated from inception to December	27,318	273				
31, 1997						
Balance at December 31, 1997	976,276	9,763	2,000,000	20,000	416,675	4,167
Sale of stock, January 16, 1998	43,704	437	2,000,000	20,000	410,075	4,107
Sale of stock, September 24, 1998	4,370	44				
Shares returned, April 17, 1998	(4,370)	(44)				
Amortization of compensatory stock options	(1)010)	()				
granted						
Forfeiture of stock options						
Exercise of stock options	10,926	109				
Net loss for year ended December 31, 1998						
Delense et Desember 01 1000	1 000 000	10,000			44.0 075	
Balance at December 31, 1998	1,030,906	10,309	2,000,000	20,000	416,675	4,167
Sale of stock, June 30, 1999	59,514	595				
Amortization of compensatory stock options granted						
Forfeiture of stock options						
Shares issued in connection with exercise of						
warrants Net loss for year ended December 31, 1999	2,913	29				
Balance at December 31, 1999	1,093,333	10,933	2,000,000	20,000	416,675	4,167
Sale of stock, April 14, 2000 Net loss for six months ended June 30, 2000 (unaudited)	292,426	2,924				
(unauarcea)						
Balance at June 30, 2000	1,385,759 =======	\$ 13,857 =======	2,000,000	\$20,000 ======	416,675	\$4,167 ======

Forfeiture of stock options       (279,220)        (279,220)         Shares issued in connection with exercise of warrants       234,125        234,398         Deficit accumulated from inception to December 31, 1997        (8,689,401)       (8,689,401)       1,386,900         Balance at December 31, 1997       10,042,371       (8,689,401)       1,386,900         Sale of stock, January 16, 1998       499,563        500,000         Shares returned, April 17, 1998       (4,956)        (5,000         Amortization of compensatory stock options granted       1,166,418        1,166,418         Forfeiture of stock options       (407,189)        (270,220)         Balance at December 31, 1998       11,420,554       (10,739,381)       715,649         Sale of stock, June 30, 1999       775,597        776,192         Marotization of compensatory stock options       98,186        98,186         Forfeiture of stock options       (554,371)        (554,371)         Shares issued in connection with exercise of       24,969        24,998         Net loss for year ended December 31, 1999        (572,581)       (572,581)         Balance at December 31, 1999 <t< th=""><th></th><th>Additional paid-in capital</th><th>Deficit accumulated during development stage</th><th>Total</th></t<>		Additional paid-in capital	Deficit accumulated during development stage	Total
Sale of preferred stock, August 22, 1988       480,000        500,000         Shares returned as of March 9, 1990       5,245           Sale of stock, October 2, 1990       24,781        25,000         Sale of stock, January 23, 1991       1,401,566        1,406,322         Sale of stock, January 23, 1991       9,984        10,001         Sale of stock, December 31, 1992       1,013,693        1,20,000         Sale of stock, December 19, 1996       999,500        1,000,000         Sale of stock, December 31, 1997       775,000        1,702,977        1,704,964         Sale of stock, December 31, 1997       775,000        30,781        34,444        34,444        34,444        34,444        34,444        34,444        34,444        34,444        34,444        34,455        2,406,347        2,406,347        2,406,347        2,406,347        2,496,347        2,496,347        2,496,347        2,496,347        2,496,347				
Shares returned as of March 9, 1990       5,245           Sale of stock, January 23, 1991       1,401,566        1,406,322         Sale of stock, August 30, 1991       9,984        10,001         Sale of stock, August 30, 1991       9,984        10,001         Sale of stock, December 31, 1992       1,013,693        1,22,000         Sale of stock, December 31, 1996       99,500        1,000,000         Sharts issued in connection with conversion of       999,500        1,704,964         Sale of stock, December 31, 1997       774,323        775,000         Exercise of stock options       30,781        34,444        34,464         Sale of stock options       24,46,347        2,496,347        2,496,347         Forfeiture of stock options       234,125        234,398        56,956        50,000 </td <td></td> <td>( ( ) )</td> <td>\$</td> <td>, , , , , , , , , , , , , , , , , , , ,</td>		( ( ) )	\$	, , , , , , , , , , , , , , , , , , , ,
Sale of stock, October 2, 1990       24,781        25,000         Sale of stock, August 36, 1991       1,401,566        1,406,322         Sale of stock, August 36, 1991       9,984        1,015,004         Sale of stock, December 31, 1992       1,012,0692        1,222,000         Sale of stock, December 31, 1992       1,200,692        1,004,964         Sale of stock, December 31, 1997       774,323        775,000         Shares issued an connection with conversion of       30,781        31,000         Shares issued as compensation       30,781        34,444          Amortization of compensatory stock options       279,220        2,496,347        2,496,347         Garted		,		500,000
Sale of stock, January 23, 1991       1, 401, 566        1, 406, 322         Sale of stock, August 30, 1991       9, 984        10, 001         Sale of stock, December 31, 1992       1, 013, 693        1, 206, 092         Sale of stock, December 19, 1996       999, 500        1, 700, 964         Short-term borrowings as of December 22, 1996       1, 702, 977        1, 704, 964         Sale of stock, December 31, 1997       774, 323        775, 060         Exercise of stock options       30, 781        34, 444         Sale of stock options       24, 466, 347        2, 496, 347         Forfeiture of stock options       2, 496, 347        2, 496, 347         Forfeiture of stock options       234, 125        24, 96, 9401         Warrants				
Sale of stock, August 30, 1991       9, 984        10, 013, 693         Sale of stock, December 31, 1992       1, 013, 693        1, 0000, 000         Sale of stock, December 19, 1996       999, 500        1, 0000, 000         Sale of stock, December 19, 1996       999, 500        1, 0000, 000         Short sisued in connection with conversion of       999, 500        1, 0000, 000         Short sisued in connection with conversion of       775, 000        1, 0000, 000         Shares issued as compensation       34, 444        34, 445         Amortization of compensatory stock options       2, 496, 347        2, 496, 347         Grafture of stock options       2, 496, 347        2, 496, 347         Grafture of stock options       2, 496, 347        2, 496, 347         Shares issued in connection with exercise of       (279, 220)        (279, 220)         Shares issued in connection with exercise of        (8, 689, 401)       (1, 386, 906)         Sale of stock, January 16, 1998       499, 563        57, 000         Sale of stock, January 16, 1998       499, 563        57, 000         Sale of stock, January 16, 1998       (407, 189) <td></td> <td></td> <td></td> <td></td>				
Sale of stock, December 31, 1992       1,013,093        1,012,093         Sale of stock, July 15, 1994       1,120,692        1,122,000         Sale of stock, December 19, 1996       999,500        1,000,000         Shares issued in connection with conversion of       999,500        1,000,000         Short-term borrowings as of December 22, 1996       774,323        775,000         Shares issued as compensation       30,781        31,000         Shares issued as compensation       34,444        34,485         Amortization of compensatory stock options       2,496,347        2,496,347         Shares issued in connection with exercise of       234,125        234,388         Deficit accumulated from inception to December       234,125        234,984         Sale of stock, January 16, 1998       499,563        509,000         Sale of stock, January 16, 1998       (4,956)        (5,000         Amortization of compensatory stock options       9,166,418        1,166,418         Forfeiture of stock options       (4,956)        67,500         Marotization of compensatory stock options       -       67,391       -       <				
Sale of stock, July 15, 1994       1, 122,000         Sale of stock, December 19, 1996       999,500          Shares issued in connection with conversion of       999,500          short-term borrowings as of December 22, 1996       1, 702, 977        1, 704, 964         Sale of stock, December 31, 1997       774, 323        775, 000         Shares issued as compensation       30, 781        31, 000         Shares issued in connection with exercise of       2, 496, 347        2, 496, 347         Grantes issued in connection with exercise of       234, 125        234, 398         Deficit accumulated from inception to December        (8, 689, 401)       1, 386, 900         Sale of stock, September 24, 1998         (8, 689, 401)       1, 386, 900         Sale of stock, September 24, 1998         56, 956        57, 000         Sale of stock, September 24, 1998         (8, 689, 401)       1, 386, 900        57, 000         Sale of stock, September 24, 1998          (8, 689, 401)       1, 386, 900        57, 000         Sale of stock, Options		,		
Sale of stock, December 19, 1996       999,500        1,000,000         Shares issued in connection with conversion of short-term borrowings as of December 22, 1996       1,702,977        1,704,964         Sale of stock, December 31, 1997       774,323        775,000         Shares issued as compensation       34,444        31,000         Shares issued as compensatory stock options       34,444        34,485         Amortization of compensatory stock options       2,496,347        2,496,347         Forfeiture of stock options				
Shares issued in connection with conversion of short-term borrowings as of December 22, 1996       1,702,977        1,704,964         Sale of stock, December 31, 1997        30,781        31,000         Shares issued as compensation       30,781        34,444        34,485         Amortization of compensatory stock options       2,496,347        2,496,347        2,496,347         Granted				
Sale of stock, December 31, 1997       774, 323        775,000         Exercise of stock options       30,781        31,000         Shares issued as compensation       34,444        34,445         Amortization of compensatory stock options       (279,220)        (279,220)         Shares issued in connection with exercise of       (279,220)        (279,220)         Warrants       234,125        (234,398         Deficit accumulated from inception to December        (8,689,401)       (1,8689,401)         Sale of stock, January 16, 1998       499,563        500,606         Sale of stock, September 24, 1998       56,956        57,060         Shares returned, April 17, 1998       (4,956)        (5,060         Amortization of compensatory stock options       (407,189)        (407,189)         Exercise of stock options       67,391        67,500         Net Loss for year ended becember 31, 1999       775,597        776,192         Amortization of compensatory stock options       67,391        67,500         Net Loss for year ended becember 31, 1999       775,597        776,192         Amorti		999,500		1,000,000
Exercise of stock options       30,781        31,000         Shares issued as compensation       34,444        34,485         Amortization of compensatory stock options       2,496,347        2,496,347         Forfeiture of stock options       (279,220)        (279,220)         Shares issued in connection with exercise of       234,125        234,398         Deficit accumulated from inception to December        (8,689,401)       1,386,900         Sale of stock, January 16, 1998       499,563        500,000         Shares returned, April 17, 1998       (4,956)        (5,000         Mortization of compensatory stock options       (4,956)        (5,000         granted        (2,049,980)       (2,049,980)       (2,049,980)         granted        (2,049,980)       (2,049,980)       (2,049,980)         Net loss for year ended December 31, 1998        (2,049,980)       (2,049,980)         Balance at December 31, 1998        (2,049,980)       (2,049,980)         Net loss for year ended December 31, 1998        (2,049,980)       (2,049,980)         Balance at December 31, 1998        (2,049,980	short-term borrowings as of December 22, 1996	1,702,977		1,704,964
Shares issued as compensation       34,444        34,485         Amortization of compensatory stock options       2,496,347        2,496,347         Forfeiture of stock options       (279,220)        (279,220)         Shares issued in connection with exercise of       234,125        234,398         Deficit accumulated from inception to December        (8,689,401)       (8,689,401)       1,386,900         Sale of stock, January 16, 1998       499,563        57,000         Sale of stock, September 24, 1998       56,956        57,000         Shares returned, April 17, 1998       (4,956)        (5,000         Mortization of compensatory stock options       (407,189)        (407,169)         Forfeiture of stock options       67,391        (2,049,980)       (2,049,980)         Exercise of stock, June 30, 1999        (2,049,980)       (2,049,980)       (2,049,980)         Balance at December 31, 1998       11,420,554       (10,739,381)       715,649         Sale of stock, June 30, 1999        (2,049,980)       (2,049,980)       (2,049,980)         Balance at December 31, 1998       11,420,554       (10,739,381)       715,649         <		774,323		775,000
Amortization of compensatory stock options granted       2,496,347        2,496,347         Shares issued in connection with exercise of warrants       (279,220)        (279,220)         Shares issued in connection with exercise of marrants       234,125        234,398         Deficit accumulated from inception to December 31, 1997        (8,689,401)       (8,689,401)       (8,689,401)         Balance at December 31, 1997       10,042,371       (8,689,401)       1,386,900         Sale of stock, January 16, 1998       499,563        500,000         Sale of stock, September 24, 1998       56,956        57,000         Shares returned, April 17, 1998       (4,956)        (5,000         Amortization of compensatory stock options       (407,189)        (407,189)         granted        (2,049,980)       (2,049,980)       (2,049,980)         Net loss for year ended December 31, 1998        (2,049,980)       (2,049,980)          Balance at December 31, 1998       11,420,554       (10,739,381)       715,649        98,186        98,186        98,186        98,186        98,186        98,186        98,1	Exercise of stock options	30,781		31,000
Forfeiture of stock options       (279,220)        (279,220)         Shares issued in connection with exercise of warrants       234,125        234,398         Deficit accumulated from inception to December 31, 1997        (8,689,401)       (8,689,401)       1,386,900         Balance at December 31, 1997       10,042,371       (8,689,401)       1,386,900         Sale of stock, January 16, 1998       499,563        500,000         Shares returned, April 17, 1998       (4,956)        (5,000         Amortization of compensatory stock options granted       1,166,418        1,166,418         Forfeiture of stock options       (407,189)        (270,220)         Balance at December 31, 1998       11,420,554       (10,739,381)       715,649         Sale of stock, June 30, 1999       775,597        776,192         Marotization of compensatory stock options       98,186        98,186         Forfeiture of stock options       (554,371)        (554,371)         Sale of stock, June 30, 1999       (554,371)        (554,371)         Shares issued in connection with exercise of       98,186        98,186         Forfeiture of stock options       (554,371) <td>•</td> <td>34,444</td> <td></td> <td>34,485</td>	•	34,444		34,485
Shares issued in connection with exercise of warrants       234,125        234,398         Deficit accumulated from inception to December 31, 1997        (8,689,401)       (8,689,401)         Balance at December 31, 1997       10,042,371       (8,689,401)       1,386,900         Sale of stock, January 16, 1998       499,563        500,000         Sale of stock, September 24, 1998       56,956        57,000         Shares returned, April 17, 1988       (4,956)        (5,000         Amortization of compensatory stock options granted       1,166,418        1,166,418         Forfeiture of stock options       (407,189)        (2,049,980)       (2,049,980)         Net loss for year ended December 31, 1998       11,420,554       (10,739,381)       715,697          Balance at December 31, 1998       98,186        98,186        98,186         Forfeiture of stock options       98,186        98,186        24,998         Net loss for year ended December 31, 1999        (572,581)       (572,581)       (572,581)         Balance at December 31, 1999       11,764,935       (11,311,962)       488,073	granted	2,496,347		2,496,347
Deficit accumulated from inception to December        (8,689,401)       (8,689,401)         31, 1997        (8,689,401)       1,386,900         Balance at December 31, 1997       10,042,371       (8,689,401)       1,386,900         Sale of stock, January 16, 1998       499,563        500,000         Sale of stock, September 24, 1998       56,956        57,000         Shares returned, April 17, 1998       (4,956)        (5,000         Amortization of compensatory stock options       (4,956)        (5,000         granted       1,166,418        1,166,418        (4,07,189)         Forfeiture of stock options       (407,189)        (2,049,980)       (2,049,980)         Exercise of stock options       67,391        67,500         Net loss for year ended December 31, 1998       11,420,554       (10,739,381)       715,649         granted       98,186        98,186       98,186         Forfeiture of stock options       (554,371)        (554,371)         Shares issued in connection with exercise of       24,969        24,988         Net loss for year ended December 31, 1999        (572,581)		(279,220)		(279,220)
31, 1997        (8,689,401)       (8,689,401)         Balance at December 31, 1997       10,042,371       (8,689,401)       1,386,900         Sale of stock, January 16, 1998       499,563        500,000         Sale of stock, September 24, 1998       56,956        57,000         Shares returned, April 17, 1998       (4,956)        (5,000         Amortization of compensatory stock options       (407,189)        (407,189)         Forfeiture of stock options       (407,189)        (407,189)         Exercise of stock options       67,391        67,500         Net loss for year ended December 31, 1998       11,420,554       (10,739,381)       715,649         Sale of stock, June 30, 1999       98,186        98,186         Granted       98,186        98,186          Shares issued in connection with exercise of       98,186        98,186          Warrants       24,969        24,969        24,969         Net loss for year ended December 31, 1999       11,764,935       (11,311,962)       488,073		234,125		234,398
Sale of stock, January 16, 1998       499,563        500,000         Sale of stock, September 24, 1998       56,956        57,000         Shares returned, April 17, 1998       (4,956)        (5,000         Amortization of compensatory stock options       (4,956)        (5,000         granted       1,166,418        1,166,418        (407,189)         Exercise of stock options       (407,189)        (407,189)        67,500         Net loss for year ended December 31, 1998        (2,049,980)       (2,049,980)       (2,049,980)       (2,049,980)         Balance at December 31, 1998       11,420,554       (10,739,381)       715,649         granted       775,597        776,192         Amortization of compensatory stock options       98,186        98,186         Forfeiture of stock options       (554,371)        (554,371)         Shares issued in connection with exercise of       24,969        24,998         Net loss for year ended December 31, 1999        (572,581)       (572,581)         Balance at December 31, 1999       11,764,935       (11,311,962)       488,073	•		(8,689,401)	(8,689,401)
Sale of stock, January 16, 1998       499,563        500,000         Sale of stock, September 24, 1998       56,956        57,000         Shares returned, April 17, 1998       (4,956)        (5,000         Amortization of compensatory stock options       (4,956)        (5,000         granted       1,166,418        1,166,418        (407,189)         Exercise of stock options       (407,189)        (407,189)        67,500         Net loss for year ended December 31, 1998        (2,049,980)       (2,049,980)       (2,049,980)       (2,049,980)         Balance at December 31, 1998       11,420,554       (10,739,381)       715,649         granted       775,597        776,192         Amortization of compensatory stock options       98,186        98,186         Forfeiture of stock options       (554,371)        (554,371)         Shares issued in connection with exercise of       24,969        24,998         Net loss for year ended December 31, 1999        (572,581)       (572,581)         Balance at December 31, 1999       11,764,935       (11,311,962)       488,073	Balance at December 31, 1997	10,042,371	(8,689,401)	1,386,900
Sale of stock, September 24, 1998       56,956        57,000         Shares returned, April 17, 1998       (4,956)        (5,000         Amortization of compensatory stock options       (4,956)        (5,000         granted       1,166,418        1,166,418        (407,189)         Forfeiture of stock options       (407,189)        (407,189)        67,500         Net loss for year ended December 31, 1998       11,420,554       (10,739,381)       715,649        776,192         Balance at December 31, 1998       11,420,554       (10,739,381)       715,649        776,192         granted        (5,049,980)        (554,371)        776,192         Maortization of compensatory stock options       98,186        98,186        98,186         Forfeiture of stock options       (554,371)        (554,371)        (554,371)         Shares issued in connection with exercise of        (572,581)       (572,581)       (572,581)         Warrants        (572,581)       (572,581)       (572,581)       (572,581)         Balance at December 31, 1999       11,764,935		, ,	(-,,,,,,,	
Shares returned, April 17, 1998       (4,956)        (5,000         Amortization of compensatory stock options       1,166,418        1,166,418         Forfeiture of stock options       (407,189)        (407,189)         Exercise of stock options       67,391        67,500         Net loss for year ended December 31, 1998        (2,049,980)       (2,049,980)         Balance at December 31, 1998       11,420,554       (10,739,381)       715,649         Amortization of compensatory stock options       775,597        776,192         Amortization of compensatory stock options       98,186        98,186         Forfeiture of stock options       (554,371)        (554,371)         Shares issued in connection with exercise of       24,969        24,998         Net loss for year ended December 31, 1999       11,764,935       (11,311,962)       488,073		,		57,000
granted       1,166,418        1,166,418         Forfeiture of stock options       (407,189)        (407,189)         Exercise of stock options       67,391        67,500         Net loss for year ended December 31, 1998        (2,049,980)       (2,049,980)         Balance at December 31, 1998       11,420,554       (10,739,381)       715,649         Sale of stock, June 30, 1999       775,597        776,192         Amortization of compensatory stock options       98,186        98,186         Forfeiture of stock options       (554,371)        (554,371)         Shares issued in connection with exercise of       24,969        24,998         Net loss for year ended December 31, 1999        (572,581)       (572,581)         Balance at December 31, 1999       11,764,935       (11,311,962)       488,073	Shares returned, April 17, 1998	(4,956)		(5,000)
Exercise of stock options       67,391        67,500         Net loss for year ended December 31, 1998        (2,049,980)       (2,049,980)         Balance at December 31, 1998       11,420,554       (10,739,381)       715,649         Sale of stock, June 30, 1999       775,597        776,192         Amortization of compensatory stock options       98,186        98,186         Forfeiture of stock options       (554,371)        (554,371)         Shares issued in connection with exercise of       24,969        24,998         Net loss for year ended December 31, 1999       11,764,935       (11,311,962)       488,073		1,166,418		1,166,418
Exercise of stock options       67,391        67,500         Net loss for year ended December 31, 1998        (2,049,980)       (2,049,980)         Balance at December 31, 1998       11,420,554       (10,739,381)       715,649         Sale of stock, June 30, 1999       775,597        776,192         Amortization of compensatory stock options       98,186        98,186         Forfeiture of stock options       (554,371)        (554,371)         Shares issued in connection with exercise of       24,969        24,998         Net loss for year ended December 31, 1999       11,764,935       (11,311,962)       488,073	Forfeiture of stock options	(407,189)		(407,189)
Balance at December 31, 1998       11, 420, 554       (10, 739, 381)       715, 649         Sale of stock, June 30, 1999       775, 597        776, 192         Amortization of compensatory stock options       98, 186        98, 186         Forfeiture of stock options       (554, 371)        (554, 371)         Shares issued in connection with exercise of       24, 969        24, 998         Net loss for year ended December 31, 1999       11, 764, 935       (11, 311, 962)       488, 073	Exercise of stock options			67,500
Balance at December 31, 1998       11, 420, 554       (10, 739, 381)       715, 649         Sale of stock, June 30, 1999       775, 597        776, 192         Amortization of compensatory stock options       98, 186        98, 186         Forfeiture of stock options       (554, 371)        (554, 371)         Shares issued in connection with exercise of       24, 969        24, 998         Net loss for year ended December 31, 1999       11, 764, 935       (11, 311, 962)       488, 073	Net loss for year ended December 31, 1998	, 	(2,049,980)	(2,049,980)
Sale of stock, June 30, 1999       775, 597        776, 192         Amortization of compensatory stock options       98,186        98,186         Forfeiture of stock options       (554,371)        (554,371)         Shares issued in connection with exercise of       24,969        24,998         Net loss for year ended December 31, 1999        (572,581)       (572,581)         Balance at December 31, 1999       11,764,935       (11,311,962)       488,073				
Amortization of compensatory stock options       98,186        98,186         Forfeiture of stock options       (554,371)        (554,371)         Shares issued in connection with exercise of       24,969        24,998         Net loss for year ended December 31, 1999        (572,581)       (572,581)         Balance at December 31, 1999       11,764,935       (11,311,962)       488,073	Balance at December 31, 1998	11,420,554	(10,739,381)	715,649
Forfeiture of stock options       (554,371)        (554,371)         Shares issued in connection with exercise of warrants       24,969        24,998         Net loss for year ended December 31, 1999        (572,581)       (572,581)         Balance at December 31, 1999       11,764,935       (11,311,962)       488,073		775,597		776,192
Shares issued in connection with exercise of warrants       24,969        24,998         Net loss for year ended December 31, 1999        (572,581)       (572,581)         Balance at December 31, 1999       11,764,935       (11,311,962)       488,073	granted	98,186		98,186
Net loss for year ended December 31, 1999          (572,581)         (572,581)           Balance at December 31, 1999         11,764,935         (11,311,962)         488,073		(554,371)		(554,371)
Net loss for year ended December 31, 1999          (572,581)         (572,581)           Balance at December 31, 1999         11,764,935         (11,311,962)         488,073		24,969		24,998
	Net loss for year ended December 31, 1999			(572,581)
	Balance at December 31, 1999	11,764,935	(11,311,962)	488,073
Sale of stock, April 14, 2000          501,825           Net loss for six months ended June 30, 2000          501,825	Sale of stock, April 14, 2000	498,901		501,825
			(391,771)	(391,771)
	Balance at June 30, 2000			\$    598,127

See accompanying notes to financial statements.

# DELCATH SYSTEMS, INC.

# (A DEVELOPMENT STAGE COMPANY)

# Statement of Cash Flows

	Years ended December 31,			
	1998	1999		
Cash flows from operating activities: Net income (loss) Adjustments to reconcile net income (loss) to net cash used in operating activities:	\$ (2,049,980)	(572,581)		
Stock option compensation expense (reversal)	759,229	(456,185)		
Stock compensation expense Depreciation expense Amortization of organization costs (Increase) decrease in prepaid	3,000	3,000		
expenses	7,966	867		
`receivable Due from affiliate	32,932	1,797		
(Decrease) increase in accounts payable and accrued expenses	(174,369)	(69,323)		
Net cash used in operating activities	(1,421,222)	(1,092,425)		
Cash flows from investing activities: Purchase of furniture and fixtures Purchase of short-term investments Proceeds from maturities of short-term				
investments Organization costs				
Net cash provided by (used in) investing activities				
Cash flows from financing activities: Net proceeds from sale of stock and exercise of stock options and warrants Deposits Deferred IPO costs Proceeds from short-term borrowings	624,500 (304,991)  	801,190   		
Net cash provided by financing activities	319,509	801,190		
Increase (decrease) in cash and cash equivalents Cash and cash equivalents at beginning of	(1,101,713)	(291,235)		
period	1,954,026	852,313		
Cash and cash equivalents at end of period	\$    852,313 =======	561,078 =======		
Supplemental cash flow activities: Conversion of debt to common stock	\$ ========			
Cash paid for interest	\$ ======	17,925 =======		

	Cumulative from inception (August 5, 1988) to December 31, 1999	Six month June 30, 1999		Cumulative from inception (August 5, 1988) to June 30, 2000
		(Unaudi	.ted)	(Unaudited)
Cash flows from operating activities: Net income (loss) Adjustments to reconcile net income (loss) to net cash used in operating activities:	(11,311,962)	(200,410)	(391,771)	(11,703,733)
Stock option compensation expense (reversal) Stock compensation expense Depreciation expense	2,520,171 34,485 6,750	(456,185)  1,500	  1,500	2,520,171 34,485 8,250
Amortization of organization costs (Increase) decrease in prepaid	42,165			42,165
expenses (Increase) decrease in interest	(4,167)	(11,633)	(62,855)	(67,022)
receivable Due from affiliate (Decrease) increase in accounts	(3,326) (24,000)	3,900 	2,351 	(975) (24,000)
payable and accrued expenses	112,748	61,580	96,784	209,532
Net cash used in operating activities	8,627,136	(601,248)	(353,991)	(8,981,127)
Cash flows from investing activities: Purchase of furniture and fixtures Purchase of short-term investments Proceeds from maturities of short-term	(15,000) (1,030,000)			(15,000) (1,030,000)
investments Organization costs	1,030,000 (42,165)			1,030,000 (42,165)
Net cash provided by (used in) investing activities	(57,165)			(57,165)
Cash flows from financing activities: Net proceeds from sale of stock and	7 540 445	001 100	501 005	0.040.040
exercise of stock options and warrants Deposits	7,540,415	801,190	501,825	8,042,240
Deferred IPO costs Proceeds from short-term borrowings	1,704,964		(291,363)	(291,363) 1,704,964
Net cash provided by financing activities	9,245,379	801,190	210,462	9,455,841
Increase (decrease) in cash and cash equivalents Cash and cash equivalents at beginning of	561,078	199,942	(143,529)	417,549
period		852,313	561,078	
Cash and cash equivalents at end of period	561,078	1,052,255	417,549	417,549
Supplemental cash flow activities: Conversion of debt to common stock	1,704,964 ========			1,704,964 ========
Cash paid for interest	114,948			114,948 

See accompanying notes to financial statements.

### December 31, 1999 and 1998

### (1) Description of Business and Summary of Significant Accounting Policies

# (a) Description of Business

Delcath Systems, Inc. (the "Company") is a development stage company which was founded in 1988 for the purpose of developing and marketing a proprietary drug delivery system capable of introducing, and removing, high dose chemotherapy agents to a diseased organ system while greatly inhibiting their entry into the general circulation system. It is hoped that the procedure will result in a meaningful treatment for cancer. In November 1989, the Company was granted an IDE (Investigational Device Exemption) and an IND status (Investigational New Drug) for its product by the FDA (Food and Drug Administration).

## (b) Basis of Financial Statement Presentation

The accounting and financial reporting policies of the Company conform to generally accepted accounting principles. The preparation of financial statements in conformity with generally accepted accounting principles requires management to make assumptions and estimates that impact the amounts reported in those statements. Such assumptions and estimates are subject to change in the future as additional information becomes available or as circumstances are modified. Actual results could differ from these estimates.

# (c) Furniture and Fixtures

Furniture and fixtures are recorded at cost and are being depreciated over the estimated useful lives of the assets.

### (d) Income Taxes

The Company accounts for income taxes following the asset and liability method in accordance with Statement of Financial Accounting Standards (SFAS) No. 109, "Accounting for Income Taxes." Under such method, deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. The Company's income tax returns are prepared on the cash basis of accounting. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years that the asset is expected to be recovered or the liability settled.

### (e) Stock Option Plan

The Company has historically accounted for its employee stock option plans in accordance with the provisions of Accounting Principles Board ("APB") Opinion No. 25, "Accounting for Stock Issued to Employees," and related interpretations. As such, compensation expense is recorded on the date of grant only if the current fair market value of the underlying stock exceeds the exercise price. Fair market values of the Company's common stock at the dates options were granted were based on third party sales of stock at or around the dates options were granted, or in the absence of such transactions, based on a determination by the board of directors based on current available information. In 1996, the Company adopted Statement of Financial Accounting Standards (SFAS) No. 123, "Accounting for Stock-Based Compensation," which permits entities to recognize as expense over the vesting period the fair value of all stock-based awards on the date of grant. Alternatively, SFAS No. 123 also allows entities to continue to apply the provisions of APB Opinion No. 25 and provide pro forma net income and pro forma earnings per share disclosures for employee stock option grants made in 1995 and future years as if the fair-value-based method defined in SFAS No. 123 had been applied. The Company has elected to continue to apply the provisions of APB Opinion No. 25 and provide pro forma net income sof SFAS No. 123 (see note 2(e)).

# December 31, 1999 and 1998 -- (Continued)

 Description of Business and Summary of Significant Accounting Policies --(Continued)

#### (f) Earnings Per Share

Basic earnings per share is computed using the weighted average number of shares of common stock outstanding during the period. Diluted earnings per share reflect the dilutive effect of common stock equivalents using the treasury stock method.

#### (g) Statements of Cash Flows

For purposes of the statements of cash flows, the Company considers highly liquid debt instruments with original maturities of three months or less to be cash equivalents. At December 31, 1999 cash equivalents included commercial paper of \$557,000.

### (h) Interim Financial Information

The financial statements and notes related thereto as of June 30, 2000 and for the six months ended June 30, 1999 and 2000 are unaudited, but in the opinion of management, include all normal recurring adjustments necessary for a fair presentation of financial position and results of operations. The operating results for the interim periods are not necessarily indicative of a full year's operations.

## (2) Stockholders' Equity

The common stock and per share data for all periods gives effect to a reverse stock split of 1 for 2.2881 shares which is to occur immediately before the date of the Company's initial public offering described in note 5.

#### (a) Stock Issuances

BGH Medical Products, Inc. (name later changed to Delcath Systems, Inc.), a Delaware corporation (BGH - Delaware), was formed on August 5, 1988. As of August 22, 1988, BGH Medical Products, Inc., a Connecticut corporation (BGH -Conn.), was merged into BGH -Delaware, the surviving corporation. As of the merger date, the authorized capital stock of BGH - Conn. consisted of 5,000 shares of common stock, par value \$.01 per share, of which 1,000 shares were issued and outstanding. Upon the merger, each BGH - Conn. common share outstanding was exchanged into 786.678 shares of BGH - Delaware common stock. As a result of the conversion, BGH - Delaware issued 786,678 shares of common stock at \$.01 par value. The aggregate amount of the par value of all shares of common stock issued as a result of the exchange, \$7,867, was credited as the common stock capital of BGH - Delaware, and the difference in respect to the capital account deficiency was charged to additional paid-in capital.

On August 22, 1988, BGH - Delaware then sold in a private placement 2,000,000 shares of class A preferred stock, with a par value of \$.01, to two affiliated venture capital funds for an aggregate amount of \$500,000 in cash.

On March 8, 1990, 524,451 shares of common stock were returned to the Company as treasury stock due to relevant technology milestones not being fully achieved within the specified time period, in accordance with provisions of a stockholders' agreement.

Effective May 7, 1990, the Company changed its name to Delcath Systems, Inc.

On October 2, 1990, the Company sold 21,852 shares of common stock held in its treasury, at \$.01 par value, for an aggregate amount of \$25,000.

On January 23, 1991, the Company offered in a private placement shares of common stock and/or class B preferred stock at \$5.83 and \$2.55 per share, respectively, for an aggregate maximum amount of

December 31, 1999 and 1998 -- (Continued)

(2) Stockholders' Equity -- (Continued)

\$2,000,000. Under the terms of the private placement, 58,924 shares of common stock held in its treasury and 416,675 shares of class B preferred stock were sold, yielding net proceeds to the Company of \$1,406,322. The common stock and class B preferred stock sold each has a par value of \$.01, resulting in an increase in additional paid-in capital of \$1,401,566. The two affiliated venture capital funds that owned the class A preferred stock purchased 117,650 of the class B preferred stock sold in the private placement.

On August 30, 1991, the Company sold an additional 1,714 shares of common stock held in its treasury at \$5.83 per share, yielding proceeds to the Company of \$10,001. The shares have a par value of \$.01, resulting in an additional paid-in capital amount of \$9,984.

In a December 1992 private placement, the Company sold 131,113 shares of common stock held in our treasury at \$8.01 per share for a total placement of \$1,050,000 (\$1,015,004 after expenses). The shares issued have a par value of \$.01, resulting in an additional paid-in capital amount of \$1,048,689 (\$1,013,693 after expenses). The two affiliated venture capital funds that owned the class A preferred stock purchased 34,963 of the shares of common stock in its treasury which were sold.

Effective January 1, 1994, the Company issued 2,185 shares of common stock held in its treasury at \$1.14 per share for a total price of \$2,500 upon the exercise of stock options by an employee of the Company.

During the first quarter of 1994, the Company increased its authorized number of shares of common stock from 5,000,000 to 15,000,000.

On July 15, 1994, the Company sold through a private placement offering, units at a price of \$51,000 per unit. Each unit consisted of 5,944 common shares and 594 warrants, each of which entitled the holder to purchase one share of common stock for \$8.58. In connection therewith, the Company sold twenty-two (22) units (130,763 common shares and 13,076 warrants expiring August 30, 1997) for total proceeds of \$1,122,000. The two affiliated venture capital funds that owned the class A preferred stock purchased six (6) of the units sold. During August 1997, the holders of warrants exercised 11,293 warrants to purchase 11,293 shares of common stock at \$8.58 each for total proceeds of \$96,900. The remaining warrants expired unexercised.

Effective January 1, 1995, the Company issued 2,185 shares of common stock held in its treasury at \$1.14 per share for a total price of \$2,500 upon the exercise of stock options by an employee of the Company.

Effective January 1, 1996, the Company issued 1,049 shares of common stock, valued at \$8.58 per share for a total of \$9,000, as compensation for consulting services.

On December 19, 1996, the Company sold through a private transaction 50,046 shares of common stock for total proceeds of \$1,000,000. In connection with the offering, the purchaser obtained sole distribution rights for the Company's products for a limited period of time in Japan, Korea, China, Taiwan, and Hong Kong. No value was attributed to the distribution rights. In addition, the purchaser will be required to buy certain products from the Company.

On April 26, 1996, the Company entered into short-term borrowing agreements with 26 investors under which it borrowed \$1,704,964 bearing interest at 10.25% per annum. Under the terms of the agreements, on December 22, 1996, the short-term borrowings were converted into 198,705 shares of common stock, based on a conversion price of \$8.58 per share, and 99,350 warrants, expiring April 25, 1999, entitling the holders to purchase 99,350 additional shares of common stock at \$8.58 per share. The two affiliated venture capital funds discussed above provided \$250,000 of the short-term loan, converting that debt into 29,136 shares and 14,568

# December 31, 1999 and 1998 -- (Continued)

# (2) Stockholders' Equity -- (Continued)

warrants. From April 26, 1996 through December 22, 1996, interest of \$114,948 accrued on the borrowings. Such interest was paid in January 1997. During September 1997, the holders of warrants exercised 1,457 warrants to purchase 1,457 shares of common stock at \$8.58 each for total proceeds of \$12,499. During December 1997, the two affiliated venture capital funds exercised their 14,568 warrants to purchase 14,568 common shares at \$8.58 each for total proceeds of \$124,999. During April 1999, the holders of warrants exercised 2,913 warrants to purchase 2,913 common shares at \$8.58 each for total proceeds of \$24,998. The remaining warrants expired unexercised.

In 1997, the Company issued 2,970 shares of common stock, valued at \$8.58 per share based on a 1996 agreement, for a total cost of \$25,485, as compensation for consulting services.

From September 1997, through December 31, 1997, the Company issued 67,742 shares of common stock. During January 1998, the Company received an additional \$500,000 and issued another 43,704 shares. In April 1998, under the terms of the restricted stock sales agreements, the Company issued to the purchasers of the 111,446 shares of common stock 14,859 three year warrants entitling the holders to purchase 14,859 shares of common stock at \$8.58 per share.

In December 1997, the holder of non-incentive stock options exercised 17,482 options to purchase 17,482 shares of common stock at \$1.49 each for total proceeds of \$26,000.

At the end of December 1997, the holders of 35,545 shares of common stock agreed to sell those shares to the two affiliated venture capital funds discussed above at \$8.58 per share. The venture capital funds deposited \$304,991 with the Company pending transfer of the shares. At the time of transfer, the Company paid the funds to the sellers.

In April 1998, a venture capital firm exercised 10,926 non-incentive stock options to purchase 10,926 restricted common shares at \$6.18 each for total proceeds of \$67,500.

In April 1998, in connection with the settlement of a dispute with a former director, the Company cancelled 4,370 shares of common stock previously held by the former director in return for \$1.14 per share, the price originally paid by the former director.

In September 1998, the Company sold 4,370 shares of common stock to an individual for \$13.04 per share, yielding proceeds to the Company of \$57,000.

In June 1999, the Company sold 59,514 shares of common stock to individual investors for \$13.04 per share and warrants entitling the holders to purchase 6,609 common shares at \$11.74 per share (which warrants expire April 30, 2002), yielding proceeds to the Company of \$776,192.

In April 2000, the Company sold 292,426 shares at \$1.72 per share to existing stockholders in a rights offering yielding proceeds to the Company of \$501,825.

The two affiliated venture capital firms discussed above were liquidated in 1998 and the shares of the Company then owned by the funds were distributed to the individual investors of the funds, or their nominee, if so directed.

# (b) Voting Rights

Each holder of common stock is entitled to one vote. Each share of class A preferred stock and each share of class B preferred stock is convertible into shares of common stock on a one for .4370 basis, subject to antidilution adjustments. In addition to special voting rights to elect directors to the Board of Directors,

# December 31, 1999 and 1998 -- (Continued)

# (2) Stockholders' Equity -- (Continued)

each class A preferred stockholder is entitled to ten times the number of votes per share of common stock into which the class A preferred stock is convertible and each class B preferred stockholder is entitled to the number of votes per share of Common Stock into which the class B preferred stock is convertible.

#### (c) Liquidation Preference

In the event of any liquidation, dissolution or winding up of the Company, after provision for payment of debts and other liabilities, the holders of the class A preferred stock shall be entitled to receive, prior to any distribution of any of the assets or surplus funds of the Company to the holders of class B preferred stock and common stock, an amount equal to the sum of (a) 150% of the issue price (as adjusted for any combinations, consolidations, stock distributions or stock dividends with respect to such shares) plus (b) a sum equal to that amount of interest that would have accrued if a sum equal to 150% of the issue price had been invested at a compounded annual interest rate of 10% at the original issue date. After the satisfaction of the class A preferred stockholders, the holders of class B preferred stock will be entitled to a liquidation sum, in preference to the common stockholders, of \$3.90 per share. Common stockholders will be entitled to share ratably with the class A and class B preferred stockholders (on an as-converted basis) in the remaining assets of the Company.

### (d) Dividends

The holders of class A and class B preferred stock are entitled to receive dividends on a cumulative basis at the rate of 11% and 8%, respectively, per share per annum as and when declared by the Board of Directors, before any dividend or distribution is declared, set apart for, or paid upon the common stock of the Company. As of December 31, 1999, class A preferred stock and class B preferred stock had dividends in arrears of \$624,740 (\$.31 per share) and \$759,429 (\$1.82 per share), respectively. Dividends declared but unpaid, at the option of the holder, are payable in cash or may be converted into common stock subject to antidilution adjustments. The class A dividends may be converted at the rate of \$.57 per share, while the class B dividends may be converted at the rate of \$5.83 per share.

The Company has entered into agreements with the preferred shareholders providing that if the Company completes a public offering of its common stock prior to September 30, 2001, the Board will, immediately prior to the offering, declare as payable all dividends in arrears. In such event, the preferred shareholders have agreed to accept one-third of such dividends in cash and then immediately convert all of their outstanding preferred stock into common stock as well as convert the balance of their declared but unpaid preferred stock dividends into common stock at the applicable conversion price.

### (e) Stock Option Plans

The Company established an Incentive Stock Option Plan and a Non-Incentive Stock Option Plan under which stock options may be granted. Additionally, the Company has entered into separate contracts apart from the Incentive Stock Option Plan and the Non-Incentive Stock Option Plan under which options to purchase common shares have been granted. A stock option granted allows the holder of the option to purchase a share of the Company's common stock in the future at a stated price. The Plans are administered by the Board of Directors which determines the individuals to whom the options shall be granted as well as the terms and conditions of each option grant, the option price and the duration of each option.

The Company's Incentive and Non-Incentive Stock Plans were approved and became effective on November 1, 1992. The Incentive Stock Options vest as determined by the Company and expire over varying terms, but not more than five years from the date of grant.

# December 31, 1999 and 1998 -- (Continued)

(2) Stockholders' Equity -- (Continued)

Stock option activity for the period January 1, 1998 through December 31, 1999 is as follows:

Grants	Non-Inco Incentive Opt	entive and tion Plans		Other Option
		Weighted Average Exercise		Weighted Average Exercise
	Shares	Price	Shares	Price
Outstanding at				
December 31, 1997	255,020	\$ 6.11	21,852	\$ 2.29
Granted during 1998	21,852	6.18		
Forfeited during 1998	(52,445)			
Expired during 1998	(119,750)	6.18		
Exercised during 1998	(10,926)	6.18		
Outstanding at				
December 31, 1998	93,751	5.97	21,852	2.29
Granted during 1999	559,416	3.27	21,852	2.29
Canceled during 1999	(43,704)	5.97		
Forfeited during 1999	(50,047)	5.97		
Expired during 1999			(21,852)	2.29
Outstanding at				
December 31, 1999	559,416	\$ 3.27	21,852	\$ 2.29
	=======		=======	

The following summarizes information about shares subject to option at December 31, 1999:

Options outstanding 0			Options ex	Options exercisable	
Number outstanding	Range of exercise prices	Weighted average exercise price	Weighted average remaining life in years	Number exercisable	Weighted average exercise price
240,374	\$2.29	\$2.29	3.76	131,113	\$2.29
340,894	3.89	3.89	4.00	340,894	3.89
581,268	\$2.29 - \$3.89	\$3.23	3.90	472,007	\$3.46
=======				=======	

The Company applies APB 25 and related interpretations in accounting for its plans. As such, compensation cost is measured at the date of grant as the excess, if any, of the fair market value of the underlying stock over the exercise price. Such cost is then recognized over the period the recipient is required to perform services to earn such compensation. If a stock option is not exercised because an employee fails to fulfill an obligation, the estimate of compensation expense recorded in previous periods is adjusted by decreasing compensation expense in the period of forfeiture. In 1998 and 1999, former employees of the Company resigned and forfeited all of their non vested options. As a result, the expense previously accrued for such option grants was reversed. Accordingly, stock option compensation expense/(reversal) associated with the Incentive and Non-Incentive Stock Plans for the years ended December 31, 1998 and 1999 was \$759,229 and (\$456,185), respectively, net of forfeitures of \$407,189 and \$554,371, respectively. Had compensation cost for the Company's stock option grants been determined based on the fair value at the grant dates consistent with the methodology of SFAS 123, the Company's net loss for the years ended December 31, 1998 and 1999 would have been increased to the pro forma amounts indicated as follows:

# December 31, 1999 and 1998 -- (Continued)

(2) Stockholders' Equity -- (Continued)

	1998	1999
Net loss:		
As reported	\$(2,049,980)	(572,581)
Pro forma	(2,132,139)	(944,303)

The per share weighted average fair value of stock options granted during 1999 and 1998 was \$.73, estimated on the date of grant using the Black-Scholes option-pricing model with the following weighted-average assumptions used for the grants for both years: no dividend yield, risk free interest rate of 5.5%, expected lives of five years and no volatility.

### (3) Income Taxes

As of December 31, 1999, the Company had net operating loss carryforwards for federal income tax purposes of approximately \$8,542,000 which are available to offset future federal taxable income, if any, through 2019. The net operating loss carryforwards resulted in a deferred tax asset of approximately \$2,904,000 at December 31, 1999. Management does not expect the Company to be taxable in the near future and has established a 100% valuation allowance against the deferred tax asset created by the net operating loss carryforwards.

### (4) Prepaid Rent and Due From Affiliate

The Company occupies office space pursuant to an informal arrangement with the landlord according to which the Company prepaid its rent for the period through December 31, 2000. In addition, the landlord is holding a \$24,000 deposit provided by the Company.

## (5) Initial Public Offering

In March 2000, the Company engaged an investment banker for the purpose of issuing its stock in an initial public offering. In connection therewith, the Company anticipates declaring and paying the preferred stock dividends as described in note 2(d); converting all the outstanding preferred stock to common stock as described in note 2(d) and effecting a reverse split of the common shares of 1 for 2.2881 shares.

=====

We have not authorized any dealer, salesperson or any other person to give any information or to represent anything not contained in this prospectus. You must not rely on any unauthorized information. This prospectus does not constitute an offer to sell or buy any shares in any jurisdiction where it is unlawful.

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Until \_\_\_\_\_, 2000 (25 days after the date of this prospectus), all dealers effecting transactions in the registered securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealers' obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

2,000,000 Shares

[GRAPHIC OMITTED]

Common Stock

PROSPECTUS

Whale Securities Co., L.P.

, 2000

# PART II

### INFORMATION NOT REQUIRED IN THE PROSPECTUS

Item 24. Indemnification of Directors and Officers

Section 145 of the General Corporation Law of the State of Delaware provides for the indemnification of officers and directors under certain circumstances against expenses incurred in successfully defending against a claim and authorizes a Delaware corporation to indemnify its officers and directors under certain circumstances against expenses and liabilities incurred in legal proceedings involving such persons because of their being or having been an officer or director.

Section 102(b) of the Delaware General corporation Law permits a corporation, by so providing in its certificate of incorporation, to eliminate or limit a director's liability to the corporation and its stockholders for monetary damages arising out of certain alleged breaches of their fiduciary duty. Section 102(b)(7) provides that no such limitation of liability may affect a director's liability with respect to any of the following:

- o breaches of the director's duty of loyalty to the corporation or its stockholders;
- o acts or omissions not made in good faith or which involve intentional misconduct of knowing violations of law;
- o liability for dividends paid or stock repurchased or redeemed in violation of the Delaware General Corporation law; or
- o any transaction from which the director derived an improper personal benefit. Section 102(b)(7) does not authorize any limitation on the ability of the company or its stockholders to obtain injunctive relief, specific performance or other equitable relief against directors.

Article Seventh of the Registrant's Certificate of Incorporation provides that the personal liability of the directors of the Registrant be eliminated to the fullest extent permitted under Section 102(b) of the Delaware General Corporation law.

Article Eighth of the Registrant's Certificate of Incorporation and the Registrant's By-laws provides that all persons whom the Registrant is empowered to indemnify pursuant to the provisions of Section 145 of the Delaware General Corporation law (or any similar provision or provisions of applicable law at the time in effect), shall be indemnified by the Registrant to the full extent permitted thereby. The foregoing right of indemnification shall not be deemed to be exclusive of any other rights to which those seeking indemnification may be entitled under any by-law, agreement, vote of stockholders or disinterested directors, or otherwise.

Insofar as indemnification for liabilities under the Securities Act of 1933, as amended (the "Securities Act") may be permitted to directors, officers or persons controlling the Registrant pursuant to the foregoing provisions, the Registrant has been informed that in the opinion of the Commission, such indemnification is against public policy as expressed in the Securities Act and is therefor unenforceable.

Reference is made to the Underwriting Agreement, the proposed form of which is filed as Exhibit 1.1, pursuant to which the underwriters agree to indemnify the directors and certain officers of the Registrant and certain other persons against certain civil liabilities.

Item 25. Other Expenses of Issuance and Distribution

The following table sets forth the expenses (other than the underwriting discounts and commissions and the representative's non-accountable expense allowance) expected to be incurred in connection with the issuance and distribution of the securities being registered. All of such expenses are estimates, other than the filing fees payable to the Securities and Exchange Commission and the National Association of Securities Dealers, Inc.

II-1

Filing Fee - Securities and Exchange Commission	\$	4,165.92
Filing Fee - National Association of Securities Dealers, Inc	\$	2,078.00
Fees and Expenses of Accountants	\$	75,000.00
Fees and Expenses of Counsel	\$	225,000.00*
Printing and Engraving Expenses	\$	50,000.00
Blue Sky Fees and Expenses	\$	75,000.00
Transfer Agent Fees	\$	5,000.00
Miscellaneous Expenses	\$	3,756.08
Total:	\$	440,000.00
	=:	===========

\*In addition, counsel will receive 125,000 common shares at the consummation of this offering.

Item 26. Recent Sales of Unregistered Securities

Since January 1997, the Registrant has issued securities without registration under the Securities Act in the following transactions:

1. From September 1997 through January 1998, the Registrant issued an aggregate of 114,446 shares of Common Stock to eleven investors, including Venkol Ventures LP, Venkol Ventures Ltd. and a director of the Registrant for aggregate proceeds of \$1,275,000. In April 1998, the eleven investors also received three-year warrants to purchase 14,859 shares of common stock at \$8.58 per share.

2. In December 1997, the Registrant issued an aggregate of 17,482 shares of Common Stock to an employee upon the exercise of non-incentive stock options for aggregate proceeds of \$26,000.

3. In December 1997, the Registrant issued an aggregate of 2,970 shares of Common Stock valued at \$25,485 to a consultant as compensation for consulting services.

4. In April 1998, the Registrant issued an aggregate of 10,926 shares of common stock to a venture capital firm upon the exercise of non-incentive stock options for aggregate proceeds of \$67,500.

5. In September 1998, the Registrant issued an aggregate of 4,370 shares of common stock to an investor for aggregate proceeds of \$57,000.

6. In April 1999, the Registrant issued an aggregate of 2,913 shares of common stock to a venture capital firm upon the exercise of warrants for aggregate proceeds of \$24,998.

7. In June 1999, the Registrant issued an aggregate of 59,514 shares of Common Stock and warrants entitling the holders thereof to purchase an aggregate of 6,609 shares of Common Stock to twelve investors, at \$11.74 per share, including a director of the Registrant, for aggregate proceeds of \$776,192.

8. In April 2000, the Registrant issued an aggregate of 292,426 shares of common stock to 14 security holders and their designees for aggregate proceeds of \$501,825

The sales and issuances of the Common Stock, options and warrants in each transaction described above were deemed to be exempt from registration under the Securities Act in reliance upon Section 4(2) of the Securities Act as transactions not involving a public offering. The Registrant made a determination that each of the purchasers was a sophisticated investor. The purchasers in such private offerings represented their intention to acquire the securities for investment only and not with a view to the distribution thereof. Appropriate legends were affixed to the stock certificates and warrants issued in each transaction. All purchasers had adequate access, through their employment or other relationships, to sufficient information about the Registrant to make an informed investment decision. None of the securities was sold through an underwriter and, accordingly, there were no underwriting discounts or commissions involved.

II-2

Exhibit

No. Description - - - -

- 1.1 Form of Underwriting Agreement
- Revised form of Amended and Restated Certificate of Incorporation of the Registrant Revised form of By-Laws of the Registrant 3.1
- 3.2
- Specimen Stock Certificate 4.1
- Form of Representative's Warrant Agreement 4.2
- Opinion of Morse, Zelnick, Rose & Lander, LLP\* 5.1
- 1992 Incentive Stock Option Plan 10.1
- 1992 Non-Incentive Stock Option Plan' 10.2 2000 Stock Option Plan\*
- 10.3 10.4
- Employment Agreement between the Registrant and M.S Koly, as amended\*
- Employment Agreement between the Registrant and Samuel Herschkowitz, M.D., as amended\* 10.5
- Distributorship Agreement with Nissho Corporation 10.6 Consent of KPMG LLP
- 23.1 23.2
  - Consent of Morse, Zelnick, Rose & Lander, LLP (included in Exhibit 5.1).\* Consents from the following scientific advisors and consultants: Morton G. Glickman, William N.
- 23.3 Hait, M.D., Ph.D., T.S. Ravikumar, M.D., Anil R. Diwan, Ph.D., Harvey J. Ellis, C.C.P., Durmus Koch, James H. Muchmore, M.D., Gabriela Nicolau, Ph.D., and John Quiring, Ph.D.\* Power of Attorney (included in signature page).\*
- 24

\* previously filed

Item 28. Undertakings.

The undersigned Registrant hereby undertakes to:

(1) file, during any period in which it offers or sells securities, a post effective amendment to this Registration Statement to:

- o include any prospectus required by Section 10(a)(3) of the Securities Act:
- o reflect in the prospectus any facts or events which, individually or together, represent a fundamental change in the information set forth in the Registration Statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective Registration Statement; and
- o include any additional or changed material information on the plan of distribution;

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

(3) file a post-effective amendment to remove from registration any of the securities that remain unsold at the end of the offering.

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

The undersigned Registrant hereby undertakes (1) to provide to the underwriters at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser; (2) that for the purpose of determining any

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liability under the Securities Act, treat the information omitted from the form of prospectus filed as part of this Registration Statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act as part of this Registration Statement as of the time the Securities and Exchange Commission declares it effective; and (3) that for the purpose of determining any liability under the Securities Act, treat each post-effective amendment that contains a form of prospectus as a new registration statement for the securities offered in the registration statement herein, and treat the offering of the securities at that time as the initial bona fide offering of those securities.

## SIGNATURES

In accordance with the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form SB-2 and authorized this Registration Statement to be signed on its behalf by the undersigned, in the City of New York, State of New York on August 22, 2000.

DELCATH SYSTEMS, INC.

# By: /s/ M. S. Koly M. S. Koly, President

ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints M. S. Koly and Stephen A. Zelnick, or any one of them, his true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign any and all pre- or post-effective amendments to this Registration Statement, and to file the same with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any one of them, or their or his substitutes, may lawfully do or cause to be done by virtue hereof.

In accordance with the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed below by the following persons in the capacities indicated on August 22, 2000.

Signature	Title
M. S. Koly* M. S. Koly	President, Chief Executive Officer and Director
Joseph P. Milana* Joseph P. Milana	Chief Financial Officer
Samuel Herschkowitz* Samuel Herschkowitz	Director
William I. Bergman* William I. Bergman	Director
Frank G. Mancuso, Jr.* 	Director
James V. Sorrentino* James V. Sorrentino	Director
*By: /s/ M.S. Koly M.S. Koly, attorney-in-fact	

- No. Description
- ----------
- Form of Underwriting Agreement Revised form of Amended and Restated Certificate of Incorporation of the Registrant 1.1 3.1
- Revised form of By-Laws of the Registrant Specimen Stock Certificate
- 3.2 4.1
- 4.2
- Form of Representative's Warrant Agreement Opinion of Morse, Zelnick, Rose & Lander, LLP\* 1992 Incentive Stock Option Plan\* 1992 Non-Incentive Stock Option Plan\* 5.1
- 10.1
- 10.2
- 10.3 2000 Stock Option Plan\*
- 10.4
- Employment Agreement between the Registrant and M.S Koly, as amended\* Employment Agreement between the Registrant and Samuel Herschkowitz, M.D., as amended\* Distributorship Agreement with Nissho Corporation\* 10.5
- 10.6
- 23.1
- 23.2
- Distributorship Agreement with Nissho Corporation\* Consent of KPMG LLP Consent of Morse, Zelnick, Rose & Lander, LLP (included in Exhibit 5.1).\* Consents from the following scientific advisors and consultants: Morton G. Glickman, William N. Hait, M.D., Ph.D., T.S. Ravikumar, M.D., Anil R. Diwan, Ph.D., Harvey J. Ellis, C.C.P., Durmus Koch, James H. Muchmore, M.D., Gabriela Nicolau, Ph.D., and John Quiring, Ph.D.\* Power of Attorney (included in signature page).\* 23.3 24.

\* previously filed

Delcath Systems, Inc. 2,000,000 Shares of Common Stock

(Par Value \$.01 Per Share)

UNDERWRITING AGREEMENT

Whale Securities Co., L.P. as Representative of the Secured Underwriters named in Schedule A hereto 650 Fifth Avenue New York, New York 10019 New York, New York \_\_\_\_\_, 2000

#### Dear Sirs:

Delcath Systems, Inc., a Delaware corporation (the "Company"), proposes to issue and sell to the underwriters (the "Underwriters") named in Schedule A to this underwriting agreement (the "Agreement") for whom Whale Securities Co., L.P. (the "Representative") is acting as representative, Two Million (2,000,000) shares (the "Offered Shares") of the common stock, par value \$.01 per share, which Offered Shares are presently authorized but unissued shares of the common stock par value \$.01 per share (individually, a "Common Share" and collectively the "Common Shares"), of the Company. In addition, the Representative, in order to cover over-allotments in the sale of the Offered Shares, may purchase up to an aggregate of Three Hundred Thousand (300,000) Common Shares (the "Optional Shares"; the Offered Shares and the Optional Shares are hereinafter sometimes collectively referred to as the "Shares"). The Shares are described in the Registration Statement and the Prospectus, as defined below. The Company also proposes to issue and sell to the Representative for its own account and the accounts of its designees, warrants to purchase up to an aggregate of Two Hundred Thousand (200,000) Common Shares at an exercise price of \$9.90 per share (the "Underwriter's Warrants"), which sale will be consummated in accordance with the terms and conditions of the form of Representative's Warrant filed as an exhibit to the Registration Statement.

The Company hereby confirms its respective agreements with the Representative and each of the Underwriters, on whose behalf the Representative is signing this Agreement, as follows: 1. Purchase and Sale of Offered Shares. On the basis of the representations and warranties herein contained, but subject to the terms and conditions herein set forth, the Company hereby agrees to sell the Offered Shares to the Underwriters, severally, and each of the Underwriters, severally and not jointly, agrees to purchase the Offered Shares from the Company, at a purchase price of \$5.40 per share the number of Offered Shares which such Underwriter may become obligated to purchase pursuant to the provisions of Section 10 hereof. The Underwriters plan to offer the Shares to the public at a public offering price of \$6.00 per Offered Share.

## 2. Payment and Delivery.

(a) Payment for the Offered Shares will be made to the Company by wire transfer or certified or official bank check or checks payable to its order in New York Clearing House funds, at the offices of the Representative, 650 Fifth Avenue, New York, New York 10019, against delivery of the Offered Shares to the Representative. Such payment and delivery will be made at 10:00 A.M., New York City time, on the third business day following the Effective Date (as hereinafter defined) (the fourth business day following the Effective Date in the event that trading of the Offered Shares commences on the day following the Effective Date." The certificates representing the Offered Shares to be delivered will be in such denominations and registered in such names as the Representative may request not less than two full business days prior to the Closing Date, and will be made available to the Representative for inspection, checking and packaging at the office of the Company's transfer agent or correspondent in New York City, American Stock Transfer & Trust Company, 40 Wall Street, New York, New York 10005 not less than one full business day prior to the

(b) On the Closing Date, the Company will sell the Representative's Warrants to the Representative or to the Representative's designees limited to officers and partners of the Representative, members of the selling group and syndicate members and/or their officers or partners (collectively, the Representative's Designees"). The Representative's Warrants will be in the form of, and in accordance with, the provisions of the Representative's Warrant attached as an exhibit to the Registration Statement. The aggregate purchase price for the Representative's Warrants is One Hundred Dollars (\$100.00). The

Representative's Warrants will be restricted from sale, transfer, assignment or hypothecation for a period of one (1) year from the Effective Date, except to the Representative's Designees. Payment for the Representative's Warrants will be made to the Company by check or checks payable to its order on the Closing Date against delivery of the certificates representing the Representative's Warrants. The certificates representing the Representative's Warrants will be in such denominations and such names as the Representative may request prior to the Closing Date.

## 3. Option to Purchase Optional Shares.

(a) For the purposes of covering any over-allotments in connection with the distribution and sale of the Offered Shares as contemplated by the Prospectus, the Representative is hereby granted an option to purchase all or any part of the Optional Shares from the Company. The purchase price to be paid for the Optional Shares will be the same price per Optional Share as the price per Offered Share set forth in Section 1 hereof. The option granted hereby may be exercised by the Representative as to all or any part of the Optional Shares at any time within 45 days after the Effective Date. The Representative will not be under any obligation to purchase any Optional Shares prior to the exercise of such option.

(b) The option granted hereby may be exercised by the Representative by giving oral notice to the Company, which must be confirmed by a letter, telex or telegraph setting forth the number of Optional Shares to be purchased, the date and time for delivery of and payment for the Optional Shares to be purchased and stating that the Optional Shares referred to therein are to be used for the purpose of covering over-allotments in connection with the distribution and sale of the Offered Shares. If such notice is given prior to the Closing Date, the date set forth therein for such delivery and payment will not be earlier than either two full business days thereafter or the Closing Date, whichever occurs later. If such notice is given on or after the Closing Date, the date set forth therein for such delivery and payment will not be earlier than two full business days thereafter. In either event, the date so set forth will not be more than 15 full business days after the date of such notice. The date and time set forth in such notice is herein called the "Option Closing Date." Upon exercise of such option, through the Representative's delivery of the aforementioned notice, the Company will become obligated to convey to the

Representative, and, subject to the terms and conditions set forth in Section 3(d) hereof, the Representative will become obligated to purchase, the number of Optional Shares specified in such notice.

(c) Payment for any Optional Shares purchased will be made to the Company by wire transfer or certified or official bank check or checks payable to its order in New York Clearing House funds, at the office of the Representative, against delivery of the Optional Shares purchased to the Representative. The certificates representing the Optional Shares to be delivered will be in such denominations and registered in such names as the Representative requests not less than two full business days prior to the Option Closing Date, and will be made available to the Representative for inspection, checking and packaging at the aforesaid office of the Company's transfer agent or correspondent not less than one full business day prior to the Option Closing Date.

(d) The obligation of the Representative to purchase and pay for any of the Optional Shares is subject to the accuracy and completeness (as of the date hereof and as of the Option Closing Date) of and compliance in all material respects with the representations and warranties of the Company herein, to the accuracy and completeness of the statements of the Company or its officers made in any certificate or other document to be delivered by the Company pursuant to this Agreement, to the performance in all material respects by the Company of its obligations hereunder, to the satisfaction by the Company of the conditions, as of the date hereof and as of the Option Closing Date, set forth in Section 3(b) hereof, and to the delivery to the Representative of opinions, certificates and letters dated the Option 5, 6(b), (c), (d) and (e) hereof, but with each reference to "Offered Shares" and "Closing Date" to be, respectively, to the Optional Shares and the Option Closing Date.

 ${\tt 4.}$  Representations and Warranties of the Company. The Company represents and warrants to, and agrees with, the several Underwriters that:

(a) The Company is a corporation duly organized, validly existing and in good standing under the laws of the State of Delaware, with full power and authority, corporate and other, to own or lease, as the case may be, and operate

its properties, whether tangible or intangible, and to conduct its business as described in the Registration Statement and to execute, deliver and perform this Agreement, the Representative's Warrant Agreement and the Consulting Agreement described in Section 5(r) hereof (the "Consulting Agreement") and to consummate the transactions contemplated hereby and thereby. The Company has no subsidiaries. The Company is duly qualified to do business as a foreign corporation and is in good standing in all jurisdictions wherein such qualification is necessary and where failure so to qualify could have a material adverse effect on the financial condition, results of operations, business or properties of the Company. The Company has no equity interests in any entity.

(b) This Agreement has been duly executed and delivered by the Company and constitutes the valid and binding obligation of the Company, and each of the Representative's Warrant Agreement and the Consulting Agreement, when executed and delivered by the Company on the Closing Date, will be the valid and binding obligations of the Company, enforceable against the Company in accordance with their respective terms. The execution, delivery and performance of this Agreement, the Representative's Warrant Agreement and the Consulting Agreement by the Company, the consummation by the Company of the transactions herein and therein contemplated and the compliance by the Company with the terms of this Agreement, the Consulting Agreement and the Representative's Warrant Agreement have been duly authorized by all necessary corporate action and do not and will not, with or without the giving of notice or the lapse of time, or both, (i) result in any violation of the Certificate of Incorporation or By-Laws, each as amended, of the Company (ii) result in a breach of or conflict with any of the terms or provisions of, or constitute a default under, or result in the modification or termination of, or result in the creation or imposition of any lien, security interest, charge or encumbrance upon any of the properties or assets of the Company pursuant to any indenture, mortgage, note, contract, commitment or other agreement or instrument to which the Company is a party or by which the Company or any of its properties or business; or (iv) have any effect on any permit, certification, registration, approval, consent order, license, franchise or other authorization (collectively, the "Permits") necessary for the Company to own or lease and operate any of its properties and to conduct its business.

(c) No Permits of any court or governmental agency or body, other than under the Securities Act of 1933, as amended (the "Act"), the Regulations (as hereinafter defined) and applicable state securities or Blue Sky laws, are required (i) for the valid authorization, issuance, sale and delivery of the Shares to the Underwriters, and (ii) the consummation by the Company of the transactions contemplated by this Agreement, the Consulting Agreement or the Representative's Warrant Agreement.

(d) The conditions for use of a registration statement on Form SB-2 set forth in the General Instructions to Form SB-2 have been satisfied with respect to the Company, the transactions contemplated herein and in the Registration Statement. The Company has prepared in conformity with the requirements of the Act and the rules and regulations (the "Regulations") of the Securities and Exchange Commission (the "Commission") and filed with the Commission a registration statement (File No. 333-39470) on Form SB-2 and has filed one or more amendments thereto, covering the registration of the Shares under the Act, including the related preliminary prospectus or preliminary prospectuses (each thereof being herein called a "Preliminary Prospectus") and a proposed final prospectus. Each Preliminary Prospectus was endorsed with the legend required by Item 501(a)(5) of Regulation S-B of the Regulations and, if applicable, Rule 430A of the Regulations. Such registration statement including any documents incorporated by reference therein and all financial schedules and exhibits thereto, as amended at the time it becomes effective, and the final prospectus included therein are herein, respectively, called the "Registration Statement" and the "Prospectus," except that, (i) if the prospectus filed by the Company pursuant to Rule 424(b) of the Regulations differs from the Prospectus is supplemented after the date the Registration Statement is declared effective by the Commission (the "Effective Date") and prior to the Option Closing Date, the terms "Registration Statement" and "Prospectus" shall include the Registration Statement as amended or supplemented.

(e) Neither the Commission nor, to the best of the Company's knowledge after due investigation, any state regulatory authority has issued any order preventing or suspending the use of any Preliminary Prospectus or has instituted or, to the best of the Company's knowledge after due investigation, threatened to institute any proceedings with respect to such an order.

(f) The Registration Statement when it becomes effective, the Prospectus (and any amendment or supplement thereto) when it is filed with the Commission pursuant to Rule 424(b), and both documents as of the Closing Date and the Option Closing Date, referred to below, will contain all statements which are required to be stated therein in accordance with the Act and the Regulations and will in all material respects conform to the requirements of the Act and the Regulations, and neither the Registration Statement nor the Prospectus, nor any amendment or supplement thereto, on such dates, will contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, except that this representation and warranty does not apply to statements or omissions made in reliance upon and in conformity with information furnished in writing to the Company in connection with the Registration Statement or Prospectus or any amendment or supplement thereto by the Representative, or by any Underwriter through the Representative expressly for use therein.

(g) The Company had at the date or dates indicated in the Prospectus a duly authorized and outstanding capitalization as set forth in the Registration Statement and the Prospectus. Based on the assumptions stated in the Registration Statement and the Prospectus, the Company will have on the Closing Date the adjusted stock capitalization set forth therein. Except as set forth in the Registration Statement or the Prospectus, on the Effective Date and on the Closing Date, there will be no options to purchase, warrants or other rights to subscribe for, or any securities or obligations convertible into, or any contracts or commitments to issue or sell shares of the Company's capital stock or any such warrants, convertible securities or obligations. Except as set forth in the Prospectus, no holders of any of the Company's securities has any rights, "demand," "piggyback" or otherwise, to have such securities registered under the Act.

(h) The descriptions in the Registration Statement and the Prospectus of contracts and other documents are accurate and present fairly the information required to be disclosed, and there are no contracts or other documents required to be described in the Registration Statement or the Prospectus or to be filed as exhibits to the Registration Statement under the Act or the Regulations which have not been so described or filed as required.

(i) KPMG LLP, the accountants who have certified certain of the financial statements filed and to be filed with the Commission as part of the Registration Statement and the Prospectus, are independent public accountants within the meaning of the Act and Regulations. The financial statements and schedules and the notes thereto filed as part of the Registration Statement and included in the Prospectus are complete, correct and present fairly the financial position of the Company as of the dates thereof, and the results of operations and changes in financial position of the Company for the periods indicated therein, all in conformity with generally accepted accounting principles applied on a consistent basis throughout the periods involved except as otherwise stated in the Registration Statement and the Prospectus. The selected financial data set forth in the Registration Statement and have been compiled on a basis consistent with that of the audited and unaudited financial statements included in the Registration Statement and the Prospectus.

(j) The Company has filed with the appropriate federal, state and local governmental agencies, and all appropriate foreign countries and political subdivisions thereof, all tax returns, including franchise tax returns, which are required to be filed or has duly obtained extensions of time for the filing thereof and has paid all taxes shown on such returns and all assessments received by it to the extent that the same have become due; and the provisions for income taxes payable, if any, shown on the financial statements filed with or as part of the Registration Statement are sufficient for all accrued and unpaid foreign and domestic taxes, whether or not disputed, and for all periods to and including the dates of such financial statements. Except as disclosed in writing to the Representative, the Company has not executed or filed with any taxing authority, foreign or domestic, any agreement extending the period for assessment or collection of any income taxes and is not a party to any pending action or proceeding by any foreign or domestic governmental agency for assessment or collection of taxes; and no claims for assessment or collection of taxes; and no claims for assessment or collection of taxes.

(k) The outstanding Common Shares and outstanding options and warrants to purchase Common Shares have been duly authorized and validly issued. The outstanding Common Shares are fully paid and nonassessable. The outstanding options and warrants to purchase Common Shares constitute the valid and binding obligations of the Company, enforceable in accordance with their terms. The Company has duly reserved a sufficient number of Common Shares from its authorized but unissued Common Shares for issuance upon exercise of the outstanding options and warrants. None of the outstanding Common Shares or options or warrants to purchase Common Shares has been issued in violation of the preemptive rights of any stockholder of the Company. None of the holders of the outstanding Common Shares is subject to personal liability solely by reason of being such a holder. The offers and sales of the outstanding Common Shares and outstanding options and warrants to purchase Common Shares were at all relevant times either registered under the Act and the applicable state securities or Blue Sky laws or exempt from such registration requirements. The authorized Common Shares and outstanding options and warrants to purchase Common Shares conform to the descriptions thereof contained in the Registration Statement and Prospectus. Except as set forth in the Registration Statement and the Prospectus, on the Effective Date and the Closing Date, there will be no outstanding options or warrants for the purchase of, or other outstanding rights to purchase or acquire, Common Shares or securities convertible into Common Shares.

(1) No securities of the Company have been sold by the Company or by or on behalf of, or for the benefit of, any person or persons controlling, controlled by, or under common control with the Company within the three years prior to the date hereof, except as disclosed in the Registration Statement.

(m) The issuance and sale of the Shares have been duly authorized and, when the Shares have been issued and duly delivered against payment therefor as contemplated by this Agreement, the Shares will be validly issued, fully paid and nonassessable, and the holders thereof will not be subject to personal liability solely by reason of being such holders. The Shares will not be subject to preemptive rights of any stockholder of the Company.

(n) The issuance and sale of the Common Shares issuable upon exercise of the Representative's Warrants have been duly authorized and, when such Common Shares have been duly delivered against payment therefor, as contemplated by the Representative's Warrant Agreement, such Common Shares will be validly issued, fully paid and nonassessable. Holders of Common Shares issuable upon the exercise of the Representative's Warrants will not be subject to personal liability solely by reason of being such holders. Neither the Representative's Warrants nor the Common Shares issuable upon exercise thereof will be subject to preemptive rights of any stockholder of the Company. The Company has reserved a sufficient number of Common Shares from its authorized but unissued Common Shares for issuance upon exercise of the Representative's Warrants in accordance with the provisions of the Representative's Warrant Agreement. The Representative's Warrants conform to the descriptions thereof contained in the Registration Statement and the Prospectus.

(o) The Company is not in violation of, or in default under, (i) any term or provision of its Certificate of Incorporation or By-Laws, each as amended; (ii) any material term or provision or any financial covenants of any indenture, mortgage, contract, commitment or other agreement or instrument to which it is a party or by which it or any of its property or business is or may be bound or affected; or (iii) any existing applicable law, rule, regulation, judgment, order or decree of any governmental agency or court, domestic or foreign, having jurisdiction over the Company or any of the Company's properties or businesses. The Company owns, possesses or has obtained all governmental and other (including those obtainable from third parties) Permits, necessary to own or lease, as the case may be, and to operate its properties, whether tangible or intangible, and to conduct its respective business and operations as presently conducted and all such Permits are outstanding and in good standing, and there are no proceedings pending or, to the best of the Company's knowledge after due investigation, threatened, or any basis therefor, seeking to cancel, terminate or limit such Permits.

(p) Except as set forth in the Prospectus, there are no claims, actions, suits, proceedings, arbitrations, investigations or inquiries before any governmental agency, court or tribunal, domestic or foreign, or before any private arbitration tribunal, pending, or, to the best of the Company's knowledge after due investigation, threatened against the Company or involving

the Company's properties or business which, if determined adversely to the Company, would, individually or in the aggregate, result in any material adverse change in the financial position, stockholders' equity, results of operations, properties, business, management or affairs or business prospects of the Company or which question the validity of the capital stock of the Company or this Agreement or of any action taken or to be taken by the Company pursuant to, or in connection with, this Agreement; nor, to the best of the Company's knowledge after due investigation, is there any basis for any such claim, action, suit, proceeding, arbitration, investigation or inquiry. There are no outstanding orders, judgments or decrees of any court, governmental agency or other tribunal naming the Company and enjoining the Company from taking, or requiring the Company to take, any action, or to which the Company, or the Company's properties or business is bound or subject.

(q) Neither the Company nor any of its affiliates has incurred any liability for any finder's fees or similar payments in connection with the transactions herein contemplated.

(r) The Company owns or possesses adequate and enforceable rights to use all patents, patent applications, trademarks, service marks, copyrights, rights, trade secrets, confidential information, processes and formulations used or proposed to be used in the conduct of its business as described in the Prospectus (collectively the "Intangibles"); to the best of the Company's knowledge, after due investigation the Company has not infringed nor is infringing upon the rights of others with respect to the Intangibles; and the Company has not received any notice of conflict with the asserted rights of others with respect to the Intangibles which could, singly or in the aggregate, materially adversely affect its business as presently conducted or the prospects, financial condition or results of operations of the Company, and the Company knows of no basis therefor; and, to the best of the Company's knowledge, no others have infringed upon the Intangibles of the Company.

(s) Since the respective dates as of which information is given in the Registration Statement and the Prospectus and the Company's latest financial statements, the Company has not incurred any material liability or obligation, direct or contingent, or entered into any material transaction, whether or not incurred in the ordinary course of business, and has not sustained any material

loss or interference with its business from fire, storm, explosion, flood or other casualty, whether or not covered by insurance, or from any labor dispute or court or governmental action, order or decree; and since the respective dates as of which information is given in the Registration Statement and the Prospectus, there have not been, and prior to the Closing Date referred to below there will not be, any changes in the capital stock or any material increases in the long-term debt of the Company or any material adverse change in or affecting the general affairs, management, financial condition, stockholders' equity, results of operations or prospects of the Company, otherwise than as set forth or contemplated in the Prospectus.

(t) The Company does not own any real property. The Company has good title to all personal property (tangible and intangible) owned by it, free and clear of all security interests, charges, mortgages, liens, encumbrances and defects, except such as are described in the Registration Statement and Prospectus or such as do not materially affect the value or transferability of such property and do not interfere with the use of such property made, or proposed to be made, by the Company. The leases, licenses or other contracts or instruments under which the Company leases, holds or is entitled to use with respect to any property, real or personal, are valid, subsisting and enforceable only with such exceptions as are not material and do not interfere with the use of such property made, or proposed to be made, by the Company, and all rentals, royalties or other payments accruing thereunder which became due prior to the date of this Agreement have been duly paid, and the Company, to the best of the Company's knowledge after due investigation, is not aware of any other party in default thereunder and, to the best of the Company's knowledge after due investigation, no event has occurred which, with the passage of time or the giving of notice, or both, would constitute a default thereunder. The Company has not received notice of any violation of any applicable law, ordinance, regulation, order or requirement relating to its owned or leased properties. The Company has adequately insured its properties against loss or damage by fire or other casualty and maintains, in adequate amounts, such other insurance as is usually maintained by companies engaged in the same or similar businesses located in its geographic area.

(u) Each contract or other instrument (however characterized or described) to which the Company is a party or by which its properties or businesses is or may be bound or affected and to which reference is made in the

Prospectus has been duly and validly executed, is in full force and effect in all material respects and is enforceable against the parties thereto in accordance with its terms, and none of such contracts or instruments has been assigned by the Company, and the Company, to the best of the Company's knowledge after due investigation is not, and any other party is not, in default thereunder and, to the best of the Company's knowledge after due investigation, no event has occurred which, with the lapse of time or the giving of notice, or both, would constitute a default thereunder.

None of the material provisions of such contracts or instruments violates any existing applicable law, rule, regulation, judgment, order or decree of any governmental agency or court having jurisdiction over the Company or any of its respective assets or businesses, including, without limitation, the United States Food and Drug Administration (the "FDA") and the United States Federal Trade Commission (the "FTC"), and comparable foreign state and local regulatory authorities.

(v) The employment, consulting, confidentiality and non-competition agreements between the Company and its officers, employees, consultants and any other third parties described in the Registration Statement, are binding and enforceable obligations upon the respective parties thereto in accordance with their respective terms, except as such enforceability may be limited by applicable bankruptcy, insolvency, moratorium or other similar laws or arrangements affecting creditors' rights generally and subject to principles of equity.

(w) Except as set forth in the Prospectus, the Company does not have employee benefit plans (including, without limitation, profit sharing and welfare benefit plans) or deferred compensation arrangements that are subject to the provisions of the Employee Retirement Income Security Act of 1974.

(x) To the best of the Company's knowledge after due investigation, no labor problem exists with any of the Company's employees or is imminent which could adversely affect the Company.

(y) The Company has not directly or indirectly, at any time (i) made any contributions to any candidate for political office, or failed to disclose fully any such contribution in violation of law or (ii) made any payment to any state, federal or foreign governmental officer or official, or other person charged with similar public or quasi-public duties, other than payments or contributions required or allowed by applicable law. The Company's internal accounting controls and procedures are sufficient to cause the Company to comply in all material respects with the Foreign Corrupt Practices Act of 1977, as amended.

(z) The Shares have been approved for listing on the Nasdaq SmallCap Market and the Boston Stock Exchange.

(aa) Neither the Company nor any of its officers or directors has distributed, and will not distribute prior to the later of (i) the Closing Date or any date on which Optional Shares are to be purchased, as the case may be, or (ii) the expiration of the period during which dealers effecting transactions in the Shares may be required to deliver a Prospectus, any offering material in connection with the offering and sale of the Shares, other than any Preliminary Prospectus, the Prospectus, the Registration Statement and other materials, if any, permitted by the Act.

(ab) The Preliminary Prospectus and the Prospectus delivered to the Underwriters for use in connection with the offering of the Shares were identical to the versions of the Preliminary Prospectus and Prospectus filed with the Commission via the Commission's Electronic Data Gathering Analysis and Retrieval System, except to the extent permitted by Regulation S-T.

(ac) The Company has provided to Blank Rome Tenzer Greenblatt LLP, counsel to the Underwriters ("Underwriters' Counsel"), all agreements, certificates, correspondence and other items, documents and information in its possession and/or available to it requested by such counsel's Corporate Review Memorandum dated April 3, 2000 (the "Memorandum") and the Company's response to such Memorandum is accurate and complete in all material respects.

Any certificate or questionnaire signed by an officer of the Company and delivered to any Underwriter or to Underwriters' Counsel shall be deemed to be a representation and warranty by the Company to the Underwriters as to the matters covered thereby.

5. Certain Covenants of the Company. The Company covenants with the several Underwriters as follows:

(a) The Company will not at any time, whether before the Effective Date or thereafter during such period as the Prospectus is required by law to be delivered in connection with the sales of the Shares by the Representative or a dealer, file or publish any amendment or supplement to the Registration Statement or Prospectus of which the Representative has not been previously advised and furnished a copy, or to which the Representative shall object in writing.

(b) The Company will use its best efforts to cause the Registration Statement to become effective and will advise the Representative immediately, and, if requested by the Representative, confirm such advice in writing, (i) when the Registration Statement, or any post-effective amendment to the Registration Statement or any supplemented Prospectus is filed with the Commission; (ii) of the receipt of any comments from the Commission; (iii) of any request of the Commission for amendment or supplementation of the Registration Statement or Prospectus or for additional information; and (iv) of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or of the suspension of the qualification of the Shares for offering or sale in any jurisdiction, or of the initiation of any proceedings for any of such purposes. The Company will use its best efforts to prevent the issuance of any stop order or of any order preventing or suspending such use and to obtain as soon as possible the lifting thereof, if any such order is issued.

(c) The Company will deliver to each Underwriter, without charge, from time to time until the Effective Date, as many copies of each Preliminary Prospectus as each Underwriter may reasonably request, and the Company hereby consents to the use of such copies for purposes permitted by the Act. The Company will deliver to each Underwriter, without charge, as soon as the Registration Statement becomes effective, and thereafter from time to time as requested, such number of copies of the Prospectus (as supplemented, if the Company makes any supplements to the Prospectus) as each Underwriter may reasonably request. The Company has furnished or will furnish to the Representative a signed copy of the Registration Statement as originally filed and of all amendments thereto, whether filed before or after the Registration Statement becomes effective, a copy of all exhibits filed therewith and a signed copy of all consents and certificates of experts.

(d) The Company will comply with the Act, the Regulations, the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the rules and regulations thereunder so as to permit the continuance of sales of and dealings in the Offered Shares and in any Optional Shares which may be issued and sold. If, at any time when a prospectus relating to the Shares is required to be delivered under the Act, any event occurs as a result of which the Registration Statement and Prospectus as then amended or supplemented would include an untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, or if it shall be necessary to amend or supplement the Registration Statement and Prospectus to comply with the Act or the regulations thereunder, the Company will promptly file with the Commission, subject to Section 5(a) hereof, an amendment or supplement which will correct such statement or omission or which will effect such compliance.

(e) The Company will furnish such proper information as may be required and otherwise cooperate in qualifying the Shares for offering and sale under the securities or Blue Sky laws relating to the offering in such jurisdictions as the Representative may reasonably designate, provided that no such qualification will be required in any jurisdiction where, solely as a result thereof, the Company would be subject to service of general process or to taxation or qualification as a foreign corporation doing business in such jurisdiction.

(f) The Company will make generally available to its securityholders, in the manner specified in Rule 158(b) under the Act, and deliver to the Representative and Underwriters' Counsel as soon as practicable and in any event not later than 45 days after the end of its fiscal quarter in which the first anniversary date of the effective date of the Registration Statement occurs, an earning statement meeting the requirements of Rule 158(a) under the Act covering a period of at least 12 consecutive months beginning after the effective date of the Registration Statement.

(g) For a period of five years from the Effective Date, the Company will deliver to the Representative and to Underwriters' Counsel on a timely basis (i) a copy of each report or document, including, without limitation, reports on Forms 8-K, 10-K (or 10-KSB), 10-Q (or 10-QSB) and exhibits thereto, filed or furnished to the Commission, any securities exchange or the National Association of Securities Dealers, Inc. (the "NASD") on the date each such report or document is so filed or furnished; (ii) as soon as practicable, copies of any reports or communications (financial or other) of the Company mailed to its securityholders; (iii) as soon as practicable, a copy of any Schedule 13D, 13G, 14D-1 or 13E-3 received or prepared by the Company from time to time; (iv) monthly statements setting forth such information regarding the Company's results of operations and financial position (including balance sheet, profit and loss statements and data regarding outstanding purchase orders) as is regularly prepared by management of the Company; and (v) such additional information concerning the business and financial condition of the Company as the Representative may from time to time reasonably request and which can be prepared or obtained by the Company will furnish to its stockholders annual reports containing audited financial statements and such other periodic reports as it may determine to be appropriate or as may be required by law.

(h) Neither the Company nor any person that controls, is controlled by or is under common control with the Company will take any action designed to or which might be reasonably expected to cause or result in the stabilization or manipulation of the price of the Common Shares.

(i) If the transactions contemplated by this Agreement are consummated, the Representative shall retain the \$50,000 previously paid to it, and the Company will pay or cause to be paid the following: all costs and expenses incident to the performance of the obligations of the Company under this Agreement, including, but not limited to, the fees and expenses of accountants and counsel for the Company; the preparation, printing, mailing and filing of the Registration Statement (including financial statements and exhibits), Preliminary Prospectuses and the Prospectus, and any amendments or supplements thereto; the printing and mailing of the Selected Dealer Agreement, the issuance and delivery of the Shares to the Underwriters; all taxes, if any, on the issuance of the Shares; the fees, expenses and other costs of qualifying the Shares for sale under the Blue Sky or securities laws of those states in which the Shares are to be offered or sold, including fees and disbursements of

counsel in connection therewith, and including those of such local counsel as may have been retained for such purpose; the filing fees incident to securing any required review by the NASD and either the Boston Stock Exchange or Pacific Stock Exchange; the cost of printing and mailing the "Blue Sky Survey"; the cost of furnishing to the Underwriters copies of the Registration Statement, Preliminary Prospectuses and the Prospectus as herein provided; the costs of placing "tombstone advertisements" in any publications which may be selected by the Representative; and all other costs and expenses incident to the performance of the Company's obligations hereunder which are not otherwise specifically provided for in this Section 5(i).

In addition, at the Closing Date or the Option Closing Date, as the case may be, the Representative will deduct from the payment for the Offered Shares or any Optional Shares three percent (3%) of the gross proceeds of the offering (less the sum of \$50,000 previously paid to the Representative), as payment for the Representative's nonaccountable expense allowance relating to the transactions contemplated hereby, which amount will include the fees and expenses of Underwriters' Counsel (other than the fees and expenses of Underwriters' Counsel relating to Blue Sky qualifications and registrations, which, as provided for above, shall be in addition to the three percent (3%) nonaccountable expense allowance and shall be payable directly by the Company to Underwriters' Counsel on or prior to the Closing Date).

(j) If the transactions contemplated by this Agreement or related hereto are not consummated because the Company decides not to proceed with the offering for any reason or because the Representative decides not to proceed with the offering as a result of a breach by the Company of its representations, warranties or covenants in the Agreement or as a result of adverse changes in the affairs of the Company, then the Company will be obligated to reimburse the Representative for its accountable expenses up to the sum of \$75,000, inclusive of the \$50,000 previously paid to the Representative by the Company. In all cases other than those set forth in the preceding sentence, if the Company or the Representative decide not to proceed with the offering, the Company will only be obligated to reimburse the Representative for its accountable expenses up to \$25,000, and inclusive of the amounts previously paid to the Representative by the Company. In no event, however, will the Representative, in the event the offering is terminated, be entitled to retain or receive more than an amount equal to its actual accountable out-of-pocket expenses.

(k) The Company intends to apply the net proceeds from the sale of the Shares for the purposes set forth in the Prospectus. Except as set forth in the Prospectus, no portion of the net proceeds from the sale of the Shares will be used to repay any indebtedness.

(1) During the period of twelve (12) months from the Effective Date hereof, neither the Company nor any of its officers, directors or securityholders will offer for sale or sell or otherwise dispose of, directly or indirectly, any securities of the Company, in any manner whatsoever, whether pursuant to Rule 144 of the Regulations or otherwise, and no holder of registration rights relating to securities of the Company will exercise any such registration rights, in either case, without the prior written consent of the Representative. During the 12-month period commencing one year from the date hereof, no officer, director or securityholder who beneficially owns or holds 5% or more of the outstanding Common Shares (calculated in accordance with Rule 13d-3(d)(i) under the Exchange Act) may sell any Common Shares in excess of the amount that they would be allowed to sell if they were deemed "affiliates" of the Company and their shares were deemed "restricted," as those terms are defined in Rule 144 promulgated under the Securities Act, without the prior written consent of the Representative.

(m) The Company will not file any registration statement relating to the offer or sale of any of the Company's securities, including any registration statement on Form S-8, during the twelve (12) months from the Effective Date, without the Representative's prior written consent.

(n) The Company maintains and will continue to maintain a system of internal accounting controls sufficient to provide reasonable assurances that: (i) transactions are executed in accordance with management's general or specific authorization; (ii) transactions are recorded as necessary in order to permit preparation of financial statements in accordance with generally accepted accounting principles and to maintain accountability for assets; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences.

(o) The Company will use its best efforts to maintain the listing of the Shares on the Nasdaq SmallCap Market and will, if so qualified, list the Shares, and maintain such listing for so long as qualified, on the Nasdaq National Market System.

(p) The Company will, concurrently with the Effective Date, register the class of equity securities of which the Shares are a part under Section 12(b) or 12(g) of the Exchange Act and the Company will maintain such registration for a minimum of five (5) years from the Effective Date.

(q) Subject to the sale of the Offered Shares, the Representative and its successors will have the right to designate a nominee for election, at its or their option, either as a member of or a non-voting advisor to the Board of Directors of the Company (which board, during such period, shall meet at least quarterly, have no members who are related (by marriage or otherwise) to any of its Board members, and be comprised of members, a majority of which are not otherwise affiliated with the Company, its management or its founders), and the Company will use its best efforts to cause such nominee to be elected and continued in office as a director of the Company or as such advisor until the expiration of three (3) years from the Effective Date. Each of the Company's current officers, directors and stockholders agree to vote all of the  $\ensuremath{\mathsf{Common}}$ Shares owned by such person or entity so as to elect and continue in office such nominee of the Representative. Following the election of such nominee as a director or advisor, such person shall receive no more or less compensation than is paid to other non-officer directors of the Company for attendance at meetings of the Board of Directors of the Company and shall be entitled to receive reimbursement for all reasonable costs incurred in attending such meetings agrees to indemnify and hold such director or advisor harmless, to the maximum extent permitted by law, against any and all claims, actions, awards and judgments arising out of his service as a director or advisor and, in the event the Company maintains a liability insurance policy affording coverage for the acts of its officers and directors, to include such director or advisor as an insured under such policy. The rights and benefits of such indemnification and the benefits of such insurance shall, to the extent possible, extend to the Representative insofar as it may be or may be alleged to be responsible for such director or advisor.

If the Representative does not exercise its option to designate a member of or advisor to the Company's Board of Directors, the Representative shall nonetheless have the right to send a representative (who need not be the same individual from meeting to meeting) to observe each meeting of the Board of Directors. The Company agrees to give the Representative notice of each such meeting and to provide the Representative with an agenda and minutes of the meeting no later than it gives such notice and provides such items to the directors.

(r) The Company agrees to employ the Representative or a designee of the Representative as a financial consultant for a period of two (2) years from the Closing Date, pursuant to a separate written consulting agreement between the Company and the Representative and/or such designee (the "Consulting Agreement"), which will provide that the Company will pay the Representative (exclusive of any accountable out-of-pocket expenses) a finder's fee in the event the Representative originates a financing, merger, acquisition, joint venture or other transaction to which the Company is a party. The Company further agrees to deliver a duly and validly executed copy of said Consulting Agreement, in form and substance acceptable to the Representative, on the Closing Date.

(s) The Company shall retain a transfer agent for the Common Shares, reasonably acceptable to the Representative, for a period of three (3) years from the Effective Date. In addition, for a period of three (3) years from the Effective Date, the Company, at its own expense, shall cause such transfer agent to provide the Representative, if so requested in writing, with copies of the Company's daily transfer sheets, and, when requested by the Representative, a current list of the Company's securityholders, including a list of the beneficial owners of securities held by a depository trust company and other nominees.

(t) The Company hereby agrees, at its sole cost and expense, to supply and deliver to the Representative and Underwriters' Counsel, within a reasonable period from the date hereof, four bound volumes, including the Registration Statement, as amended or supplemented, all exhibits to the Registration Statement, the Prospectus and all other underwriting documents.

(u) The Company shall, as of the date hereof, have applied for listing in Standard & Poor's Corporation Records Service (including annual report information) or Moody's Industrial Manual (Moody's OTC Industrial Manual not being sufficient for these purposes) and shall use its best efforts to have the Company listed in such manual and shall maintain such listing for a period of five (5) years from the Effective Date.

(v) For a period of five (5) years from the Effective Date, the Company shall provide the Representative, on a not less than annual basis, with internal forecasts setting forth projected results of operations for each quarterly and annual period in the two (2) fiscal years following the respective dates of such forecasts. Such forecasts shall be provided to the Representative more frequently than annually if prepared more frequently by management, and revised forecasts shall be prepared and provided to the Representative when required to reflect more current information, revised assumptions or actual results that differ materially from those set forth in the forecasts.

(w) For a period of three (3) years from the Effective Date, or until such earlier time as the Common Shares are listed on the New York Stock Exchange or the American Stock Exchange, the Company shall cause its legal counsel to provide the Representative with a list, to be updated at least annually, of those states in which the Common Shares may be traded in non-issuer transactions under the Blue Sky laws of the 50 states.

(x) For a period of three (3) years from the Effective Date, the Company shall continue to retain KPMG LLP (or such other nationally recognized accounting firm acceptable to the Representative) as the Company's independent public accountants.

(y) For a period of three (3) years from the Effective Date, the Company, at its expense, shall cause its then independent certified public accountants, as described in Section 5(x) above, to review (but not audit) the Company's financial statements for each of the first three fiscal quarters prior to the announcement of quarterly financial information, the filing of the Company's 10-Q (or 10-QSB) quarterly report (or other equivalent report) and the mailing of quarterly financial information to stockholders.

(z) For a period of twenty-five (25) days from the Effective Date, the Company will not issue press releases or engage in any other publicity without the Representative's prior written consent, other than normal and customary releases issued in the ordinary course of the Company's business or those releases required by law.

(aa) The Company will not increase or authorize an increase in the compensation of its five (5) most highly paid employees greater than those increases provided for in their employment agreements with the Company in effect as of the Effective Date and disclosed in the Registration Statement, without the prior written consent of the Representative, for a period of three (3) years from the Effective Date.

(ab) For a period of three (3) years from the Effective Date, the Company will promptly submit to the Representative copies of accountant's management reports and similar correspondence between the Company's accountants and the Company.

(ac) For a period of two (2) years from the Effective Date, the Company will not offer or sell any of its securities (i) pursuant to Regulation S promulgated under the Act or (ii) at a discount to market or in a discounted transaction, without the prior written consent of the Representative, other than the issuance of Common Shares upon exercise of options and warrants outstanding on the Closing Date and described in the Prospectus.

(ad) For a period of three (3) years from the Effective Date, the Company will provide to the Representative ten (10) day's written notice prior to any issuance by the Company or its subsidiaries of any equity securities or securities exchangeable for or convertible into equity securities of the Company, except for (i) Common Shares issuable upon exercise of currently outstanding options and warrants or conversion of currently outstanding convertible securities and (ii) options available for future grant pursuant to any stock option plan in effect on the Effective Date and the issuance of shares of Common Shares upon the exercise of such options.

(ae) Prior to the Effective Date and for a period of two (2) years thereafter, the Company will retain a financial public relations firm reasonably acceptable to the Representative.

(af) For a period of five (5) years from the Effective Date, the Company will cause its Board of Directors to meet, either in person or telephonically, a minimum of four (4) times per year and will hold a stockholder's meeting at least once per annum.

(ag) Prior to the Effective Date, the Company shall have obtained Director's and Officer's insurance naming the Representative as an additional insured party, in an amount equal to twenty-five percent (25%) of the gross proceeds of the offering, and the Company will maintain such insurance for a period of at least three (3) years from the Closing Date.

6. Conditions of the Underwriters' Obligation to Purchase the Offered Shares from the Company. The obligation of the several Underwriters to purchase and pay for the Offered Shares which each such Underwriter has agreed to purchase from the Company is subject (as of the date hereof and the Closing Date) to the accuracy of and compliance in all material respects with the representations and warranties of the Company herein, to the accuracy of the statements of the Company or its officers made pursuant hereto, to the performance in all material respects by the Company of its obligations hereunder, and to the following additional conditions:

(a) The Registration Statement will have become effective not later than 10:00 A.M., New York City time, on the day following the date of this Agreement, or at such later time or on such later date as the Representative may agree to in writing; prior to the Closing Date, no stop order suspending the effectiveness of the Registration Statement will have been issued and no proceedings for that purpose will have been initiated or will be pending or, to the best of the Representative's or the Company's knowledge, will be contemplated by the Commission; and any request on the part of the Commission for additional information will have been complied with to the satisfaction of Underwriters' Counsel.

(b) At the time that this Agreement is executed and at the Closing Date, there will have been delivered to the Representative a signed opinion of each of Morse, Zelnick, Rose & Lander LLP, Covington & Burling and \_\_\_\_\_

counsels for the Company (individually and collectively, "Company Counsel"), dated as of the date hereof or the Closing Date, as the case may be (and any other opinions of counsel referred to in such opinion of Company Counsel or relied upon by Company Counsel in rendering their opinion), reasonably satisfactory to Underwriters' Counsel, to the effect that:

(i) The Company is a corporation duly organized, validly existing and in good standing under the laws of the State of Delaware, with full power and authority, corporate and other, and with all Permits necessary to own or lease, as the case may be, and operate its properties, whether tangible or intangible, and to conduct its business as described in the Registration Statement. To the best of Company Counsel's knowledge, the Company has no subsidiaries. The Company is duly qualified to do business as a foreign corporation and is in good standing in all jurisdictions wherein such qualification is necessary and failure so to qualify could have a material adverse effect on the financial condition, results of operations, business or properties of the Company.

(ii) The Company has full power and authority, corporate and other, to execute, deliver and perform this Agreement, the Consulting Agreement and the Representative's Warrant Agreement and to consummate the transactions contemplated hereby and thereby. The execution, delivery and performance of this Agreement, the Consulting Agreement and the Representative's Warrant Agreement by the Company, the consummation by the Company of the transactions herein and therein contemplated and the compliance by the Company with the terms of this Agreement, the Consulting Agreement and the Representative's Warrant Agreement have been duly authorized by all necessary corporate action, and this Agreement has been duly executed and delivered by the Company. This Agreement is (assuming for the purposes of this opinion that it is valid and binding upon the other party thereto) and, when executed and delivered by the Company on the Closing Date, each of the Consulting Agreement and the Representative's Warrant Agreement will be, valid and binding obligations of the Company, enforceable in accordance with their respective terms, subject, as to enforcement of remedies, to applicable bankruptcy, insolvency, reorganization, moratorium and other laws affecting the rights of creditors generally and the discretion of courts in granting equitable remedies and except that enforceability of the indemnification provisions set forth in Section 7 hereof and the contribution provisions set forth in Section 8 hereof may be limited by the federal securities laws or public policy underlying such laws.

(iii) The execution, delivery and performance of this Agreement, the Consulting Agreement and the Representative's Warrant Agreement by the Company, the consummation by the Company of the transactions herein and therein contemplated and the compliance by the Company with the terms of this Agreement, the Consulting Agreement and the Representative's Warrant Agreement do not, and will not, with or without the giving of notice or the lapse of time, or both, (A) result in a violation of the Certificate of Incorporation or By-Laws, each as amended, of the Company, (B) result in a breach of or conflict with any terms or provisions of, or constitute a default under, or result in the modification or termination of, or result in the creation or imposition of any lien, security interest, charge or encumbrance upon any of the properties or assets of the Company, or any of the Company's properties or assets are or may be bound or affected; (C) violate any existing applicable law, rule, regulation, judgment, order or decree of any governmental agency or court, domestic or foreign, having jurisdiction over the Company, or any of the Company's properties or business; or (D) have any effect on any Permit necessary for the Company to own or lease, as the case may be, and operate its properties or conduct its business or the ability of the Company to make use of its properties or business.

(iv) To the best of Company Counsel's knowledge, no Permits of any court or governmental agency or body (other than under the Act, the Regulations and applicable state securities or Blue Sky laws) are required for the valid authorization, issuance, sale and delivery of the Shares or the Underwriter's Warrants to the Underwriter, and the consummation by the Company of the transactions contemplated by this Agreement, the Consulting Agreement or the Underwriter's Warrant Agreement.

 $(\nu)$  The Registration Statement has become effective under the Act; to the best of Company Counsel's knowledge, no stop order suspending the effectiveness of the Registration Statement has been issued, and no proceedings for that purpose have been instituted or are pending, threatened or contemplated under the Act or applicable state securities laws.

(vi) The Registration Statement and the Prospectus, as of the Effective Date, and each amendment or supplement thereto as of its effective or issue date (except for the financial statements and other financial data included therein or omitted therefrom, as to which Company Counsel need not express an opinion) comply as to form in all material respects with the requirements of the Act and Regulations and the conditions for use of a registration statement on Form SB-2 have been satisfied by the Company.

(vii) The descriptions in the Registration Statement and the Prospectus of statutes, regulations, government classifications, contracts and other documents (including opinions of such counsel); and the response to Item 13 of Form SB-2 have been reviewed by Company Counsel, and, based upon such review, are accurate in all material respects and present fairly the information required to be disclosed, and there are no material statutes, regulations or government classifications, or, to the best of Company Counsel's knowledge, material contracts or documents, of a character required to be described in the Registration Statement or the Prospectus or to be filed as exhibits to the Registration Statement, which are not so described or filed as required.

None of the material provisions of the contracts or instruments described above violates any existing applicable law, rule, regulation, judgment, order or decree of any governmental agency or court, domestic or foreign, having jurisdiction over the Company, or any of its assets or businesses, including, without limitation, the FDA and FTC and comparable foreign, state and local regulatory authorities.

(viii) The outstanding Common Shares and outstanding options and warrants to purchase Common Shares have been duly authorized and validly issued. The outstanding Common Shares are fully paid and nonassessable. The outstanding options and warrants to purchase Common Shares constitute the valid and binding obligations of the Company, enforceable in accordance with their terms. None of the outstanding Common Shares or options or warrants to purchase Common Shares has been issued in violation of the preemptive rights of any stockholder of the Company. None of the holders of the outstanding Common Shares is subject to personal liability solely by reason of being such a holder. The offers and sales

of the outstanding Common Shares and outstanding options and warrants to purchase Common Shares were at all relevant times either registered under the Act and the applicable state securities or Blue Sky laws or exempt from such registration requirements. The authorized Common Shares and outstanding options and warrants to purchase Common Shares conform to the descriptions thereof contained in the Registration Statement and Prospectus. To the best of Company Counsel's knowledge, except as set forth in the Prospectus, no holders of any of the Company's securities has any rights, "demand", "piggyback" or otherwise, to have such securities registered under the Act.

(ix) The issuance and sale of the Shares have been duly authorized and, when the Shares have been issued and duly delivered against payment therefor as contemplated by this Agreement, the Shares will be validly issued, fully paid and nonassessable, and the holders thereof will not be subject to personal liability solely by reason of being such holders. The Shares are not subject to preemptive rights of any stockholder of the Company. The certificates representing the Shares are in proper legal form.

(x) The issuance and sale of the Common Shares issuable upon exercise of the Representative's Warrants have been duly authorized and, when such Common Shares have been duly delivered against payment therefor, as contemplated by the Representative's Warrant Agreement, such Common Shares will be validly issued, fully paid and nonassessable. Holders of Common Shares issuable upon exercise of the Representative's Warrants will not be subject to personal liability solely by reason of being such holders. Neither the Representative's Warrants nor the Common Shares issuable upon exercise thereof will be subject to preemptive rights of any stockholder of the Company. The Company has reserved a sufficient number of Common Shares from its authorized, but unissued Common Shares for issuance upon exercise of the Representative's Warrant Agreement. The Representative's Warrants conform to the descriptions thereof in the Registration Statement and Prospectus.

(xi) Upon delivery of the Offered Shares to the Underwriters against payment therefor as provided in this Agreement, the Underwriters (assuming each is a bona fide purchaser within the meaning of the Uniform Commercial Code) will acquire good title to the Offered Shares, free and clear of all liens, encumbrances, equities, security interests and claims.

(xii) Assuming that the Representative exercises the over-allotment option to purchase any of the Optional Shares and makes payment therefor in accordance with the terms of this Agreement, upon delivery of the Optional Shares to the Representative hereunder, the Representative (assuming it is a bona fide purchaser within the meaning of the Uniform Commercial Code) will acquire good title to such Optional Shares, free and clear of any liens, encumbrances, equities, security interests and claims.

(xiii) To the best of Company Counsel's knowledge, there are no claims, actions, suits, proceedings, arbitrations, investigations or inquiries before any governmental agency, court or tribunal, foreign or domestic, or before any private arbitration tribunal, pending or threatened against the Company, or involving the Company's properties or businesses, other than as described in the Prospectus, such description being accurate, and other than litigation incident to the kind of business conducted by the Company which, individually and in the aggregate, is not material.

(xiv) The Company owns or possesses adequate and enforceable rights to use all patents, patent applications, trademarks, service marks, copyrights, rights, trade secrets, confidential information, processes and formulations used or proposed to be used in the conduct of its business as described in the Prospectus (collectively the "Intangibles"); to the best of Company Counsel's knowledge, the Company has not infringed nor is infringing with the rights of others with respect to the Intangibles; and, to the best of Company Counsel's knowledge, the Company has not received any notice that it has or may have infringed, is infringing upon or is conflicting with the asserted rights of others with respect to the Intangibles which might, singly or in the aggregate, materially adversely affect its business, results of operations or financial condition and such counsel is not aware of any licenses with respect to the Intangibles which are required to be obtained by the Company other than those licenses which the Company has obtained. The opinions described in this Section 6(b)(xiv) may be given by Company Counsel in reliance on the opinion of an attorney, reasonably acceptable to Underwriter's Counsel, practicing in the patent area.

Company Counsel has participated in reviews and discussions in connection with the preparation of the Registration Statement and the Prospectus, and in the course of such reviews and discussions and such other investigation as Company Counsel deemed necessary, no facts came to its attention which lead it to believe that (A) the Registration Statement (except as to the financial statements and other financial data contained therein, as to which Company Counsel need not express an opinion), on the Effective Date, contained any untrue statement of a material fact required to be stated therein or omitted to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, or that (B) the Prospectus (except as to the financial statements and other financial data contained therein, as to which Company Counsel need not express an opinion) contains any untrue statement of a material fact or omits to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. Each counsel giving an opinion must give the opinion set forth in this paragraph as to such subject matter of its opinion.

In rendering its opinion pursuant to this Section 6(b), Company Counsel may rely upon the certificates of government officials and officers of the Company as to matters of fact, provided that Company Counsel shall state that they have no reason to believe, and do not believe, that they are not justified in relying upon such opinions or such certificates of government officials and officers of the Company as to matters of fact, as the case may be.

The opinion letters delivered pursuant to this Section 6(b) shall state that any opinion given therein qualified by the phrase "to the best of our knowledge" is being given by Company Counsel after due investigation of the matters therein discussed.

(c) At the Closing Date, there will have been delivered to the Representative a signed opinion of Underwriters' Counsel, dated as of the Closing Date, to the effect that the opinions delivered pursuant to Section 6(b) hereof appear on their face to be appropriately responsive to the requirements of this Agreement, except to the extent waived by the Representative, specifying the same, and with respect to such related matters as the Representative may require.

(d) At the Closing Date (i) the Registration Statement and the Prospectus and any amendments or supplements thereto will contain all material statements which are required to be stated therein in accordance with the Act and the Regulations and will conform in all material respects to the requirements of the Act and the Regulations, and neither the Registration Statement nor the Prospectus nor any amendment or supplement thereto will contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading; (ii) since the respective dates as of which information is given in the Registration Statement and the Prospectus, there will not have been any material adverse change in the financial condition, results of operations or general affairs of the Company from that set forth or contemplated in the Registration Statement and the Prospectus, except changes which the Registration Statement and the Prospectus indicate might occur after the Effective Date; (iii) since the respective dates as of which information is given in the Registration Statement and the Prospectus, there shall have been no material transaction, contract or agreement entered into by the Company, other than in the ordinary course of business, which would be required to be set forth in the Registration Statement and the Prospectus, other than as set forth therein; and (iv) no action, suit or proceeding at law or in equity will be pending or, to the best of the Company's knowledge, threatened against the Company which is required to be set forth in the Registration Statement and the Prospectus, other than as set forth therein, and no proceedings will be pending or, to the best of the Company's knowledge, threatened against the Company before or by any federal, state or other commission, board or administrative agency wherein an unfavorable decision, ruling or finding would materially adversely affect the business, property, financial condition or results of operations of the Company, other than as set forth in the Registration Statement and the Prospectus. At the Closing Date, there will be delivered to the Representative a certificate signed by the Chairman of the Board or the President or a Vice President of the Company, dated the Closing Date, evidencing compliance with the provisions of this Section 6(d) and stating that the representations and warranties of the Company set forth in Section 4 hereof were accurate and complete in all material respects when made on the date hereof and are accurate and complete in all material respects on the Closing Date as if then made; that the Company has performed all covenants and

complied with all conditions required by this Agreement to be performed or complied with by the Company prior to or as of the Closing Date; and that, as of the Closing Date, no stop order suspending the effectiveness of the Registration Statement has been issued and no proceedings for that purpose have been initiated or, to the best of his knowledge, are contemplated or threatened. In addition, the Representative will have received such other and further certificates of officers of the Company as the Representative or Underwriters' Counsel may reasonably request.

(e) At the time that this Agreement is executed and at the Closing Date, the Representative will have received a signed letter from KPMG LLP, dated the date such letter is to be received by the Representative and addressed to it, confirming that it is a firm of independent public accountants within the meaning of the Act and Regulations and stating that: (i) insofar as reported on by them, in their opinion, the financial statements of the Company included in the Prospectus comply as to form in all material respects with the applicable accounting requirements of the Act and the applicable Regulations; (ii) on the basis of procedures and inquiries (not constituting an examination in accordance with generally accepted auditing standards) consisting of a reading of the unaudited interim financial statements of the Company, if any, appearing in the Registration Statement and the Prospectus and the latest available unaudited interim financial statements of the Company, if more recent than that appearing in the Registration Statement and Prospectus, inquiries of officers of the Company responsible for financial and accounting matters as to the transactions and events subsequent to the date of the latest audited financial statements of the Company, and a reading of the minutes of meetings of the stockholders, the Board of Directors of the Company and any committees of the Board of Directors, as set forth in the minute books of the Company, nothing has come to their attention which, in their judgment, would indicate that (A) during the period from the date of the latest financial statements of the Company appearing in the Registration Statement and Prospectus to a specified date not more than three business days prior to the date of such letter, there have been any decreases in net current assets or net assets as compared with amounts shown in such financial statements or decreases in net sales or decreases [increases] in total or per share net income [loss] compared with the corresponding period in the preceding year or any change in the capitalization or long-term debt of the Company, except in all cases as set forth in or contemplated by the Registration

Statement and the Prospectus, and (B) the unaudited interim financial statements of the Company, if any, appearing in the Registration Statement and the Prospectus, do not comply as to form in all material respects with the applicable accounting requirements of the Act and the Regulations or are not fairly presented in conformity with generally accepted accounting principles and practices on a basis substantially consistent with the audited financial statements included in the Registration Statement or the Prospectus; and (iii) they have compared specific dollar amounts, numbers of shares, numerical data, percentages of revenues and earnings, and other financial information pertaining to the Company set forth in the Prospectus (with respect to all dollar amounts, numbers of shares, percentages and other financial information contained in the Prospectus, to the extent that such amounts, numbers, percentages and information may be derived from the general accounting records of the Company, and excluding any questions requiring an interpretation by legal counsel) with the results obtained from the application of specified readings, inquiries and other appropriate procedures (which procedures do not constitute an examination in accordance with generally accepted auditing standards) set forth in the letter, and found them to be in agreement.

(f) There shall have been duly tendered to the Representative certificates representing the Offered Shares to be sold on the Closing Date.

(g) The NASD shall have indicated that it has no objection to the underwriting arrangements pertaining to the sale of the Offered Shares by the Underwriters or the sale of the Shares by the Representative.

(h) No action shall have been taken by the Commission or the NASD the effect of which would make it improper, at any time prior to the Closing Date or the Option Closing Date, as the case may be, for any member firm of the NASD to execute transactions (as principal or as agent) in the Shares, and no proceedings for the purpose of taking such action shall have been instituted or shall be pending, or, to the best of the Representative's or the Company's knowledge, shall be contemplated by the Commission or the NASD. The Company represents at the date hereof, and shall represent as of the Closing Date or Option Closing Date, as the case may be, that it has no knowledge that any such action is in fact contemplated by the Commission or the NASD.

(i) The Company meets the current and any existing and proposed criteria for inclusion of the Shares on Nasdaq SmallCap Market.

(j) All proceedings taken at or prior to the Closing Date or the Option Closing Date, as the case may be, in connection with the authorization, issuance and sale of the Shares shall be reasonably satisfactory in form and substance to the Representative and to Underwriters' Counsel, and such counsel shall have been furnished with all such documents, certificates and opinions as they may request for the purpose of enabling them to pass upon the matters referred to in Section 6(c) hereof and in order to evidence the accuracy and completeness of any of the representations, warranties or statements of the Company, the performance of any covenants of the Company, or the compliance by the Company with any of the conditions herein contained.

(k) As of the date hereof, the Company will have delivered to the Representative the written undertakings of its officers, directors and securityholders and/or registration rights holders, as the case may be, to the effect of the matters set forth in Sections 5(1) and (q).

If any of the conditions specified in this Section 6 have not been fulfilled, this Agreement may be terminated by the Representative on notice to the Company.

#### 7. Indemnification.

(a) The Company agrees to indemnify and hold harmless each Underwriter, each officer, director, partner, employee and agent of each Underwriter, and each person, if any, who controls any Underwriter within the meaning of Section 15 of the Act or Section 20(a) of the Exchange Act, from and against any and all losses, claims, damages, expenses or liabilities, joint or several (and actions in respect thereof), to which they or any of them may become subject under the Act or under any other statute or at common law or otherwise, and, except as hereinafter provided, will reimburse each Underwriter and each such person, if any, for any legal or other expenses reasonably incurred by them or any of them in connection with investigating or defending any actions, whether or not resulting in any liability, insofar as such losses,

claims, damages, expenses, liabilities or actions arise out of or are based upon any untrue statement or alleged untrue statement of a material fact contained (i) in the Registration Statement, in any Preliminary Prospectus or in the Prospectus (or the Registration Statement or Prospectus as from time to time amended or supplemented) or (ii) in any application or other document executed by the Company, or based upon written information furnished by or on behalf of the Company, filed in any jurisdiction in order to qualify the Shares under the securities laws thereof (hereinafter "application"), or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary in order to make the statements therein not misleading, in light of the circumstances under which they were made, unless such untrue statement or omission was made in such Registration Statement, Preliminary Prospectus, Prospectus or application in reliance upon and in conformity with information furnished in writing to the Company in connection therewith by the Representative or an Underwriter through the Representative or any such person through the Representative for use therein; provided, however, that the indemnity agreement contained in this Section 7(a) with respect to any Preliminary Prospectus will not inure to the benefit of an Underwriter (or to the benefit of any other person that may be indemnified pursuant to this Section 7(a)) if (A) the person asserting any such losses, claims, damages, expenses or liabilities purchased the Shares which are the subject thereof from such Underwriter or other indemnified person; (B) such Underwriter or other indemnified person failed to send or give a copy of the Prospectus to such person; and (C) the Prospectus did not contain any untrue statement or alleged untrue statement or omission or alleged omission giving rise to such cause, claim, damage, expense or liability.

(b) Each Underwriter (including specifically each person that may be substituted for an underwriter as provided in Section 10 hereof) agrees to indemnify and hold harmless the Company, each of its directors, each of its officers who have signed the Registration Statement and each person, if any, who controls the Company within the meaning of Section 15 of the Act or Section 20(a) of the Exchange Act, from and against any and all losses, claims, damages, expenses or liabilities, joint or several (and actions in respect thereof), to which they or any of them may become subject under the Act or under any other statute or at common law or otherwise, and, except as hereinafter provided, will

reimburse the Company and each such director, officer or controlling person for any legal or other expenses reasonably incurred by them or any of them in connection with investigating or defending any actions, whether or not resulting in any liability, insofar as such losses, claims, damages, expenses, liabilities or actions arise out of or are based upon any untrue statement or alleged untrue statement of a material fact contained (i) in the Registration Statement, in any Preliminary Prospectus or in the Prospectus (or the Registration Statement or Prospectus as from time to time amended or supplemented) or (ii) in any application (including any application for registration of the Shares under state securities or Blue Sky laws), or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary in order to make the statements therein not misleading, in light of the circumstances under which they were made, but only insofar as any such statement or omission was made in reliance upon and in conformity with information furnished in writing to the Company in connection therewith by such Underwriter expressly for use therein.

(c) Promptly after receipt of notice of the commencement of any action in respect of which indemnity may be sought against any indemnifying party under this Section 7, the indemnified party will notify the indemnifying party in writing of the commencement thereof, and the indemnifying party will, subject to the provisions hereinafter stated, assume the defense of such action (including the employment of counsel satisfactory to the indemnified party and the payment of expenses) insofar as such action relates to an alleged liability in respect of which indemnifying party of its election to assume the defense of such claim or action, the indemnifying party shall no longer be liable to the indemnified party under this Section 7 for any legal or other expenses subsequently incurred by the indemnified party or parties, it is advisable for the indemnified party or parties to be represented by separate counsel, the indemnified party or parties to be represented by separate counsel, the indemnified party or parties who may be sought to employ a single counsel to represent the indemnified parties who may be sought by the indemnified parties thereof against the indemnified party, in which event the fees and expenses of

such separate counsel shall be borne by the indemnifying party. Any party against whom indemnification may be sought under this Section 7 shall not be liable to indemnify any person that might otherwise be indemnified pursuant hereto for any settlement of any action effected without such indemnifying party's consent, which consent shall not be unreasonably withheld.

8. Contribution. To provide for just and equitable contribution, if (i) an indemnified party makes a claim for indemnification pursuant to Section 7 hereof (subject to the limitations thereof) and it is finally determined, by a judgment, order or decree not subject to further appeal, that such claim for indemnification may not be enforced, even though this Agreement expressly provides for indemnification in such case; or (ii) any indemnified or indemnifying party seeks contribution under the Act, the Exchange Act, or otherwise, then the Company (including, for this purpose, any contribution made by or on behalf of any director of the Company, any officer of the Company who signed the Registration Statement and any controlling person of the Company) as one entity and the Underwriters (including, for this purpose, any contribution by or on behalf of each person, if any, who controls an Underwriter within the meaning of Section 15 of the Act or Section 20(a) of the Exchange Act and each officer, director, partner, employee and agent of the Underwriters) as a second entity, shall contribute to the losses, liabilities, claims, damages and expenses whatsoever to which any of them may be subject, so that the Underwriting discount per Share set forth on the cover page of the Prospectus and the Company is responsible for the remaining portion; provided, however, that if applicable law does not permit such allocation, then, if applicable law permits, other relevant equitable considerations such as the relative fault of the company and the Underwriters in connection with the facts which resulted in such losses, liabilities, claims, damages and expenses shall also be considered. The relative fault, in the case of an unrue statement, alleged omission relates to information supplied by the Company or by the Underwriters, and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement, alleged statement, omission or alleged omission. The Company and the

Underwriters agree that it would be unjust and inequitable if the respective obligations of the Company and the Underwriters for contribution were determined by pro rata or per capita allocation of the aggregate losses, liabilities, claims, damages and expenses or by any other method of allocation that does not reflect the equitable considerations referred to in this Section 8. No person guilty of a fraudulent misrepresentation (within the meaning of Section 11(f) of the Act) will be entitled to contribution from any person who is not guilty of such fraudulent misrepresentation. For purposes of this Section 8, each person, if any, who controls an Underwriter within the meaning of Section 15 of the Act or Section 20(a) of the Exchange Act and each officer, director, partner, employee and agent of the Underwriters will have the same rights to contribution as the Underwriters, and each person, if any, who controls the Company within the meaning of Section 15 of the Act or Section 20(a) of the Exchange Act, each officer of the Company who has signed the Registration Statement and each director of the Company will have the same rights to contribution as the Company, subject in each case to the provisions of this Section 8. Anything in this Section 8 to the contrary notwithstanding, no party will be liable for contribution with respect to the settlement of any claim or action effected without its written consent. This Section 8 is intended to supersede, to the extent permitted by law, any right to contribution under the Act or the Exchange Act or otherwise available.

9. Survival of Indemnities, Contribution, Warranties and Representations. The respective indemnity and contribution agreements of the Company and the Underwriters contained in Sections 7 and 8 hereof, and the representations and warranties of the Company contained herein shall remain operative and in full force and effect, regardless of any termination or cancellation of this Agreement or any investigation made by or on behalf of the Underwriters, the Company or any of its directors and officers, or any controlling person referred to in said Sections, and shall survive the delivery of, and payment for, the Shares.

10. Substitution of Underwriters.

(a) If one or more Underwriters should default in its or their obligation to purchase and pay for any Offered Shares hereunder and if the aggregate number of such Offered Shares which all Underwriters so defaulting have agreed to purchase does not exceed 10% of the total number of the Offered

Shares, the non-defaulting Underwriters will be obligated severally to purchase and pay for (in addition to the number of Offered Shares set forth opposite their names in Schedule A attached hereto) the full number of Offered Shares agreed to be purchased by all defaulting Underwriters, and not so purchased, in proportion to their respective commitments hereunder. In such event the Representative, for the accounts of the several nondefaulting Underwriters, may take up and pay for all or any part of such additional Offered Shares to be purchased by each such Underwriter under this Section 10(a), and may postpone the Closing Date to a time not exceeding three full business days after the Closing Date determined as provided in Section 2 hereof.

(b) If one or more Underwriters should default in its or their obligation to purchase and pay for any Offered Shares hereunder and if the aggregate number of such Offered Shares which all Underwriters so defaulting have agreed to purchase exceeds 10% of the total number of Offered Shares, or if one or more Underwriters for any reason permitted hereunder should cancel its or their obligation to purchase and pay for Offered Shares hereunder, the non-cancelling and non-defaulting Underwriters (hereinafter called the "remaining Underwriters") will have the right to purchase such Offered Shares in such proportion as may be agreed among them at the Closing Date determined as provided in Section 2 hereof. If the remaining Underwriters do not purchase and pay for such Offered Shares at such Closing Date, the Closing Date will be postponed for 24 hours and the remaining Underwriters will have the right to purchase such Offered Shares, or to substitute another person or persons to purchase the same, or both, at such postponed Closing Date. If purchasers have not been found for such Offered Shares by such postponed Closing Date, the Closing Date will be postponed for a further 24 hours, and the Company will have the right to substitute another person or persons, reasonably satisfactory to the Representative to purchase such Offered Shares at such second postponed Closing Date. If it shall be arranged for the remaining Underwriters or substituted underwriters to take up the Offered Shares of the defaulting Underwriter or Underwriters as provided in this Section, (A) the Company shall have the right to postpone the time of delivery for a period of not more than three (3) full Business Days, in order to effect whatever changes may thereby be made necessary in the Registration Statement or the Prospectus or in any other documents or arrangements, and the Company agrees promptly to file any

amendments to the Registration Statement or supplements to the Prospectus which may thereby be made necessary. If the Company has not found such purchasers for such Offered Shares by such second postponed Closing Date, then this Agreement will automatically terminate, and neither the Company nor the remaining Underwriters will be under any obligation under this Agreement (except that the Company and the Underwriters will remain liable to the extent provided in Sections 7 and 8 hereof and the Company will also remain liable to the extent provided in Section 5(j) hereof). As used in this Agreement, the term "Underwriter" includes any person substituted for an Underwriter under this Section 10(b). Nothing in Section 11 hereof will relieve a defaulting Underwriter from the liability for its default and nothing in this Section 10(b) will obligate any Underwriter to purchase or find purchasers for any Offered Shares in excess of those agreed to be purchased by such Underwriter under the terms of Section 2 hereof.

# 11. Termination of Agreement.

(a) The Company, by written or telegraphic notice to the Representative, or the Representative, by written or telegraphic notice to the Company, may terminate this Agreement prior to the earlier of (i) 11:00 A.M., New York City time, on the first full business day after the Effective Date; or (ii) the time when the Representative, after the Registration Statement becomes effective, releases the Offered Shares for public offering. The time when the Representative "releases the Offered Shares for public offering" for the purposes of this Section 11 means the time when the Representative releases for publication the first newspaper advertisement, which is subsequently published, relating to the Offered Shares, or the time when the Representative releases for delivery to members of a selling group copies of the Prospectus and an offering letter or an offering telegram relating to the Offered Shares, whichever will first occur.

(b) This Agreement, including without limitation, the obligation to purchase the Shares and the obligation to purchase the Optional Shares after exercise of the option referred to in Section 3 hereof, are subject to termination in the absolute discretion of the Representative, by notice given to the Company prior to delivery of and payment for all the Offered Shares or such Optional Shares, as the case may be, if, prior to such time, any of the following shall have occurred: (i) the Company withdraws the Registration

Statement from the Commission or the Company does not or cannot expeditiously proceed with the public offering; (ii) the representations and warranties in Section 4 hereof are not materially correct or cannot be complied with; (iii) trading in securities generally on the New York Stock Exchange or the American Stock Exchange will have been suspended; (iv) limited or minimum prices will have been established on either such Exchange; (v) a banking moratorium will have been declared either by federal or New York State authorities; (vi) any other restrictions on transactions in securities materially affecting the free market for securities or the payment for such securities, including the Offered Shares or the Optional Shares, will be established by either of such Exchanges, by the Commission, by any other federal or state agency, by action of the Congress or by Executive Order; (vii) trading in any securities exchange, the NASD or the Commission; (viii) there has been a materially adverse change in the condition (financial or otherwise), prospects or obligations of the Company; (ix) the Company will have sustained a material loss, whether or not insured, by reason of fire, flood, accident or other calamity; (x) any action has been taken by the government of the United States or any department or agency thereof which, in the judgment of the Representative, has had a material adverse effect upon the market or potential market for securities in general; or (xi) the market for securities in general or political, financial or economic conditions will have so materially adversely changed that, in the judgment of the Representative, it will be impracticable to offer for sale, or to enforce contracts made by the Underwriters for the resale of, the Offered Shares or the Optional Shares, as the case may be.

(c) If this Agreement is terminated pursuant to Section 6 hereof or this Section 11 or if the purchases provided for herein are not consummated because any condition of the Underwriters' obligations hereunder is not satisfied or because of any refusal, inability or failure on the part of the Company to comply with any of the terms or to fulfill any of the conditions of this Agreement, or if for any reason the Company shall be unable to or does not perform all of its obligations under this Agreement, the Company will not be liable to the Underwriters for damages on account of loss of anticipated profits arising out of the transactions covered by this Agreement, but the Company will remain liable to the extent provided in Sections 5(j), 7, 8 and 9 of this Agreement.

12. Information Furnished by the Underwriters to the Company. It is hereby acknowledged and agreed by the parties hereto that for the purposes of this Agreement, including, without limitation, Sections 4(f), 7(a), 7(b) and 8 hereof, the only information given by the Underwriters to the Company for use in the Prospectus are the statements set forth in the last sentence of the\_\_\_\_\_ paragraph on the cover page, the statement appearing in the \_\_\_\_ paragraph on page \_\_\_ with respect to stabilizing the market price of Shares, the information in the \_\_\_\_ paragraph on page \_\_\_ with respect to the concessions and reallowances, and the information of the public offering price, as such information appears in any Preliminary Prospectus and in the Prospectus.

13. Notices and Governing Law. All communications hereunder will be in writing and, except as otherwise provided, will be delivered at, or mailed by certified mail, return receipt requested, or telegraphed to, the following addresses: if to the Representative or the Underwriters, to Whale Securities Co., L.P., Attention: William G. Walters, 650 Fifth Avenue, New York, New York 10019, with a copy to Blank Rome Tenzer Greenblatt LLP, Attention: Robert J. Mittman, Esq., 405 Lexington Avenue, New York, New York 10174; if to the Company, addressed to it at Delcath Systems, Inc., 1100 Summer Street, Stamford, Connecticut 06905, Attention: M.S. Koly, with a copy to Morse, Zelnick, Rose & Lander, LLP, 450 Park Avenue, New York, New York 10022, Attention: Stephen A. Zelnick, Esq.

This Agreement shall be deemed to have been made and delivered in New York City and shall be governed as to validity, interpretation, construction, effect and in all other respects by the internal laws of the State of New York. The Company and the Underwriters each (1) agrees that any legal suit, action or proceeding arising out of or relating to this Agreement shall be instituted exclusively in New York State Supreme Court, County of New York, or in the United States District Court for the Southern District of New York, (2) waives any objection which the Company may have now or hereafter to the venue of any such suit, action or proceeding, and (3) irrevocably consents to the Jurisdiction of the New York State Supreme Court, County of New York, and the United States District Court for the Southern District of New York, in any such suit, action or proceeding. Each of the Company and the Underwriters further agrees to accept and acknowledge service of any and all process which may be served in any such suit, action or proceeding in the New York State Supreme

Court, County of New York, or in the United States District Court for the Southern District of New York and agrees that service of process upon the Company mailed by certified mail to the Company's address shall be deemed in every respect effective service of process upon the Company, in any such suit, action or proceeding.

14. Parties in Interest. This Agreement is made solely for the benefit of the Underwriters, the Company and, to the extent expressed, any person controlling the Company or the Underwriters, each officer, director, partner, employee and agent of the Underwriters, the directors of the Company, its officers who have signed the Registration Statement, and their respective executors, administrators, successors and assigns, and, no other person will acquire or have any right under or by virtue of this Agreement. The term "successors and assigns" will not include any purchaser of the Shares from the Underwriters, as such purchaser.

If the foregoing is in accordance with your understanding of our agreement, kindly sign and return to us the enclosed duplicates hereof, whereupon it will become a binding agreement between the Company and the Underwriters in accordance with its terms.

Very truly yours,

DELCATH SYSTEMS, INC.

Ву

-----Name: M.S. Koly Title: Chief Executive Officer

Confirmed and accepted in New York, N.Y., as of the date first above written:

WHALE SECURITIES CO., L.P.

By: Whale Securities Corp., General Partner

Ву

-----Name: William G. Walters Title: Chairman

Acting on behalf of itself as the Representative of the several Underwriters Named in Schedule A hereto

Total

Number of Shares

2,000,000 ======

# AMENDED AND RESTATED

## CERTIFICATE OF INCORPORATION

0F

# DELCATH SYSTEMS, INC.

### FIRST: The name of the corporation is Delcath Systems, Inc.

SECOND: The address, including street, number, city and county of the registered office of the Corporation in the State of Delaware is 229 South State Street, City of Dover, County of Kent; and the name of the registered agent of the Corporation in the State of Delaware at such address is the Corporation Service Company.

THIRD: The nature of the business and the purposes to be conducted and promoted by the Corporation shall be to conduct any lawful business, to promote any lawful purpose, and to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law of the State of Delaware.

FOURTH: The total number of all classes of shares of stock which the corporation shall have authority to issue is twenty-five million (25,000,000) shares, consisting of ten million (10,000,000) shares of Preferred Stock with a par value of \$.01 per share, and fifteen million (15,000,000) shares of Common Stock with a par value of \$.01 per share, amounting in the aggregate to Two Hundred and Fifty Thousand Dollars (\$250,000.00).

The designation and powers, rights and preferences, and the qualifications, limitations, or restrictions with respect to each class or series of such class of the stock of the Corporation shall be as determined by resolution of the Board of Directors from time to time.

FIFTH: The corporation is to have perpetual existence.

SIXTH: For the management of the business and for the conduct of the affairs of the Corporation, and in further definition, limitation, and regulation of the powers of the Corporation and of its directors and of its stockholders or any class thereof, as the case may be, it is further provided:

1. The management of the business and the conduct of the affairs of the Corporation shall be vested in the Corporation's Board of Directors. The number of directors shall be determined by affirmative vote of a majority of the Board of Directors, but shall be not less than three (3).

2. The directors shall be divided into three classes, designated Class I, Class II and Class III. Each class shall consist, as nearly as may be possible, of one-third of the total number of directors constituting the entire Board of Directors. The term of the initial Class I directors shall terminate on the date of the 2001 annual meeting of stockholders; the term of the initial Class II directors shall terminate on the date of the 2002 annual meeting of stockholders shall terminate on the date term of the term of the Class III directors shall terminate on the date directors shall terminate on the date

of the 2003 annual meeting of stockholders. At each annual meeting of stockholders beginning in 2001, successors to the class of directors whose term expires at that annual meeting shall be elected for a three-year term. If the number of directors is changed, any increase or decrease in directorships shall be apportioned among the classes so as to maintain the number of directors in each class as nearly equal as possible, and any additional directors of any class elected to fill a vacancy resulting from an increase in such class shall hold office for a term that shall coincide with the remaining term of that class, but in no case will a decrease in the number of directors shorten the term of any incumbent director. Directors shall hold office until the annual meeting for the year in which their terms expire and until their successors shall be elected and shall qualify, subject, however, to prior death, resignation, retirement, disqualification or removal from office. A majority of the Board of Directors shall constitute a quorum for the transaction of business. Except as otherwise required by law, any vacancy on the Board of Directors, however resulting, may be filled only by the affirmative vote of two-thirds of the remaining directors then in office for a term that shall coincide with the remaining director shall hold office for a term that shall coincide with the remaining term of that class.

3. Notwithstanding the foregoing, whenever the holders of any one or more classes or series of Preferred Stock issued by the Corporation shall have the right, voting separately by class or series, to elect directors at an annual or special meeting of stockholders, the election, term of office, filling of vacancies and features of such directorships shall be governed by the terms of this Certificate of Incorporation or the resolution or resolutions adopted by the Board of Directors applicable thereto, and such directors so elected shall not be divided into classes pursuant to this Article unless expressly provided by such terms.

4. Subject to the rights, if any, of the holders of shares of Preferred Stock then outstanding, any or all of the directors of the Corporation may be removed from office at any time, with or without cause, by the affirmative vote of two-thirds of the directors then in office or by the affirmative vote of the holders of at least a majority of the outstanding stock of the Corporation then entitled to vote generally for the election of directors, considered for purposes of this Article as one class.

5. The power to adopt, amend, or repeal the By-Laws of the Corporation may be exercised by the affirmative vote of two-thirds of the Board of Directors of the Corporation. In addition, the stockholders may amend the By-Laws by the affirmative vote of a majority of the outstanding stock of the Corporation entitled to vote thereon.

6. The Board of Directors shall have the power, when considering a tender offer or merger or acquisition proposal, to take into account any and all factors that the Board of Directors determines to be relevant, including, but not limited to the following:

 (a) the interests of the Corporation's stockholders, including the possibility that these interests might be best served by the continued independence of the Corporation;

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(c) not only the consideration being offered in the proposed transaction, in relation to the then current market price for the outstanding capital stock of the Corporation, but also to the market price for the capital stock of the Corporation over a period of years, the estimated price that might be achieved in a negotiated sale of the Corporation as a whole or in part or through orderly liquidation, the premiums over market price for the securities of other corporations in similar transactions, current political, economic and other factors bearing on securities prices and the Corporation's financial condition and future prospects; and

laws:

(d) the social, legal and economic effects upon employees, suppliers, customers, creditors and others having similar relationships with the Corporation, upon the communities in which the Corporation conducts its business and upon the economy of the state, region and nation.

SEVENTH: No person serving as a director of the Corporation shall be personally liable to the Corporation or its stockholders for breach of his or her fiduciary duty as a director; provided, however, that the foregoing shall not eliminate or limit the liability of a director of the Corporation (i) for any breach of the director's duty of loyalty to the Corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the Delaware General Corporation Law, or (iv) for any transaction from which the director derived an improper personal benefit.

EIGHTH: The Corporation shall, to the fullest extent permitted by Section 145 of the General Corporation Law of the State of Delaware, as the same may be amended and supplemented, indemnify (and advance expenses to) any and all persons who it shall have power to indemnify (and advance expenses to) under said section from and against any and all of the expenses, liabilities, or other matters referred to in or covered by said section, and the indemnification and advancement provided for herein shall not be deemed exclusive of any other rights to which those indemnified may be entitled under any By-law, agreement, vote of stockholders or disinterested directors or otherwise, both as to action in his or her official capacity and as to action in another capacity while holding such office, and shall continue as to a person who has ceased to be a director, officer, employee, or agent and shall inure to the benefit of the heirs, executors, and administrators of such a person.

NINTH: Annual meetings of the stockholders shall be held on the date set in the Corporation's By-Laws. Any stockholder who desires to present a proposal or other matter or to nominate any person for election to the Board of Directors at an annual meeting of stockholders shall be entitled to present such proposal, matter or nomination at the annual meeting only if such stockholder notifies the Corporation, in writing, signed by the stockholder or stockholders

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submitting the notice, addressed to the Secretary of the Corporation, describing in detail the proposal or other matter to be presented and, in the case of nomination of a director, specifically identifying the person or persons such stockholder is nominating, sent by and delivery, overnight delivery or certified mail, return receipt requested, and such notice is received by the Secretary or President of the Corporation not less than one hundred and twenty (120) calendar days before the date of the Corporation's proxy statement released to the stockholders in connection with the previous year's annual meeting. In the event the Corporation did not hold an annual meeting the previous year, or if the date of the current year's annual meeting has been changed by more than thirty (30) calendar days from the date of the previous year's meeting, such notice must be received by the Secretary or President not less than sixty (60) days before the date set for the current year's meeting.

TENTH: From time to time any of the provisions of this certificate of incorporation may be amended, altered, or repealed, and other provisions authorized by the laws of the State of Delaware at the time in force may be added or inserted in the manner and at the time prescribed by said laws, and all rights at any time conferred upon the stockholders of the Corporation by this certificate of incorporation are granted subject to the provision of this Article TENTH.

IN WITNESS WHEREOF, DELCATH SYSTEMS, INC. has caused this Amended and Restated Certificate of Incorporation to be executed and acknowledged by M. S. Koly, its President and CEO this \_\_\_\_\_ day of \_\_\_\_\_, 2000.

DELCATH SYSTEMS, INC.

BY:

M. S. Koly, President and CEO

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### AMENDED AND RESTATED

#### BY-LAWS

#### 0F

#### DELCATH SYSTEMS, INC.

# A Delaware Corporation

#### ARTICLE I

### MEETINGS OF STOCKHOLDERS

Section 1. Annual Meeting. A meeting of stockholders shall be held annually for the election of directors and the transaction of such other business as may properly come before the meeting. Such meeting shall be held at such time and at such place either within or without the State of Delaware as may be fixed from time to time by the board of directors.

Section 2. Special Meetings. Special meetings of the stockholders, for any purpose or purposes, unless otherwise prescribed by statute or by the certificate of incorporation, may be called by the Chief Executive Officer, the President or any three directors, and shall be called by the President or the Chief Executive Officer at the written request of the holders of at least ten percent (10%) of the outstanding shares entitled to vote at such meeting. Special meetings of stockholders may be held at such place, within or without the State of Delaware, as shall be stated in the notice of the meeting.

Section 3. Notice of Meetings. Notice of each meeting shall be given in writing and state the place, date and hour of the meeting and in the case of special meetings, (i) the purpose or purposes for which the meeting is called, and (ii) at whose direction the notice is being issued. A copy of the notice of any meeting shall be delivered not less than ten nor more than fifty days before the date of the meeting, either personally or by mail, by or at the direction of the Chief Executive Officer, the President, the Secretary or the officer or persons calling the meeting, to each stockholder of record entitled to vote at such meeting.

When a meeting is adjourned to another time or place, it shall not be necessary to give any notice of the adjourned meeting if the time and place to which the meeting is adjourned are announced at the meeting at which the adjournment is taken, and at the adjourned meeting any business may be transacted that might have been transacted on the original date of the meeting. However, if after the adjournment the board of directors fixes a new record date for the adjourned meeting, a notice of the adjourned meeting shall be given to each stockholder of record on the new record date entitled to notice.

Section 4. Quorum of Stockholders. The holders of a majority of the shares of stock issued and outstanding and entitled to vote, represented in person or by proxy, shall constitute a quorum at all meetings of the stockholders for the transaction of any business except as otherwise provided by statute or by the certificate of incorporation. Once a quorum is present to organize a meeting, it is not broken by the subsequent withdrawal of any stockholders. However, if a quorum shall not be present or represented at any meeting of the stockholders, the stockholders present in person or represented by proxy shall have power to adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum shall be present or represented. At such adjourned meeting at which a quorum shall be present or represented any business may be transacted which otherwise might have been transacted at the meeting as originally notified.

Section 5. Organization of Meeting. The Chief Executive Officer, or in his absence the President, shall call to order meetings of stockholders and shall act as chairman of such meetings. The board of directors may appoint any stockholder, director or officer of the corporation to act as chairman of any meeting in the absence of the Chief Executive Officer and the President.

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The Secretary of the corporation shall act as secretary of all meetings of stockholders, but, in the absence of the Secretary, the chairman of the meeting may appoint any other person to act as secretary of any meeting.

Section 6. Voting. If a quorum is present, the vote of a majority of the shares of stock entitled to vote and represented at the meeting shall be the act of the stockholders, unless the vote of a greater or lesser number of shares of stock is required by law or the certificate of incorporation.

Section 7. Qualification of Voters and Proxies. Except as may be provided in the certificate of incorporation, each outstanding share of stock having voting power shall be entitled to one vote on each matter submitted to a vote at a meeting of stockholders. A stockholder may vote either in person or by written proxy executed by the stockholder or by his duly authorized attorney-in-fact.

Section 8. Inspectors. The board of directors in advance of any stockholders' meeting may appoint one or more inspectors to act at the meeting or any adjournment thereof. If inspectors are not so appointed, the person presiding at the stockholders' meeting may, and, on the request of any stockholder entitled to vote thereat, shall appoint one or more inspectors. In case any person appointed as inspector fails to appear or act, the vacancy may be filled by appointment made by the board of directors in advance of the meeting or at the meeting by the person presiding thereat. Each person appointed to serve as inspector, in advance of his duties, shall take and sign an oath to faithfully execute the duties of inspector at such meeting with strict impartiality and according to the best of his ability.

Section 9. Written Consent of Stockholders. Whenever stockholders are required or permitted to take any action by vote, such action may be taken without a meeting on written consent, setting forth the action so taken signed by the holders of outstanding shares having not less than the minimum number of votes necessary to take such action at a meeting at which all shares entitled to vote thereon were present.

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# ARTICLE II

# DIRECTORS

Section 1. Qualification, Number, Election and Term of Directors. The board of directors shall consist of such number as shall be set by the board of directors, consistent with the corporation's certificate of incorporation, as amended from time to time. Directors shall be at least eighteen years of age and need not be stockholders of the corporation. The directors, other than the first board of directors, shall be elected at the annual meeting of the stockholders, except as hereinafter provided, and each director elected shall serve until his successor shall have been elected and qualified. The class, the term of office and the class of stockholders entitled to elect such directors, shall be set forth in the corporation's certificate of incorporation, as amended from time to time.

Section 2. Removal of Directors. Any or all of the directors may be removed only as set forth in the corporation's certificate of incorporation, as amended from time to time.

Section 3. Resignation of Directors. Any director of the corporation may resign at any time by giving written notice to the board of directors, the Chief Executive Officer, the President, or the Secretary. Any such resignation shall take effect at the time specified therein or, if the time be not specified therein, then upon receipt thereof. The acceptance of such resignation shall not be necessary to make it effective, unless its effectiveness is made dependent upon acceptance.

Section 4. Newly Created Directorships and Vacancies. Newly created directorships resulting from an increase in the number of directors and vacancies occurring in the board for any reason may be filled only by vote of the board of directors then in office in the manner provided in the corporation's certificate of incorporation, as amended from time to time.

Section 5. Management of Business Affairs. The business affairs of the corporation shall be managed by its board of directors, which may exercise all such powers of the corporation and do all such lawful acts and things as are not by statute or by the certificate of incorporation or by these by-laws directed or required to be exercised or done by the stockholders.

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Section 6. Books. The directors shall keep the books of the corporation at such place or places as they may from time to time determine, except as otherwise required by law.

Section 7. Compensation. The board of directors, by the vote of a majority of the directors then in office, and irrespective of any personal interest of any of its members, shall have authority to establish reasonable compensation of all directors for services to the corporation as directors, officers or otherwise.

### ARTICLE III

# MEETINGS OF THE BOARD OF DIRECTORS

Section 1. Number and Place of Meetings. The number of meetings of the board to be held each year shall be determined by the board from time to time at such location as the board shall determine. Board members will be reimbursed for all expenses incurred in attending board meetings and working on other special projects at the request of the corporation and shall receive such other compensation as may be established pursuant to Article II, Section 7.

Section 2. Annual Meetings. The annual meetings of each newly elected board of directors shall be held immediately after the annual meeting of stockholders and notice of such meeting need not be given to the newly elected directors to constitute such meeting as a meeting called in full compliance with the law, provided a quorum shall be present, or it may convene at such place and time as shall be fixed by and with the written consent of all the directors.

Section 3. Regular Meetings. Regular meetings of the board of directors may be held upon such notice, or without notice, and at such time and place as shall from time to time be determined by the board.

Section 4. Special Meetings. Special meetings of the board of directors may be called by the Chief Executive Officer, the President or any two directors on two days' notice to each director.

Section 5. Notice and Waiver Thereof. Notice of a meeting need not be given to any director who submits a signed waiver of notice whether before or after the meeting, or who attends the meeting without protesting, prior thereto or at its commencement, the lack of notice. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the board of directors need be specified in the notice of waiver or notice of such meeting.

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Section 6. Quorum and Action by Board of Directors. A majority of the directors shall constitute a quorum for the transaction of business unless a greater or lesser number is required by law or by the certificate of incorporation. The vote of a majority of the directors present at any meeting at which a quorum is present shall be the act of the board of directors, unless the vote of a greater number is required by law or by the certificate of incorporation. If a quorum shall not be present at any meeting of directors, the majority of directors present may adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum shall be present.

Section 7. Organization of Meeting. Meetings shall be presided over by such person as the directors may select. The Secretary of the corporation shall act as secretary of the meeting, but in his absence the chairperson of the meeting may appoint any person to act as secretary of the meeting.

Section 8. Consent of Directors in Lieu of Meeting. Any action required or permitted to be taken by the board of directors or any committee thereof may be taken without a meeting if all members of the board of directors or the committee consent in writing to the adoption of a resolution authorizing such action. The resolution and the written consents thereto by the members of the board of directors of the committee shall be filed with the minutes of the proceedings of the board of directors or the committee.

Section 9. Other Means of Participation in Meeting. Any one or more members of the board of directors or any committee thereof may participate in a meeting of such board of directors or committee by means of a conference telephone or similar communications equipment allowing all persons participating in the meeting to hear each other at the same time. Participation by such means shall constitute presence in person at a meeting.

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#### ARTICLE IV

### COMMITTEES OF THE BOARD OF DIRECTORS

Section 1. Executive Committee. The board of directors, by resolution adopted by a majority of the entire board of directors, may designate, from among its members, an executive committee, consisting of two or more directors, which, shall have the rights, power and authority of the board of directors as may from time to time be granted to it to the extent permitted by law.

Section 2. Audit Committee. The board of directors, by resolution adopted by a majority of the entire board of directors, shall designate, from among its members, an audit committee, consisting of two or more members, which shall have the authority to oversee and monitor management's and the corporation's independent auditors' participation in the financial reporting process as set forth in its charter or as otherwise required by law or the rules of the Securities and Exchange Commission, National Association of Securities Dealers, Inc., or any stock exchange on which the corporation's securities are listed.

Section 3. Compensation Committee. The board of directors, by resolution adopted by a majority of the entire board of directors, may designate from among its members, a compensation committee, consisting of two or more directors, which shall have the rights, power and authority of the board of directors in matters relating to compensation of employees, consultants and directors and administration of the corporation's stock option plans and other incentive plans and such other matters as may from time to time be granted to it to the extent permitted by law.

Section 4. Other Committees. The board of directors, by resolutions adopted by a majority of the entire board of directors, may appoint such other committee or committees as it shall deem advisable and with such rights, power and authority as it shall prescribe. Each such committee shall consist of one or more directors.

Section 5. Committee Changes. The board of directors shall have to power at any time to fill vacancies in, to change the membership of, and to discharge any committee.

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Section 6. Procedure and Meetings. Each committee shall fix its own rules of procedure and shall meet at such times and at such place or places as may be provided by such rules or as the members of the committee shall fix. The committee shall keep regular minutes of its meetings, which it shall deliver to the board of directors from time to time. The chairman of a committee or, in his or her absence, a member of the committee chosen by a majority of the members present, shall preside at meetings of the committee; and a person chosen by the committee shall act as secretary of the committee and record the minutes.

Section 7. Quorum. A majority of the committee shall constitute a quorum for the transaction of business, and the affirmative vote of a majority of the members present at any meeting at which there is a quorum shall be required for any action of the committee; provided, however, that when a committee of one member is authorized under the provisions of this Article, that one member shall constitute a quorum.

Section 8. Resignation of Members of a Committee. Any member of any committee may resign at any time by giving written notice to the board of directors, the Chief Executive Officer, or the President or the Secretary. Any such resignation shall take effect at the time specified therein or, if the time be not specified therein, then upon receipt thereof. The acceptance of such resignation shall not be necessary to make it effective.

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#### ARTICLE V

### NOTICES

Section 1. Requirements of Notice. Whenever, under the provisions of the General Corporation Law of the State of Delaware or of the certificate of incorporation or of these by-laws, notice is required to be given to any director or stockholder, such notice may be given in writing, by mail, addressed to such director or stockholder, at his address as it appears on the records of the corporation, with postage thereon prepaid, and such notice shall be deemed to be given at the time when the same shall be deposited in the United States mail. Unless written notice by mail is required by law, written notice may also be given by telegram, messenger, electronic mail or telecopy. Notice given other than by mail shall be deemed given upon receipt. Notice to directors may also be given by telephone.

Section 2. Waiver of Notice. Whenever any notice of a meeting is required to be given under the provisions of the General Corporation Law of the State of Delaware or under the provisions of the certificate of incorporation or these by-laws, a waiver thereof in writing signed by the person or persons entitled to such notice, whether before or after the time stated therein, shall be deemed equivalent to the giving of such notice.

## ARTICLE VI

# OFFICERS

Section 1. Executive Officers. The officers of the corporation shall be chosen by the board of directors and shall consist of a Chief Executive Officer, a President, a Secretary and a Treasurer. The board of directors may also choose one or more Vice Presidents, Assistant Secretaries and Assistant Treasurers. None of the officers of the corporation need be a member of the board of directors. Any number of offices may be held by the same person.

Section 2. Other Offices. The board of directors may appoint such other officers and agents as it shall deem necessary who shall hold their offices for such terms and shall exercise such powers and perform such duties as shall be determined from time to time by the board of directors.

Section 3. Election of Officers. The board of directors at its first meeting after each annual meeting of the stockholders shall choose a Chief Executive Officer, a President, a Secretary, a Treasurer and any other officers as the board of directors shall determine. Section 4. Compensation of Officers. The compensation of all officers of the corporation shall be fixed by the board of directors.

Section 5. Term of Office, Removal of Officers, Vacancy. The officers of the corporation shall hold office for the term for which they are elected or appointed, and until their successors are chosen and qualified. Any officer elected or appointed by the board of directors may be removed at any time by vote of the board of directors. Removal from office, however, shall not prejudice the contract rights, if any, of the person removed. Any vacancy occurring in any office of the corporation shall be filled by the board of directors.

Section 6. Resignation of Officers. Any officer of the corporation may resign at any time by giving written notice to the board of directors, the Chief Executive Officer, the President, or the Secretary. Any such resignation shall take effect at the time specified therein, or, if the time be not specified therein, then upon receipt thereof. The acceptance of such resignation shall not be necessary to make it effective.

Section 7. Duties of the Officers. Officers shall perform their duties as officers in good faith and with the degree of care that an ordinarily prudent person in a like position would use under similar circumstances.

Section 8. Duties of the Chief Executive Officer. The Chief Executive Officer shall be the chief executive officer of the corporation, and shall have general management of the business of the corporation, subject to the control of the board of directors. He shall have and perform such powers and duties as the board of directors may from time to time prescribe.

Section 9. Duties of the President. The President shall be the chief operating officer of the corporation, shall have active management of the business of the corporation and shall see that all orders and resolutions of the board of directors are carried into effect. He shall have such other powers and duties as the board of directors or the Chief Executive Officer assigns to him.

Section 10. Duties of the Vice President The Vice President or, if there shall be more than one, the Vice Presidents, in the order determined by the board of directors, shall, in the absence or disability of the President, perform the duties and exercise the powers of the President and shall perform such other duties and have such other powers as the board of directors may from time to time prescribe.

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Section 11. Duties of the Secretary. The secretary shall attend all meetings of the board of directors and all meetings of the stockholders and record all the proceedings of the corporation and of the board of directors in a book to be kept for that purpose and shall perform like duties for the standing committee when required. He shall give, or cause to be given, notice of all meetings of the board of directors, and shall perform such other duties as may be prescribed by the board of directors. He shall have custody of the corporate seal of the corporation and he and/or any Assistant Secretary shall have authority to affix the same to any instrument requiring it and, when so affixed, it may be attested to by his signature or by the signature of such Assistant Secretary. The board of directors may give general authority to any other officer to affix the seal of the corporation and to attest to the affixing by his signature.

Section 12. Duties of the Assistant Secretary or Assistant Secretaries. The Assistant Secretary, if there be any, or, if there be more than one, the Assistant Secretaries in the order determined by the board of directors, shall, in the absence or disability of the Secretary, perform the duties and exercise the powers of the Secretary and shall perform such other duties and have such other powers as the board of directors may from time to time prescribe.

Section 13. Duties of the Treasurer. The Treasurer shall have the custody of the corporation funds and securities and shall keep full and accurate accounts of receipts and disbursements in books belonging to the corporation and shall deposit all moneys and other valuable effects in the name and to the credit of the corporation in such depositories as may be designated by the board of directors. He shall perform all other duties incident to the office of Treasurer and shall have such other powers and duties as the board of directors assigns to him.

Section 14. Duties of the Assistant Treasurer or Assistant Treasurers. The Assistant Treasurer, if there be any, or, if there shall be more than one, the Assistant Treasurers in the order determined by the board of directors, shall, in the absence or disability of the Treasurer, perform the duties and exercise the powers of the Treasurer and shall perform such other duties and have such other powers as the board of directors may from time to time prescribe.

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# ARTICLE VII

# CERTIFICATE FOR SHARES

Section 1. General Requirements. The shares of the corporation shall be represented by certificates signed by the President or the Vice President and by the Secretary or an Assistant Secretary or the Treasurer or an Assistant Treasurer of the corporation and may be sealed with the seal of the corporation or a facsimile thereof. In addition, the board of directors may provide by resolution that some or all of any or all classes and series of its shares be uncertificated shares, provided that such resolution shall not apply to shares represented by a certificate until such certificate is surrendered to the corporation.

When the corporation is authorized to issue shares of more than one class there shall be set forth upon the face or back of the certificate (or the certificate shall have a statement that the corporation will furnish to any stockholder upon request and without charge) a full statement of the designation, relative rights, preferences, and limitations of the shares of each class authorized to be issued.

When the corporation is authorized to issue any class of preferred shares in series, there shall be set forth upon the face or back of the certificate (or the certificate shall have a statement that the corporation will furnish to any stockholder upon request and without charge) a full statement of the designation, relative rights, preferences and limitations of each such series, so far as the same have been fixed, and the authority of the board to designate and fix the relative rights, preferences and limitations of other series.

Section 2. Facsimile Signatures. The signatures of the officers of the corporation upon a certificate may be facsimiles if the certificate is countersigned by a transfer agent or registered by a registrar other than the corporation itself or an employee of the corporation. In case any officer who has signed or whose facsimile signature has been placed upon a certificate shall have ceased to be such officer before such certificate is issued, it may be issued by the corporation with the same effect as if he were such officer at the date of issue.

Section 3. Lost Certificate. The board of directors may direct a new certificate to be issued in place of any certificate theretofore issued by the corporation which is alleged to have been lost, stolen or destroyed. When authorizing such issue of a new certificate, the board of directors, in its discretion and as a condition precedent to the issuance thereof, may prescribe such terms and conditions as it deems expedient, and may require such indemnities as it deems adequate, to protect the corporation from any claim that may be made against it with respect to any such certificate alleged to have been lost or destroyed.

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Section 4. Transfer of Shares. Upon surrender to the corporation or the transfer agent of the corporation of a certificate representing shares duly endorsed or accompanied by proper evidence of succession, assignment or authority to transfer, a new certificate shall be issued to the person entitled thereto and the old certificate cancelled and the transaction recorded upon the books of the corporation.

Section 5. Fixing Record Date. For the purpose of determining stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, or to express consent to or dissent from any proposal without a meeting, or for the purpose of determining stockholders entitled to receive payments of any dividend or the allotment of any rights, or for the purpose of any other action, the board of directors may fix, in advance, a date as the record date for any such determination of stockholders. Such date shall not be more than sixty nor less than ten days before the date of such meeting nor more than sixty days prior to any other action. When a determination of stockholders of record entitled to notice of or to vote at any meeting of stockholders has been made as provided in this section, such determination shall apply to any adjournment thereof, unless the board of directors fixes a new record date for the adjourned meeting.

Section 6. Registered Stockholders. The corporation shall be entitled to recognize the exclusive right of a person registered on its books as the owner of shares to receive dividends, and to vote as such owner, and to hold liable for calls and assessments a person registered on its books as the owner of shares, and shall not be bound to recognize any equitable or other claim to or interest in such share or shares on the part of any other person, whether or not it shall have express or other notice thereof, except as otherwise provided by the laws of the State of Delaware.

Section 7. List of Stockholders. A list of stockholders as of the record date, certified by the corporate officer responsible for its preparation or by a transfer agent, shall be produced at any meeting upon the request thereat or prior thereto of any stockholder. If the right to vote at any meeting is challenged, the inspector(s) or person presiding thereat, shall require such list of stockholders to be produced as evidence of the right of the persons challenged to vote at such meeting and all persons who appear from such list to be stockholders entitled to vote thereat may vote at such meeting.

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# ARTICLE VIII

## GENERAL PROVISIONS

Section 1. Dividends - General Requirements. Subject to the provisions of the certificate of incorporation relating thereto, if any, dividends may be declared by the board of directors at any regular or special meeting, pursuant to any provisions of law. Dividends may be paid in cash, in shares of the capital stock or bonds of the corporation or its property, including the shares or bonds of other corporations subject to any provisions of law and of the certificate of incorporation.

Section 2. Dividends - Reserve Fund. Before payment of any dividend, there may be set aside out of any funds of the corporation available for dividends such sum or sums as the directors from time to time, in their absolute discretion, think proper as a reserve fund to meet contingencies, or for equalizing dividends, or for repairing or maintaining any property of the corporation, or for such other purpose as the directors shall think conducive to the interest of the corporation and the directors may modify or abolish any such reserve in the manner in which it was created.

Section 3. Checks. All checks or demands for money and notes of the corporation shall be signed by such officer or officers or such other person or persons as the board of directors may from time to time designate.

Section 4. Fiscal Year. The fiscal year of the corporation shall be initially fixed by resolution of the board of directors and may thereafter be amended from time to time by the directors.

Section 5. Seal. The corporation's seal shall have inscribed thereon the name of the corporation, the year of its organization and the words "Corporate Seal, Delaware." The seal may be used by causing it or a facsimile thereof to be impressed or affixed or in any manner reproduced.

Section 6. Pronouns. Any masculine personal pronoun shall be considered to mean the corresponding feminine or neuter personal pronoun, as the context requires.

Section 7. Publications. Except with respect to publications in scientific journssals, the corporation shall not make, or authorize or permit to be made, any press release or other public announcement, whether written, oral, electronic or other, without the prior written consent of the board of directors. As to scientific journals or other such publications, the corporation shall not submit for publication any articles or data unless it shall have, at least 15 days prior to such submission, presented such articles or data to the members of the board.

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# ARTICLE IX

## AMENDMENTS

By-laws may be adopted, amended or repealed by the affirmative vote of two-thirds of the entire board of directors at any regular or special meeting thereof or by written consent in lieu of such meeting. These by-laws may also be amended or repealed by the stockholders by the vote of a majority of the outstanding stock of the corporation entitled to vote. If any by-law regulating an impending election of directors is adopted, amended or repealed by the board of directors, there shall be set forth in the notice of the next meeting of stockholders for the election of directors the by-law so adopted, amended or repealed, together with a concise statement of the changes made.

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# IN SUPPORT OF EXCELLENCE IN MEDICINE

DS

DELCATH SYSTEMS, INC. INCORPORATED UNDER THE LAWS OF THE STATE OF DELAWARE

COMMON STOCK \$0.001 PAR VALUE SEE REVERSE FOR CERTAIN DEFINITIONS CUSIP 24661P 10 4

This Certifies That

is the owner of

FULLY PAID AND NON-ASSESSABLE SHARES OF COMMON STOCK \$0.001 PAR VALUE, OF DELCATH SYSTEMS, INC.

transferable on the books of the Corporation by the holder hereof in person or by attorney upon surrender of this certificate properly endorsed. This certificate and the shares represented hereby are subject to the laws of the State of Delaware and to the Certificate of Incorporation and the By-laws of the Corporation as from time to time amended.

This certificate is not valid until countersigned and registered by the Transfer Agent and Registrar.

In Witness Whereof, Delcath Systems, Inc. has caused its facsimile corporate seal and the facsimile signatures of its duly authorized officers to be hereunto affixed.

/s/

Dated:

/s/

ASSISTANT SECRETARY

PRESIDENT AND CHIEF EXECUTIVE OFFICER

COUNTERSIGNED AND REGISTERED: AMERICAN STOCK TRANSFER & TRUST COMPANY (NEW YORK, N.Y.) TRANSFER AGENT AND REGISTRAR

ΒY

AUTHORIZED SIGNATURE

#### DELCATH SYSTEMS, INC.

The Corporation will furnish without charge to each stockholder who so requests the powers, designations, preferences and relative, participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights.

The following abbreviations, when used in the inscription on the face of this certiciate, shall be construed as though they were written out in full according to applicable laws or regulations:

TEN CO	ОМ	-	as	tenants in common	UNIF	GIFT	MIN .	ACT -		Custodian _	
TEN EN	NT	-	as	tenants by the entireties					(Cust)		(Minor)
JT TE	N	-	as	joint tenants with right					under Unifor	rm Gifts to	Minors
			of	survivorship and not as tenants					Act		
			in	common						(State)	
COM PR	ROP	-	as	community property							

Additional abbreviations may also be used though not in the above list.

For value received, \_\_\_\_\_\_ hereby sell, assign and transer unto

PLEASE INSERT SOCIAL SECURITY OR OTHER IDENTIFYING NUMBER OF ASSIGNEE

- -----

PLEASE PRINT OR TYPEWRITE NAME AND ADDRESS OF ASSIGNEE

Attorney to transfer the said stock on the books on the within-named Corporation with full power of substitution in the premises.

Dated, \_\_\_\_

NOTICE: THE SIGNATURE TO THIS ASSIGNMENT MUST CORRESPOND WITH THE NAME AS WRITTEN UPON THE FACE OF THE CERTIFICATE IN EVERY PARTICULAR WITHOUT ALTERATION OR ENLARGEMENT OR ANY CHANGE WHATEVER.

Signature(s) Guaranteed:

THE SIGNATURE(S) MUST BE GUARANTEED BY AN ELIGIBLE GUARANTOR INSTITUTION (BANKS, STOCK-BROKERS, SAVINGS AND LOAN ASSOCIATIONS AND CREDIT UNIONS WITH MEMBERSHIP IN AN APPROVED SIGNATURE GUARANTEE MEDALLION PROGRAM), PURSUANT TO S.E.C. RULE 17Ad-15.

KEEP THIS CERTIFICATE IN A SAFE PLACE. IF IT IS LOST, STOLEN, MUTILATED OR DESTROYED, THE CORPORATION WILL REQUIRE A BOND OF INDEMNITY AS A CONDITION TO THE ISSUANCE OF A REPLACEMENT CERTIFICATE.

WARRANT AGREEMENT dated as of \_\_\_\_\_, 2000 between Delcath Systems, Inc., a Delaware corporation (the "Company"), and Whale Securities Co., L.P. (hereinafter referred to as the "Representative").

W I T N E S S E T H:

WHEREAS, the Company proposes to issue to the Representative, in its individual capacity and not as representative of the several Underwriters (defined below) warrants (the "Warrants") to purchase up to 200,000 (as such number may be adjusted from time to time pursuant to Article 8 of this Agreement) shares (the "Shares") of common stock, par value \$.01 per share (the "Common Stock"), of the Company; and

WHEREAS, the Representative has agreed, pursuant to the underwriting agreement (the "Underwriting Agreement") dated \_\_\_\_\_\_, 2000 between the Representative, as representative of the several underwriters named in Schedule A to the Underwriting Agreement (the "Underwriters") and the Company, to act as the representative of the Underwriters in connection with the Company's proposed public offering (the "Public Offering") of 2,000,000 shares of Common Stock (the "Public Shares") at an initial public offering price of \$6.00 per Public Share; and

WHEREAS, the Warrants issued pursuant to this Agreement are being issued by the Company to the Representative or to its designees who are officers and partners of the Representative and/or, at the Representative's discretion, to members of the selling group or underwriting syndicate participating in the distribution of the Public Shares to the public in the Public Offering and/or their respective officers or partners (collectively, the "Designees"), in consideration for, and as part of the Representative's compensation in connection with, the Representative acting as the representative of the several Underwriters pursuant to the Underwriting Agreement;

NOW, THEREFORE, in consideration of the premises, the payment by the Underwriter to the Company of ONE HUNDRED DOLLARS (\$100.00), the agreements herein set forth and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

1. Grant.

The Representative and/or the Designees are hereby granted the right to purchase, at any time from \_\_\_\_\_\_, 2000 until 5:00 P.M., New York time, on \_\_\_\_\_, 2005 (the "Warrant Exercise Term"), up to 200,000 fully-paid and non-assessable Shares at an initial exercise price (subject to adjustment as provided in Article 8 hereof) of \$9.90 per Share.

2. Warrant Certificates.

The warrant certificates delivered and to be delivered pursuant to this Agreement (the "Warrant Certificates") shall be in the form set forth in Exhibit A attached hereto and made a part hereof, with such appropriate insertions, omissions, substitutions and other variations as required or permitted by this Agreement.

# 3. Exercise of Warrant.

3.1. Cash Exercise. The Warrants initially are exercisable at a price of \$9.90 per Share, payable in cash or by check to the order of the Company, or any combination thereof, subject to adjustment as provided in Article 8 hereof. Upon surrender of the Warrant Certificate with the annexed Form of Election to Purchase duly executed, together with payment of the Exercise Price (as hereinafter defined) for the Shares purchased, at the Company's principal offices in New York (currently located at 1100 Summer Street, Stamford, Connecticut 06905) the registered holder of a Warrant Certificate ("Holder" or "Holders") shall be entitled to receive a certificate or certificates for the Shares so purchased. The purchase rights represented by each Warrant Certificate are exercisable at the option of the Holder thereof, in whole or in part (but not as to fractional Shares). In the case of the purchase of less than all the Shares purchasable under any Warrant Certificate, the Company shall cancel said Warrant Certificate of like tenor for the balance of the Shares purchasable thereunder.

3.2. Cashless Exercise. At any time during the Warrant Exercise Term, the Holder may, at the Holder's option, exchange, in whole or in part, the Warrants represented by such Holder's Warrant Certificate (a "Warrant Exchange"), into the number of Shares determined in accordance with this Section 3.2, by surrendering such Warrant Certificate at the principal office of the Company or at the office of its transfer agent, accompanied by a notice stating such Holder's intent to effect such exchange, the number of Warrant Exchange occur (the "Notice of Exchange"). The Warrant Exchange shall take place on the date specified in the Notice of Exchange or, if later, the date the Notice of Exchange is received by the Company (the "Exchange Date"). Certificates for the Shares issuable upon such Warrant Exchange and, if applicable, a new Warrant Certificate and not included in the Warrant Exchange, shall be issued as of the Exchange Date and delivered to the Holder within three (3) days following the Exchange Date. In connection with any Warrant Exchange, the Holder shall be entitled to subscribe for and acquire (i) the number of Shares (rounded to the next highest integer) which would, but for the Warrant Exchange, then be issuable pursuant to the provision of Section 3.1 above upon the

exercise of the Warrants specified by the Holder in its Notice of Exchange (the "Total Number") less (ii) the number of Shares equal to the quotient obtained by dividing (a) the product of the Total Number and the existing Exercise Price (as hereinafter defined) by (b) the Market Price (as hereinafter defined) of a Public Share on the day preceding the Warrant Exchange. "Market Price" at any date shall be deemed to be the last reported sale price, or, in case no such reported sales takes place on such day, the average of the last reported sale prices for the last three (3) trading days, in either case as officially reported by the principal securities exchange on which the Common Stock is listed or admitted to trading or as reported in the NASDAQ National Market System, or, if the Common Stock is not listed or admitted to trading on any national securities exchange or quoted on the NASDAQ National Market System, the closing bid price as furnished by (i) the National Association of Securities Dealers, Inc. through Nasdaq or (ii) a similar organization if Nasdaq is no longer reporting such information.

# 4. Issuance of Certificates.

Upon the exercise of the Warrants, the issuance of certificates for the Shares purchased shall be made forthwith (and in any event within three (3) business days thereafter) without charge to the Holder thereof including, without limitation, any tax which may be payable in respect of the issuance thereof, and such certificates shall (subject to the provisions of Article 5

hereof) be issued in the name of, or in such names as may be directed by, the Holder thereof; provided, however, that the Company shall not be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of any such certificates in a name other than that of the Holder and the Company shall not be required to issue or deliver such certificates unless or until the person or persons requesting the issuance thereof shall have paid to the Company the amount of such tax or shall have established to the satisfaction of the Company that such tax has been paid.

The Warrant Certificates and the certificates representing the Shares shall be executed on behalf of the Company by the manual or facsimile signature of the present or any future Chairman or Vice Chairman of the Board of Directors, Chief Executive Officer or President or Vice President of the Company under its corporate seal reproduced thereon, attested to by the manual or facsimile signature of the present or any future Secretary or Assistant Secretary of the Company. Warrant Certificates shall be dated the date of execution by the Company upon initial issuance, division, exchange, substitution or transfer.

Upon exercise, in part or in whole, of the Warrants, certificates representing the Shares shall bear a legend substantially similar to the following:

"The securities represented by this certificate have not been registered for purposes of public distribution under the Securities Act of 1933, as amended (the "Act"), and may not be offered or sold except (i) pursuant to an effective registration statement under the Act, (ii) to the extent applicable, pursuant to Rule 144 under the Act (or any similar rule under such Act relating to the disposition of securities), or (iii) upon the delivery by the holder to the Company of an opinion of counsel, reasonably satisfactory to counsel to the Company, stating that an exemption from registration under such Act is available."

5. Restriction on Transfer of Warrants.

The Holder of a Warrant Certificate, by the Holder's acceptance thereof, covenants and agrees that the Warrants are being acquired as an investment and not with a view to the distribution thereof, and that the Warrants may not be sold, transferred, assigned, hypothecated or otherwise disposed of, in whole or in part, for a period of one (1) year from the date hereof, except to the Designees.

6. Price.

6.1. Initial and Adjusted Exercise Price. The initial exercise price of each Warrant shall be \$9.90 per Share. The adjusted exercise price per Share shall be the price which shall result from time to time from any and all adjustments of the initial exercise price per Share in accordance with the provisions of Article 8 hereof.

 $\,$  6.2. Exercise Price. The term "Exercise Price" herein shall mean the initial exercise price or the adjusted exercise price, depending upon the context.

7. Registration Rights.

7.1. Registration Under the Securities Act of 1933. None of the Warrants or Shares have been registered for purposes of public distribution under the Securities Act of 1933, as amended (the "Act").

7.2. Registrable Securities. As used herein the term "Registrable Security" means each of the Warrants, the Shares and any shares of Common Stock issued upon any stock split or stock dividend in respect of such Shares; provided, however, that with respect to any particular Registrable Security, such security shall cease to be a Registrable Security when, as of the date of determination, (i) it has been effectively registered under the Act and disposed of pursuant thereto, (ii) registration under the Act is no longer required for the subsequent public distribution of such security or (iii) it has ceased to be outstanding. The term "Registrable Securities" means any and/or all of the securities falling within the foregoing definition of a "Registrable Security." In the event of any merger, reorganization, consolidation, recapitalization or other change in corporate structure affecting the Common Stock, such adjustment shall be made in the definition of "Registrable Security" as is appropriate in order to prevent any dilution or enlargement of the rights granted pursuant to this Article 7.

7.3. Piggyback Registration. If, at any time following the effective date of the Public Offering, the Company proposes to prepare and file one or more post-effective amendments to the registration statement filed in connection with the Public Offering or any new registration statement or post-effective amendments thereto covering equity or debt securities of the Company, or any such securities of the Company held by its stockholders (in any such case, other than in connection with a merger, acquisition or pursuant to Form S-8 or successor form), (for purposes of this Article 7, collectively, the "Registration Statement"), it will give written notice of its intention to do so by registered mail ("Notice"), at least thirty (30) business days prior to the filing of each such Registration Statement, to all holders of the Registrable Securities. Upon the written request of such a holder (a "Requesting Holder"), made within twenty (20) business days after receipt of the Notice, that the Company include any of the Requesting Holder's Registrable Securities in the proposed Registration Statement, the Company shall, as to each such Requesting Holder, use its best efforts to effect the registration under the Act of the Registrable Securities which it has been so requested to register ("Piggyback Registration"), at the Company's sole cost and expense and at no cost or expense to the Requesting Holders (except as provided in Section 7.5(b) hereof).

# 7.4. Demand Registration.

(a) At any time during the Warrant Exercise Term, any "Majority Holder" (as such term is defined in Section 7.4(c) below) of the Registrable Securities shall have the right (which right is in addition to the piggyback registration rights provided for under Section 7.3 hereof), exercisable by written notice to the Company (the "Demand Registration Request"), to have the Company prepare and file with the Securities and Exchange Commission (the "Commission"), on one occasion, at the sole expense of the Company (except as provided in Section 7.5(b) hereof), a Registration Statement and such other documents, including a prospectus, as may be necessary (in the opinion of both counsel for the Company and counsel for such Majority Holder), in order to comply with the provisions of the Act, so as to permit a public offering and sale of the Registrable Securities by the holders thereof. The Company shall use its best efforts to cause the Registration Statement to become effective under the Act, so as to permit a public offering and sale of the Registrable Securities by the holders thereof. Once effective, the Company will use its best efforts to maintain the effectiveness of the Registration Statement until the earlier of (i) the date that all of the Registrable Securities have been sold or (ii) the date that the holders of the Registrable Securities may be freely traded (without limitation or restriction as to quantity or timing and without registration under the Act) under Rule 144(k) promulgated under the Act or otherwise.

(b) The Company covenants and agrees to give written notice of any Demand Registration Request to all holders of the Registrable Securities within ten (10) business days from the date of the Company's receipt of any such Demand Registration Request. After receiving notice from the Company as provided in this Section 7.4(b), holders of Registrable Securities may request the Company to include their Registrable Securities in the Registration Statement to be filed pursuant to Section 7.4(a) hereof by notifying the Company of their decision to have such securities included within ten (10) days of their receipt of the Company's notice.

(c) The term "Majority Holder" as used in Section 7.4 hereof shall mean any holder or any combination of holders of Registrable Securities, if included in such holders' Registrable Securities are that aggregate number of shares of Common Stock (including Shares already issued and Shares issuable pursuant to the exercise of outstanding Warrants) as would constitute a majority of the aggregate number of Shares (including Shares already issued and Shares issuable pursuant to the exercise of outstanding Warrants) included in all the Registrable Securities.

7.5. Covenants of the Company With Respect to Registration. The Company covenants and agrees as follows:

(a) In connection with any registration under Section 7.4 hereof, the Company shall file the Registration Statement as expeditiously as possible, but in any event no later than twenty (20) days following receipt of any demand therefor, shall use its best efforts to have any such Registration Statement declared effective at the earliest possible time, and shall furnish each holder of Registrable Securities such number of prospectuses as shall reasonably be requested.

(b) The Company shall pay all costs, fees and expenses (other than underwriting fees, discounts and nonaccountable expense allowance applicable to the Registrable Securities and the fees and expenses of counsel retained by the holders of Registrable Securities) in connection with all Registration Statements filed pursuant to Sections 7.3 and 7.4(a) hereof including, without limitation, the Company's legal and accounting fees, printing expenses, and blue sky fees and expenses.

(c) The Company will take all necessary action which may be required in qualifying or registering the Registrable Securities included in the Registration Statement for offering and sale under the securities or blue sky laws of such states as are reasonably requested by the holders of such securities.

(d) The Company shall indemnify any holder of the Registrable Securities to be sold pursuant to any Registration Statement and any underwriter or person deemed to be an underwriter under the Act and each person, if any, who controls such holder or underwriter or person deemed to be an underwriter within the meaning of Section 15 of the Act or Section 20(a) of the Securities Exchange Act of 1934, as amended ("Exchange Act"), against all loss, claim, damage, expense or liability (including all expenses reasonably incurred in investigating, preparing or defending against any claim whatsoever) to which any of them may become subject under the Act, the Exchange Act or otherwise, arising from such Registration Statement to the same extent and with the same effect as the provisions pursuant to which the Company has agreed to indemnify the Underwriters as set forth in Section 7 of the Underwriting Agreement and to provide for just and equitable contribution as set forth in Section 8 of the Underwriting Agreement.

(e) Any holder of Registrable Securities to be sold pursuant to a Registration Statement, and such holder's successors and assigns, shall severally, and not jointly, indemnify, the Company, its officers and directors and each person, if any, who controls the Company within the meaning of Section 15 of the Act or Section 20(a) of the Exchange Act, against all loss, claim, damage or expense or liability (including all expenses reasonably incurred in investigating, preparing or defending against any claim whatsoever) to which they may become subject under the Act, the Exchange Act or otherwise, arising from information furnished by or on behalf of such holder, or such holder's successors or assigns, for specific inclusion in such Registration Statement to the same extent and with the same effect as the provisions pursuant to which the Underwriters have agreed to indemnify the Company as set forth in Section 7 of the Underwriting Agreement and to provide for just and equitable contribution as set forth in Section 8 of the Underwriting Agreement.

(f) Nothing contained in this Agreement shall be construed as requiring any Holder to exercise the Warrants held by such Holder prior to the initial filing of any Registration Statement or the effectiveness thereof.

(g) If the Company shall fail to comply with the provisions of this Article 7, the Company shall, in addition to any other equitable or other relief available to the holders of Registrable Securities, be liable for any or all incidental, special and consequential damages sustained by the holders of Registrable Securities, requesting registration of their Registrable Securities.

(h) The Company shall promptly deliver copies of all correspondence between the Commission and the Company, its counsel or auditors and all memoranda relating to discussions with the Commission or its staff with respect to the Registration Statement to each holder of Registrable Securities included for such registration in such Registration Statement pursuant to Section 7.3 hereof or Section 7.4 hereof requesting such correspondence and memoranda and to the managing underwriter, if any, of the offering in connection with which such holder's Registrable Securities are being registered and shall permit each holder of Registrable Securities and such underwriter to do such reasonable investigation, upon reasonable advance notice, with respect to information contained in or omitted from the Registration Statement as it deems reasonably necessary to comply with applicable securities laws or rules of the National Association of Securities Dealers, Inc. Such investigation shall include access to books, records and properties and opportunities to discuss the business of the Company with its officers and independent auditors, all to such reasonable extent and at such reasonable times and as often as any such holder of Registrable Securities or underwriter shall reasonably request.

8. Adjustments of Exercise Price and Number of Shares.

8.1. Computation of Adjusted Price. In case the Company shall at any time after the date hereof pay a dividend in shares of Common Stock or make a distribution in shares of Common Stock, then upon such dividend or distribution the Exercise Price in effect immediately prior to such dividend or distribution shall forthwith be reduced to a price determined by dividing:

(a) an amount equal to the total number of shares of Common Stock outstanding immediately prior to such dividend or distribution multiplied by the Exercise Price in effect immediately prior to such dividend or distribution, by

(b) the total number of shares of Common Stock outstanding immediately after such issuance or sale.

For the purposes of any computation to be made in accordance with the provisions of this Section 8.1, the Common Stock issuable by way of dividend or other distribution on any stock of the Company shall be deemed to have been issued immediately after the opening of business on the date following the date fixed for the determination of stockholders entitled to receive such dividend or other distribution.

8.2. Subdivision and Combination. In case the Company shall at any time subdivide or combine the outstanding shares of Common Stock, the Exercise Price shall forthwith be proportionately decreased in the case of subdivision or increased in the case of combination.

8.3. Adjustment in Number of Shares. Upon each adjustment of the Exercise Price pursuant to the provisions of this Article 8, the number of Shares issuable upon the exercise of each Warrant shall be adjusted to the nearest full number by multiplying a number equal to the Exercise Price in effect immediately prior to such adjustment by the number of Shares issuable upon exercise of the Warrants immediately prior to such adjustment and dividing the product so obtained by the adjusted Exercise Price.

8.4. Reclassification, Consolidation, Merger, etc. In case of any reclassification or change of the outstanding shares of Common Stock (other than a change in par value to no par value, or from no par value to par value, or as a result of a subdivision or combination), or in the case of any consolidation of the Company with, or merger of the Company into, another corporation (other than a consolidation or merger in which the Company is the surviving corporation and which does not result in any reclassification or change of the outstanding shares of Common Stock, except a change as a result of a subdivision or combination of such shares or a change in par value, as aforesaid), or in the case of a sale or conveyance to another corporation of the property of the Company as an entirety, the Holders shall thereafter have the right to purchase

the kind and number of shares of stock and other securities and property receivable upon such reclassification, change, consolidation, merger, sale or conveyance as if the Holders were the owners of the shares of Common Stock underlying the Warrants immediately prior to any such events at a price equal to the product of (x) the number of shares of Common Stock issuable upon exercise of the Holder's Warrants and (y) the Exercise Price in effect immediately prior to the record date for such reclassification, change, consolidation, merger, sale or conveyance as if such Holder's had exercised the Warrants.

8.5. Determination of Outstanding Shares of Common Stock. The number of shares of Common Stock at any one time outstanding shall include the aggregate number of shares of Common Stock issued and the aggregate number of shares of Common Stock issuable upon the exercise of options, rights, warrants and upon the conversion or exchange of convertible or exchangeable securities.

8.6. Dividends and Other Distributions with Respect to Outstanding Securities. In the event that the Company shall at any time prior to the exercise of all Warrants make any distribution of its assets to holders of its Common Stock as a liquidating or a partial liquidating dividend, then the holder of Warrants who exercises its Warrants after the record date for the

determination of those holders of Common Stock entitled to such distribution of assets as a liquidating or partial liquidating dividend shall be entitled to receive for the Warrant Price per Warrant, in addition to each share of Common Stock, the amount of such distribution (or, at the option of the Company, a sum equal to the value of any such assets at the time of such distribution as determined by the Board of Directors of the Company in good faith) which would have been payable to such holder had he been the holder of record of the Common Stock receivable upon exercise of his Warrant on the record date for the determination of those entitled to such distribution. At the time of any such dividend or distribution, the Company shall make appropriate reserves to ensure the timely performance of the provisions of this Subsection 8.6.

8.7. Subscription Rights for Shares of Common Stock or Other Securities. In the case that the Company or an affiliate of the Company shall at any time after the date hereof and prior to the exercise of all the Warrants issue any rights, warrants or options to subscribe for shares of Common Stock or any other securities of the Company or of such affiliate to all the stockholders of the Company, the Holders of unexercised Warrants on the record date set by the Company or such affiliate in connection with such issuance of rights, warrants or options shall be entitled, in addition to the shares of Common Stock

or other securities receivable upon the exercise of the Warrants, to receive such rights, warrants or options that such Holders would have been entitled to receive had they been, on such record date, the holders of record of the number of whole shares of Common Stock then issuable upon exercise of their outstanding Warrants (assuming for purposes of this Section 8.7), that the exercise of the Warrants is permissible immediately upon issuance).

9. Exchange and Replacement of Warrant Certificates.

Each Warrant Certificate is exchangeable without expense, upon the surrender thereof by the registered Holder at the principal executive office of the Company, for a new Warrant Certificate of like tenor and date representing in the aggregate the right to purchase the same number of securities in such denominations as shall be designated by the Holder thereof at the time of such surrender.

Upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of any Warrant Certificate, and, in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it, and reimbursement to the Company of all reasonable expenses incidental thereto, and upon surrender and cancellation of the Warrant Certificate, if mutilated, the Company will make and deliver a new Warrant Certificate of like tenor, in lieu thereof.

## 10. Elimination of Fractional Interests.

The Company shall not be required to issue certificates representing fractions of Shares, nor shall it be required to issue scrip or pay cash in lieu of fractional interests, it being the intent of the parties that all fractional interests shall be eliminated by rounding any fraction up to the nearest whole number of Shares.

### 11. Reservation and Listing of Securities.

The Company shall at all times reserve and keep available out of its authorized shares of Common Stock, solely for the purpose of issuance upon the exercise of the Warrants, such number of shares of Common Stock as shall be issuable upon the exercise thereof. The Company covenants and agrees that, upon exercise of the Warrants and payment of the Exercise Price therefor, all Shares issuable upon such exercise shall be duly and validly issued, fully paid, non-assessable and not subject to the preemptive rights of any stockholder. As long as the Warrants shall be outstanding, the Company shall use its best efforts to cause all shares of Common Stock issuable upon the exercise of the Warrants to be listed on or quoted by Nasdaq or listed on such national securities exchange, in the event the Common Stock is listed on a national securities exchange.

12. Notices to Warrant Holders.

Nothing contained in this Agreement shall be construed as conferring upon the Holder or Holders the right to vote or to consent or to receive notice as a stockholder in respect of any meetings of stockholders for the election of directors or any other matter, or as having any rights whatsoever as a stockholder of the Company. If, however, at any time prior to the expiration of the Warrants and their exercise, any of the following events shall occur:

(a) the Company shall take a record of the holders of its shares of Common Stock for the purpose of entitling them to receive a dividend or distribution payable otherwise than in cash, or a cash dividend or distribution payable otherwise than out of current or retained earnings, as indicated by the accounting treatment of such dividend or distribution on the books of the Company; or

(b) the Company shall offer to all the holders of its Common Stock any additional shares of capital stock of the Company or securities convertible into or exchangeable for shares of capital stock of the Company, or any option, right or warrant to subscribe therefor; or

(c) a dissolution, liquidation or winding up of the Company (other than in connection with a consolidation or merger) or a sale of all or substantially all of its property, assets and business as an entirety shall be proposed; or

(d) reclassification or change of the outstanding shares of Common Stock (other than a change in par value to no par value, or from no par value to par value, or as a result of a subdivision or combination), consolidation of the Company with, or merger of the Company into, another corporation (other than a consolidation or merger in which the Company is the surviving corporation and which does not result in any reclassification or change of the outstanding shares of Common Stock, except a change as a result of a subdivision or combination of such shares or a change in par value, as aforesaid), or a sale or conveyance to another corporation of the property of the Company as an entirety is proposed; or

(e) The Company or an affiliate of the Company shall propose to issue any rights to subscribe for shares of Common Stock or any other securities of the Company or of such affiliate to all the shareholders of the Company;

then, in any one or more of said events, the Company shall give written notice to the Holder or Holders of such event at least fifteen (15) days prior to the date fixed as a record date or the date of closing the transfer books for the determination of the stockholders entitled to such dividend, distribution, convertible or exchangeable securities or subscription rights, options or warrants, or entitled to vote on such proposed dissolution, liquidation, winding up or sale. Such notice shall specify such record date or the date of closing the transfer books, as the case may be. Failure to give such notice or any defect therein shall not affect the validity of any action taken in connection with the declaration or payment of any such dividend or distribution, or the issuance of any convertible or exchangeable securities or subscription rights, options or warrants, or any proposed dissolution, liquidation, winding up or sale.

13. Notices.

All notices, requests, consents and other communications hereunder shall be in writing and shall be deemed to have been duly made when delivered, or mailed by registered or certified mail, return receipt requested:

(a) If to a registered Holder of the Warrants, to the address of such Holder as shown on the books of the Company; or

(b) If to the Company, to the address set forth in Section 3 of this Agreement or to such other address as the Company may designate by notice to the Holders.

14. Supplements and Amendments.

The Company and the Representative may from time to time supplement or amend this Agreement without the approval of any Holders of Warrant Certificates in order to cure any ambiguity, to correct or supplement any provision contained herein which may be defective or inconsistent with any provisions herein, or to make any other provisions in regard to matters or questions arising hereunder which the Company and the Representative may deem necessary or desirable and which the Company and the Representative deem not to adversely affect the interests of the Holders of Warrant Certificates.

15. Successors.

All the covenants and provisions of this Agreement by or for the benefit of the Company and the Holders inure to the benefit of their respective successors and assigns hereunder.

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16. Termination.

This Agreement shall terminate at the close of business on \_\_\_\_\_ 2008. Notwithstanding the foregoing, this Agreement will terminate on any

earlier date when all Warrants have been exercised and all the Shares issuable upon exercise of the Warrants have been resold to the public; provided, however, that the provisions of Section 7 shall survive any termination pursuant to this Section 16 until the close of business on \_\_\_\_\_, 2011.

#### 17. Governing Law.

This Agreement and each Warrant Certificate issued hereunder shall be deemed to be a contract made under the laws of the State of New York and for all purposes shall be construed in accordance with the laws of said State.

#### 18. Benefits of This Agreement.

Nothing in this Agreement shall be construed to give to any person or corporation other than the Company and the Representative and any other registered holder or holders of the Warrant Certificates, Warrants or the Shares any legal or equitable right, remedy or claim under this Agreement; and this Agreement shall be for the sole and exclusive benefit of the Company and the Representative and any other holder or holders of the Warrant Certificates, Warrants or the Shares.

## 19. Counterparts.

This Agreement may be executed in any number of counterparts and each of such counterparts shall for all purposes be deemed to be an original, and such counterparts shall together constitute but one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed, as of the day and year first above written.

DELCATH SYSTEMS, INC.

By:\_\_\_\_\_\_ Name: M.S. Koly Title: Chief Executive Officer

WHALE SECURITIES CO., L.P.

By: Whale Securities Corp., General Partner

By:\_\_\_\_\_\_ Name: William G. Walters Title: Chairman

THE WARRANTS REPRESENTED BY THIS CERTIFICATE AND THE OTHER SECURITIES ISSUABLE UPON EXERCISE THEREOF HAVE NOT BEEN REGISTERED FOR PURPOSES OF PUBLIC DISTRIBUTION UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), AND MAY NOT BE OFFERED OR SOLD EXCEPT (i) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE ACT, (ii) TO THE EXTENT APPLICABLE, PURSUANT TO RULE 144 UNDER SUCH ACT (OR ANY SIMILAR RULE UNDER SUCH ACT RELATING TO THE DISPOSITION OF SECURITIES), OR (iii) UPON THE DELIVERY BY THE HOLDER TO THE COMPANY OF AN OPINION OF COUNSEL, REASONABLY SATISFACTORY TO COUNSEL FOR THE COMPANY, STATING THAT AN EXEMPTION FROM REGISTRATION UNDER SUCH ACT IS AVAILABLE.

THE TRANSFER OR EXCHANGE OF THE WARRANTS REPRESENTED BY THIS CERTIFICATE IS RESTRICTED IN ACCORDANCE WITH THE WARRANT AGREEMENT REFERRED TO HEREIN.

EXERCISABLE ON OR BEFORE 5:00 P.M., NEW YORK TIME, \_\_\_\_\_, 2005

No. W-

, \_\_\_\_\_,

\_\_\_\_ Warrants

WARRANT CERTIFICATE

This Warrant Certificate certifies that \_\_\_\_\_\_\_ or registered assigns, is the registered holder of \_\_\_\_\_\_\_ (\_\_\_\_\_) Warrants to purchase, at any time from \_\_\_\_\_\_, 2000 until 5:00 P.M. New York City time on \_\_\_\_\_\_, 2005 ("Expiration Date"), up to \_\_\_\_\_\_ fully-paid and non-assessable shares ("Shares") of common stock, par value \$.01 per share (the "Common Stock"), of Delcath Systems, Inc., a Delaware corporation (the "Company"), at the initial exercise price, subject to adjustment in certain events (the "Exercise Price"), of \$6.60 per Share upon surrender of this Warrant Certificate and payment of the Exercise Price at an office or agency of the Company, but subject to the conditions set forth herein and in the warrant agreement dated as of \_\_\_\_\_\_, 2000 between the Company and Whale Securities Co., L.P. (the "Warrant Agreement"). Payment of the Exercise Price may be made in cash, or by certified or official bank check in New York Clearing House funds payable to the order of the Company, or any combination thereof.

No Warrant may be exercised after 5:00 P.M., New York City time, on the Expiration Date, at which time all Warrants evidenced hereby, unless exercised prior thereto, shall thereafter be void. The Warrants evidenced by this Warrant Certificate are part of a duly authorized issue of Warrants issued pursuant to the Warrant Agreement, which Warrant Agreement is hereby incorporated by reference in and made a part of this instrument and is hereby referred to for a description of the rights, limitation of rights, obligations, duties and immunities thereunder of the Company and the holders (the words "holders" or "holder" meaning the registered holders or registered holder) of the Warrants.

The Warrant Agreement provides that upon the occurrence of certain events, the Exercise Price and the type and/or number of the Company's securities issuable thereupon may, subject to certain conditions, be adjusted. In such event, the Company will, at the request of the holder, issue a new Warrant Certificate evidencing the adjustment in the Exercise Price and the number and/or type of securities issuable upon the exercise of the Warrants; provided, however, that the failure of the Company to issue such new Warrant Certificates shall not in any way change, alter, or otherwise impair, the rights of the holder as set forth in the Warrant Agreement.

Upon due presentment for registration of transfer of this Warrant Certificate at an office or agency of the Company, a new Warrant Certificate or Warrant Certificates of like tenor and evidencing in the aggregate a like number of Warrants shall be issued to the transferee(s) in exchange for this Warrant Certificate, subject to the limitations provided herein and in the Warrant Agreement, without any charge except for any tax, or other governmental charge imposed in connection therewith.

Upon the exercise of less than all of the Warrants evidenced by this Certificate, the Company shall forthwith issue to the holder hereof a new Warrant Certificate representing such number of unexercised Warrants.

The Company may deem and treat the registered holder(s) hereof as the absolute owner(s) of this Warrant Certificate (notwithstanding any notation of ownership or other writing hereon made by anyone), for the purpose of any exercise hereof, and of any distribution to the holder(s) hereof, and for all other purposes, and the Company shall not be affected by any notice to the contrary.

All terms used in this Warrant Certificate which are defined in the Warrant Agreement shall have the meanings assigned to them in the Warrant Agreement.

IN WITNESS WHEREOF, the Company has caused this Warrant Certificate to be duly executed under its corporate seal.

\_\_\_\_\_, 2000 Dated: \_\_

DELCATH SYSTEMS, INC.

By:\_\_\_\_\_ Name: M.S. Koly Title: Chief Executive Officer

# [FORM OF ELECTION TO PURCHASE]

The undersigned hereby irrevocably elects to exercise the right, represented by this Warrant Certificate, to purchase \_\_\_\_\_\_\_\_ shares of Common Stock and herewith tenders in payment for such securities cash or a certified or official bank check payable in New York Clearing House Funds to the order of Delcath Systems, Inc. in the amount of \$ \_\_\_\_\_, all in accordance with the terms hereof. The undersigned requests that a certificate for such securities be registered in the name of \_\_\_\_\_\_, whose address is \_\_\_\_\_\_, and that such Certificate be delivered to \_\_\_\_\_\_, whose address is

Dated:

Signature: \_

(Signature must conform in all respects to name of holder as specified on the face of the Warrant Certificate.)

(Insert Social Security or Other Identifying Number of Holder) [FORM OF ASSIGNMENT]

(To be executed by the registered holder if such holder desires to transfer the Warrant Certificate.)

FOR VALUE RECEIVED \_\_\_\_\_\_ hereby sells, assigns and transfers unto\_\_\_\_\_\_ (Please print name and address of transferee) this Warrant Certificate, together with all right, title and interest therein, and does hereby irrevocably constitute and appoint \_\_\_\_\_\_, Attorney, to transfer the within Warrant Certificate on the books of the within-named Company, with full power of substitution.

Dated:

Signature:\_

(Signature must conform in all respects to name of holder as specified on the face of the Warrant Certificate)

(Insert Social Security or Other Identifying Number of Assignee) Consent of Independent Auditors

The Board of Directors Delcath Systems, Inc.:

We consent to the use of our report included herein and to the references to our firm under the headings "Selected Financial Date" and "Experts" in the prospectus.

/s/ KPMG LLP KPMG LLP

New York, New York August 18, 2000