

Up to 19,509,749 Shares of Common Stock Offered by the Selling Stockholders

This prospectus relates to the offer and resale, from time to time, by the selling stockholders named under the heading "Selling Stockholders" in this prospectus, or their assigns (the "Selling Stockholders"), of up to 19,509,749 shares (the "Shares") of the Company's Common Stock, par value \$0.01 per share (the "Common Stock") which consist of (i) 2,916,358 shares of Common Stock, issuable upon conversion of 9,624 shares of Series F-2 Convertible Preferred Stock, par value \$0.01 per share (the "Series F-2 Preferred Stock"), (ii) 7,746,436 shares of Common Stock issuable upon conversion of 34,860 shares of F-3 Preferred Stock exercisable pursuant to the preferred stock tranche A warrants (the "Preferred Tranche A Warrant") to acquire shares of Series F-3 Preferred Stock, par value \$0.01 per share (the "Series F-3 Preferred Stock tranche B warrants (the "Preferred Tranche A Warrant," together with the Preferred Tranche A Warrant, the "Preferred Warrants") to acquire shares of Series F-4 Preferred Stock, par value \$0.01 per share (the "Series F-4 Preferred Stock, and together with the Series F-3 Preferred Stock, the "Preferred Warrant Shares"), (iv) 4,649,185 shares of Common Stock, (v) 31,110 shares of Common Stock, issuable upon exercise of the common stock tranche A warrants ("Common Tranche A Warrant") and (vi) 16,666 shares of Common Stock issuable upon exercise of common stock tranche B warrants, the "Common Tranche B Warrant", together with the Common Tranche A Warrant, the "Common Warrants," and together with the Preferred Warrants, the "Warrants").

We are registering the offer and sale of the Shares held by the Selling Stockholders to satisfy the registration rights they were granted pursuant to the Preferred Purchase Agreement (as defined below) and the Common Purchase Agreement (as defined below) (together, the "Purchase Agreements"). While we will not receive any proceeds from the sale of the Shares by the Selling Stockholders, we will receive proceeds from the exercise of any Warrants for cash.

Our registration of the Shares covered by this prospectus does not mean that the Selling Stockholders will offer or sell such Shares. The Selling Stockholders may sell the Shares covered by this prospectus in a number of different ways and at varying prices. For additional information on the possible methods of sale that may be used by the Selling Stockholders, you should refer to the section of this prospectus entitled "Plan of Distribution." The Selling Stockholders may, individually but not severally, be deemed to be an "underwriter" within the meaning of the Securities Act of 1933, as amended (the "Securities Act"), of the Shares that they are offering pursuant to this prospectus. The Selling Stockholders will bear all commissions and discounts, if any, attributable to their respective sales of the Shares hereunder. We will bear all costs, expenses and fees in connection with the registration of the Shares. We will not be paying any underwriting discounts or commissions in this offering.

A prospectus supplement may add, update, or change information contained in this prospectus. You should carefully read this prospectus, any applicable prospectus supplement, and the information incorporated by reference in this prospectus and any applicable prospectus supplement before you make your investment decision.

Our Common Stock is traded on The Nasdaq Capital Market under the symbol "DCTH." On June 27, 2023, the closing price for our Common Stock, as reported on The Nasdaq Capital Market, was \$6.06 per share.

Investing in these securities involves certain risks. See "Risk Factors" on page 6 of this prospectus. See also "Risk Factors" in the documents incorporated by reference in this prospectus for a discussion of the factors you should carefully consider before deciding to purchase these securities.

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

The date of this prospectus is June 28, 2023

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3, which we have filed with the Securities and Exchange Commission (the "SEC") using a "shelf" registration process. Under this shelf registration process, the Selling Stockholders may from time to time sell the Shares described in this prospectus in one or more offerings or otherwise as described under "Plan of Distribution."

This prospectus may be supplemented from time to time by one or more prospectus supplements. Such prospectus supplements may also add, update or change information contained in this prospectus. If there is any inconsistency between the information in this prospectus and the applicable prospectus supplement, you must rely on the information in the prospectus supplement. You should carefully read both this prospectus and any applicable prospectus supplement together with additional information described under the heading "Where You Can Find More Information" before deciding to invest in any Shares being offered.

Neither we nor the Selling Stockholders have authorized anyone to provide any information other than that contained or incorporated by reference in this prospectus or in any applicable prospectus supplement or any applicable free writing prospectus that we have authorized. If anyone provides, or has provided you, with different or inconsistent information, you should not rely on it. The Shares are not being offered in any jurisdiction where the offer is not permitted. You should not assume that the information contained in or incorporated by reference in this prospectus is accurate as of any date other than the respective dates of such document. Our business, financial condition, results of operations and prospects may have changed since those dates.

Unless the context otherwise indicates, references in this prospectus to, "Delcath," "the Company," "we," "our," or "us" mean Delcath Systems, Inc. and its wholly owned subsidiaries. The term "Selling Stockholders" refers, collectively, to the selling stockholders named under the heading "Selling Stockholders" in this prospectus.

When we refer to the Selling Stockholders in this prospectus, we are referring to the persons names as the Selling Stockholders in this prospectus and, as applicable, any donees, pledgees, assignees, transferees or other successors-in-interest selling the Shares received after the date of this prospectus from the Selling Stockholders as a gift, pledge, or other non-sale related transfer.

PROSPECTUS SUMMARY

This prospectus summary highlights certain information about us and selected information contained elsewhere in or incorporated by reference into this prospectus. This prospectus summary is not complete and does not contain all of the information that you should consider before making an investment decision. For a more complete understanding of the Company, you should read and consider carefully the more detailed information included or incorporated by reference in this prospectus and any applicable prospectus supplement or amendment, including the factors described under the heading "Risk Factors," beginning on page 5 of this prospectus, as well as the information incorporated herein by reference, before making an investment decision.

Company Overview

We are an interventional oncology company focused on the treatment of primary and metastatic liver cancers. Our lead product candidate, the HEPZATO® KIT (melphalan hydrochloride for injection/hepatic delivery system) ("HEPZATO"), is a drug/device combination product designed to administer high-dose chemotherapy to the liver while controlling systemic exposure and associated side effects. In Europe, the hepatic delivery system is a stand-alone medical device having the same device components as HEPZATO, but without the melphalan hydrochloride, and is approved for sale under the trade name CHEMOSAT Hepatic Delivery System for Melphalan ("CHEMOSAT"), where it has been used at major medical centers to treat a wide range of cancers of the liver. Approximately consisting primarily of metastatic ocular melanoma ("mOM"). Approximately 80% of the estimated 800 patients annually with mOM will be eligible for would be candidates of HEPZATO.

In the United States, HEPZATO is considered a combination drug and device product and is regulated as a drug by the United States Food and Drug Administration (the "FDA"). Primary jurisdiction for regulation of HEPZATO has been assigned to the FDA's Center for Drug Evaluation and Research. The FDA has granted Delcath six orphan drug designations (five for melphalan in the treatment of patients with ocular (uveal) melanoma, cutaneous melanoma, intrahepatic cholangiocarcinoma, hepatocellular carcinoma, and neuroendocrine tumor indications and one for doxorubicin in the treatment of patients with hepatocellular carcinoma). HEPZATO has not been approved for sale in the United States.

Our clinical development program for HEPZATO is comprised of the FOCUS Clinical Trial for Patients with Hepatic Dominant Ocular Melanoma (the "Focus Trial"), a global registration clinical trial that is investigating objective response rate in mOM, a type of primary liver cancer. Our most advanced development program is the treatment of mOM. We are currently reviewing the incidence, unmet need, available efficacy data and development requirements for a broad set of liver cancers in order to select a portfolio of follow-on indications that will maximize the value of the HEPZATO platform. In addition to HEPZATO's use to treat mOM, we believe that HEPZATO has the potential to treat other liver dominant cancers, such as Metastatic Colorectal Cancer and Cholangiocarcinoma, and plan to begin the study of HEPZATO to treat such conditions in the near future. We believe that the disease states we are investigating and intend to investigate are unmet medical needs that represent significant market opportunities.

On February 14, 2023, we submitted a NDA resubmission to the FDA for the HEPZATO Kit (melphalan hydrochloride for Injection/Hepatic Delivery System) seeking approval of the HEPZATO Kit in the treatment of patients with unresectable hepatic-dominant mOM. The resubmission is in response to a September 12, 2013 Complete Response Letter ("CRL"), from the FDA for our NDA in December 2010 seeking approval of its first generation melphalan hydrochloride for injection/hepatic delivery system. The NDA resubmission contains comprehensive data and information on Generation Two HEPZATO Kit relating to the matters identified in the CRL. On March 20, 2023, the FDA determined the resubmission constituted a complete response and set a Prescription Drug User Fee Act target action date of August 14, 2023. We continue to have early access

programs in the United States to make HEPZATO available to mOM patients. We are focused on continuing to treat these patients with mOM as regulatory approval is sought in the United States.

On February 28, 2022, CHEMOSAT received Medical Device Regulation certification under the European Medical Devices Regulation [2017/745/EU], which may be considered by jurisdictions when evaluating reimbursement. As of March 1, 2022, we assumed direct responsibility for sales, marketing and distribution of CHEMOSAT in Europe.

Private Placement

On March 27, 2023 we entered into the Preferred Purchase Agreement and the Common Purchase Agreement. None of the securities issued pursuant to the Purchase Agreements were initially registered under the Securities Act or any state securities laws, rather, we offered the securities in reliance on exemption from the registration requirements of the Securities Act by virtue of Section 4(a)(2) thereof and Rule 506 of Regulation D under the Securities Act. The registration statement of which this prospectus is a part relates to the offer and resale of the Shares issued to, or issuable pursuant to, the Purchase Agreements, as applicable.

Preferred Securities Purchase Agreement

We entered into a securities purchase agreement (the "Preferred Purchase Agreement") pursuant to which we sold (i) 24,900 shares of Series F-1 Preferred Stock, par value \$0.01 per share (the "Series F-1 Preferred Stock" and together with the Series F-2 Preferred Stock, Series F-3 Preferred Stock and Series F-4 Preferred Stock, the "Preferred Stock"), (ii) the Preferred Tranche A Warrants and (iii) the Preferred Tranche B Warrants for an aggregate offering price of \$24.9 million.

Pursuant to the Certificate of Designation of Preferences, Rights and Limitations of the Series F Convertible Voting Preferred Stock (the "Certificate of Designation"), upon receipt of approval from our stockholders to approve the issuance of (i) all Common Stock issuable upon conversion of the Preferred Stock, each share of Series F-1 Preferred Stock automatically converted into shares of Common Stock and/or, at the election of the holder thereof, shares of Series F-2 Preferred Stock, in lieu of Common Stock. On June 12, 2023, we received such approval from our stockholders and as a result the 24,900 shares of Series F-1 Preferred Stock were subsequently converted into an aggregate of 4,649,185 shares of Common Stock at a conversion price of \$3.30 per share and 9,624 shares of Series F-2 Preferred Stock, which are convertible into shares of Common Stock at a conversion price of \$3.30 per share.

The aggregate exercise price of the Preferred Tranche A Warrants is approximately \$34.8 million, exercisable for an aggregate of up to 34,860 shares of Series F-3 Preferred Stock until the earlier of 21 days following the Company's announcement of receipt of approval from the FDA for HEPZATO and March 31, 2026 (such approval, the "FDA Approval"). The 34,860 shares of Series F-3 Preferred Stock are convertible into an aggregate of 7,746,436 shares of Common Stock at a conversion price of \$4.50 per share.

The aggregate exercise price of the Preferred Tranche B Warrants is approximately \$24.9 million, exercisable for an aggregate of up to 24,900 shares of Series F-4 Preferred Stock until the earlier of 21 days following the Company's announcement of receipt of recording at least \$10 million in quarterly U.S. revenue from the commercialization of HEPZATO and March 31, 2026; provided, however, that if the FDA Approval occurs on or before February 15, 2024 and the holder of the Preferred Tranche B Warrant has not exercised its Preferred Tranche A Warrant by or before March 7, 2024, then any Series F-4 Preferred Stock not yet exercised pursuant to the Preferred Tranche B Warrant at such time shall expire. The 24,900 shares of Series F-4 Preferred Stock are convertible into an aggregate of 4,150,000 shares of Common Stock at a conversion price of \$6.00 per share.

Common Securities Purchase Agreement

We entered into a securities purchase agreement (the "Common Purchase Agreement") pursuant to which we sold (i) 19,646 shares of Common Stock, (ii) the Common Tranche A Warrants and (iii) the Common Tranche B Warrants for an approximate aggregate offering price of \$100,000.

The aggregate exercise price of the Common Tranche A Warrants is approximately \$139,997, exercisable for an aggregate of 31,110 shares of Common Stock until the earlier of 21 days following the Company's announcement of receipt of FDA Approval and March 31, 2026.

The aggregate exercise price of the Common Tranche B Warrants is approximately \$99,998, exercisable for an aggregate of 16,666 shares of Common Stock until the earlier of 21 days following the Company's announcement of receipt of recording at least \$10 million in quarterly U.S. revenue from the commercialization of HEPZATO and March 31, 2026; provided, however, that if the FDA Approval occurs on or before February 15, 2024 and the holder of the Common Tranche B Warrant has not exercised its Common Tranche A Warrant by or before March 7, 2024, then any Common Stock not yet exercised pursuant to the Common Tranche B Warrant at such time shall expire.

Corporate Information

We were incorporated in the State of Delaware in August 1988. Our principal executive offices are located at 1633 Broadway, Suite 22C, New York, New York 10019. Our telephone number is (212) 489-2100. Our website address is http://www.delcath.com. Information contained in, or accessible through, our website does not constitute any part of, and is not incorporated into, this prospectus.

THE OFFERING

Common Stock offered by the Selling Stockholders

(i) 2,916,358 shares of Common Stock, issuable upon conversion of 9,624 shares of Series F-2 Preferred Stock, (ii) 7,746,436 shares of Common Stock issuable upon conversion of 34,860 shares of F-3 Preferred Stock exercisable pursuant to the Preferred Tranche A Warrant, (iii) 4,149,994 shares of Common Stock issuable upon conversion of 24,900 shares of F-4 Preferred Stock exercisable pursuant to the Preferred Tranche B Warrant, (iv) 4,649,185 shares of Common Stock, (v) 31,110 shares of Common Stock, issuable upon exercise of Common Tranche A Warrant, and (vi) 16,666 shares of Common Stock, issuable upon exercise of the Common Tranche B Warrant. See "Selling Stockholders."

Use of Proceeds

We will not receive any of the proceeds from the sale of the Shares covered by this prospectus, except with respect to amounts received by us due to the exercise of any Warrants for cash. We intend to use the proceeds from the exercise of any Warrants for cash for working capital and general corporate purposes. See the section of this prospectus titled "Use of Proceeds."

Risk Factors

Investing in our Common Stock involves a high degree of risk. For a discussion of factors to consider before deciding to invest in our Common Stock, you should carefully review and consider the "Risk Factors" section of this prospectus, as well as the risk factors described or referred to in any documents incorporated by reference in this prospectus, and in any applicable prospectus supplement or amendment.

Nasdaq Capital Market Symbol

DCTH

RISK FACTORS

Investing in our Common Stock involves a high degree of risk. Before deciding whether to invest in our Common Stock, you should consider carefully the risks and uncertainties discussed in this section and under the sections titled Risk Factors contained in our most recent Annual Report on Form 10-K and in our subsequent Quarterly Reports on Form 10-Q for the quarterly periods ended subsequent to our filing of such Annual Report on Form 10-K, as well as any amendments or updates to our risk factors reflected in subsequent filings with the SEC, which are incorporated by reference into this prospectus, together with other information in this prospectus, the documents incorporated by reference, any prospectus supplement and any free writing prospectus that we may authorize. These risks and uncertainties are not the only risks and uncertainties we face. Additional risks and uncertainties not presently known to us, or that we currently view as immaterial, may also impair our business. If any of the risks or uncertainties described in our SEC filings or any additional risks and uncertainties actually occur, our business, financial condition, results of operations and cash flow could be materially and adversely affected. In that case, the trading price of our Common Stock could decline and you might lose all or part of your investment. Please also read carefully the section titled "Cautionary Note Regarding Forward-Looking Statements."

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, and the documents incorporated by reference herein, contain, or will contain, "forward-looking statements" within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act of 1934, as amended (the "Exchange Act"). Forward-looking statements can be identified by words such as "intends," "believes," "anticipates," "indicates," "plans," "expects," "suggests," "may," "would," "should," "potential," "designed to," "will," "ongoing," "estimate," "forecast," "predict," "could," and similar references, although not all forward-looking statements contain these words. Forward-looking statements are neither historical facts nor assurances of future performance. These statements are based only on our current beliefs, expectations and assumptions regarding the future of our business, future plans and strategies, projections, anticipated events and trends, the economy and other future conditions. Because forward-looking statements relate to the future, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict and many of which are outside of our control. Risks that could cause actual results to vary from expected results expressed in our forward-looking statements include, but are not limited to:

- our estimates regarding sufficiency of our cash resources, anticipated capital requirements and our need for additional financing;
- actions by the FDA relating to our New Drug Application resubmission;
- the ability of the Company to respond to FDA queries related to our scheduled Prescription Drug User Fee Act target action dated of August 14, 2023;
- our successful inspections by the FDA or foreign regulatory agencies;
- the commencement of future clinical trials and the results and timing of those clinical trials;
- our ability to successfully commercialize CHEMOSAT and HEPZATO, generate revenue and successfully obtain reimbursement for the procedure and system;
- the progress and results of our research and development programs;
- submission and timing of applications for regulatory approval and approval thereof;
- our ability to successfully source certain components of CHEMOSAT and HEPZATO and enter into supplier contracts;
- our ability to successfully manufacture CHEMOSAT and HEPZATO;
- our ability to successfully negotiate and enter into agreements with distribution, strategic and corporate partners;
- our estimates of potential market opportunities and our ability to successfully realize these opportunities; and
- any other factors discussed under the headings "Business," "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our most recent Annual Report on Form 10-K and in our subsequent Quarterly Reports on Form 10-Q for the quarterly periods ended subsequent to our filing of such Annual Report on Form 10-K, as well as any amendments or updates to our risk factors reflected in subsequent filings with the SEC, which are incorporated by reference into this prospectus, together with other information in this prospectus, the documents incorporated by reference, any prospectus supplement and any free writing prospectus that we may authorize.

Forward-looking statements speak only as of the date the statements are made. Except as required under the federal securities laws and rules and regulations of the SEC, we undertake no obligation to update or revise forward-looking statements to reflect actual results, changes in assumptions or changes in other factors affecting forward-looking information. We caution you not to unduly rely on the forward-looking statements when evaluating the information presented herein.

USE OF PROCEEDS

We will not receive any of the proceeds from the sale of the Shares covered by this prospectus, except with respect to amounts received by us due to the exercise of any Warrants for cash. We intend to use the proceeds from the exercise of any Warrants for cash for working capital and general corporate purposes.

SELLING STOCKHOLDERS

The Shares being offered by the Selling Stockholders are those previously issued to the Selling Stockholders, including Common Stock issued upon conversion of the Series F-1 Preferred Stock, and the Common Stock issuable to the Selling Stockholders upon exercise, and, if applicable, conversion of the Preferred Warrant Shares. We are registering the Shares in order to permit the Selling Stockholders to offer the shares for resale from time to time. For additional information regarding the Shares being offered by the Selling Stockholders pursuant to this prospectus, see "Summary—Private Placement" above.

The table below lists the Selling Stockholders and other information regarding the beneficial ownership of the Common Stock by each of the Selling Stockholders. The second column lists the number of Common Stock beneficially owned by each selling stockholder, based on its beneficial ownership of the Shares, as of June 5, 2023, assuming exercise of the Warrants held by the Selling Stockholders on that date.

The fourth column lists the Shares being offered by this prospectus by the Selling Stockholders.

In accordance with the terms of the Purchase Agreements, as applicable, this prospectus generally covers the resale of the sum of (i) the aggregate number of Common Stock issued or issuable to the Selling Stockholders as a result of conversion of the Series F-1 Preferred Stock and/or Series F-2 Preferred Stock, (ii) the number of shares of Common Stock issued pursuant to the Common Purchase Agreement and (iii) the number of shares of Common Stock issuable upon exercise of the Warrants (and conversion, if necessary, of the Preferred Warrant Shares). The fourth column assumes the sale of all of the Shares offered by the Selling Stockholders pursuant to this prospectus.

Pursuant to the Certificate of Designation, a Selling Stockholder shall not have the right to convert any portion of the Series F Preferred Stock and such Series F Preferred Stock shall not be automatically converted, to the extent that after giving effect to such conversion, such Selling Stockholder, together with its affiliates, any other persons acting as a group together, and any other persons whose beneficial ownership of Common Stock would be aggregated with the Selling Stockholder's and the other attribution parties for purposes of Section 13(d) of the Exchange Act would beneficially own in excess of 9.99% of the shares of Common Stock outstanding immediately after giving effect to such conversion, excluding for purposes of such determination shares of Common Stock which would be issuable upon exercise of the remaining, unconverted portion of the Series F Preferred Stock beneficially owned (the "Preferred F Stock Blocker"). Under the terms of the Common Warrants, a Selling Stockholder may not exercise the Warrants to the extent such exercise would cause such selling stockholder, together with its affiliates and attribution parties, to beneficially own a number of Common Stock which would exceed 9.99% of our then outstanding Common Stock following such exercise, excluding for purposes of such determination Common Stock issuable upon exercise of the Warrants which have not been exercised.

The information in the following table has been provided to us by or on behalf of the Selling Stockholders and the Selling Stockholders may have sold, transferred or otherwise disposed of all or a portion of their securities after the date on which they provided us with information regarding their securities. The Selling Stockholders may sell all, some or none of their Shares in this offering. See "Plan of Distribution."

Name of Selling Stockholder	Total Shares of Common Stock Beneficially Owned Prior to Offering (1)	% of Shares of Common Stock Beneficially Owned Prior to Offering (1)	Maximum Number of Shares of Common Stock to be Sold Pursuant to the Prospectus (2)	Number of Shares of Common Stock Beneficially Owned After Offering (2)	% of Shares of Common Stock Beneficially Owned After Offering*
Vivo Opportunity Fund Holdings, L.P. (3)	1,178,787	9.99%	4,880,741		
Entities affiliated with Logos Capital (4)	1,178,787	9.99%	4,880,351	_	_
Entities affiliated with BVF Partners (5)	1,178,787	9.99%	4,880,044	_	_
Entities affiliated with Rosalind Advisors, Inc. (6)	1,178,787	9.99%	1,678,736	3,010,009	9.99%
Stonepine Capital, LP (7)	976,008	8.42%	976,008	_	_
Mitchell Robbins (8)	1,178,787	9.99%	701,812	1,025,000	3.40%
Serrado Opportunity Fund LLC (9)	468,484	4.22%	468,484	_	_
Bigger Capital Fund, LP (10)	663,709	5.88%	195,200	468,509	1.55%
District 2 Capital Fund LP (11)	390,550	3.55%	195,200	157,222	*
ADAR1 Partners, LP (12)	400,497	3.63%	390,403	10,094	*
Triple Gate Partners, LP (13)	512,380	4.60%	195,200	317,176	1.05%
Gerard Michael (14)	870,867	7.58%	67,423	803,444	2.67%

- * Percentage not listed if less than 1%.
- (1) "Beneficial ownership" means that a person, directly or indirectly, has or shares voting or investment power with respect to a security or has the right to acquire such power within 60 days. The number of shares beneficially owned is determined as of June 5, 2023, and the percentage is based upon 10,620,930 shares of our Common Stock outstanding as of June 5, 2023. In computing the number of shares of our Common Stock beneficially owned by a Selling Stockholder and the percentage ownership of such Selling Stockholder, we deemed outstanding shares of Common Stock issuable upon the exercise (and conversion, if applicable) of the Warrants and Series F-2 Preferred Stock, held by that Selling Stockholder. We did not deem these shares outstanding, however, for the purpose of computing the percentage ownership of any other Selling Stockholder.
- (2) Assumes sale of all Shares covered by this prospectus and no further acquisitions of shares of Common Stock by the Selling Stockholders.
- (3) Consists of 1,178,787 shares of Common Stock. In addition to the foregoing shares of Common Stock, as of June 5, 2023, Vivo Opportunity Fund Holdings, L.P. held (i) 715,454 shares of Common Stock issuable upon conversion of 2,361 shares of Series F-2 Preferred Stock, (ii) 1,944,666 shares of Common Stock issuable upon conversion of 8,751 shares of Series F-3 Preferred Stock and (iii) 1,041,833 shares of Common Stock issuable upon conversion of 6,251 shares of Series F-4 Preferred Stock that are not included in the shares reported under "Total Shares of Common Stock Beneficially Owned Prior to Offering" because they are subject to limitations on exercisability if such exercise would result in Vivo Opportunity Fund Holdings, L.P. beneficially owning more than 9.99% of our outstanding Common Stock. Vivo Opportunity, LLC is the general partner of Vivo Opportunity Fund Holdings, L.P. and Gaurav Aggarwal, Kevin Dai, Hongbo Lu, Frank Kung and Michael Chang are the voting members of Vivo Opportunity, LLC. The Selling Stockholder's address is c/o Vivo Capital LLC, 192 Lytton Avenue, Palo Alto, CA 94301.
- (4) Consists of 884,090 shares of Common Stock held by Logos Global Master Fund, LP ("Logos Global") and 294,697 shares of Common Stock held by Logos Opportunities Fund III, LP ("Logos Opportunities", and together with Logos Global, the "Logos Entities"). In addition to the foregoing shares of Common Stock, as of June 5, 2023, (i) Logos Global held 536,566 shares of Common Stock issuable upon conversion of 1,771 shares of Series F-2 Preferred Stock, 486,000 shares of Common Stock issuable upon conversion of 2,187

- shares of Series F-3 Preferred Stock and 260,333 shares of Common Stock issuable upon conversion of 1,562 shares of Series F-4 Preferred Stock and (ii) Logos Opportunities held 178,787 shares of Common Stock issuable upon conversion of 590 shares of Series F-2 Preferred Stock, 1,458,444 shares of Common Stock issuable upon conversion of 6,563 shares of Series F-3 Preferred Stock and 781,333 shares of Common Stock issuable upon conversion of 4,688 shares of Series F-4 Preferred Stock that are not included in the shares reported under "Total Shares of Common Stock Beneficially Owned Prior to Offering" because they are subject to limitations on exercisability if such exercise would result in the Logos Entities beneficially owning more than 9.99% of our outstanding Common Stock.
- Consists of 630,303 shares of Common Stock held by Biotechnology Value Fund, L.P. ("BVF LP"), 481,515 shares of Common Stock held by Biotechnology Value Fund II, L.P. ("BVF2 LP"), 51,515 shares of Common Stock held by Biotechnology Value Trading Fund OS LP ("BVF OS") and 15,454 shares of Common Stock held by MSI BVF SPV, LLC ("MSI BVF"), and together with BVF LP, BVF2 LP and BVF OS, the "BVF Entities"). In addition to the foregoing shares of Common Stock, as of June 5, 2023, (i) BVF LP held 381,818 shares of Common Stock issuable upon conversion of 1,260 shares of Series F-2 Preferred Stock, 1,039,111 shares of Common Stock issuable upon conversion of 4,676 shares of Series F-3 Preferred Stock and 556,666 shares of Common Stock issuable upon conversion of 3,340 shares of Series F-4 Preferred Stock, (ii) BVF2 LP held 288,181 shares of Common Stock issuable upon conversion of 951 shares of Series F-2 Preferred Stock, 790,222 shares of Common Stock issuable upon conversion of 3,556 shares of Series F-3 Preferred Stock and 423,333 shares of Common Stock issuable upon conversion of 2,540 shares of Series F-4 Preferred Stock, (iii) BVF OS held 36,363 shares of Common Stock issuable upon conversion of 120 shares of Series F-2 Preferred Stock, 90,222 shares of Common Stock issuable upon conversion of 406 shares of Series F-3 Preferred Stock and 48,333 shares of Common Stock issuable upon conversion of 290 shares of Series F-4 Preferred Stock and (iv) MSI BVF held 8,787 shares of Common Stock issuable upon conversion of 29 shares of Series F-2 Preferred Stock, 24,888 shares of Common Stock issuable upon conversion of 112 shares of Series F-3 Preferred Stock and 13,333 shares of Common Stock issuable upon conversion of 80 shares of Series F-4 Preferred Stock, certain of which are not included in the shares reported under "Total Shares of Common Stock Beneficially Owned Prior to Offering" because they are subject to limitations on conversion if such conversion would result in the BVF Entities beneficially owning more than 9.99% of our outstanding Common Stock, BVF I GP LLC is the general partner of BVF LP, BVF II GP LLC is the general partner of BVF2 LP, BVF Partners OS Ltd. is the general partner of BVF OS. BVF GP Holdings is the sole member of BVF I GP LLC and BVF II GP LLC. BVF Partners L.P. is the sole member of BVF Partners OS Ltd. and investment manager of BVF LP, BVF QS and MSI BVF. BVF Inc. is the general partner of BVF Partners L.P. Mark N. Lampert is director and officer of BVF Inc. Each of BVF I GP LLC, BVF II GP LLC, BVF Partners OS Ltd., BVF GP Holdings LLC, BVF Partners L.P. BVF Inc. and Mr. Lampert disclaims beneficial ownership of securities beneficially owned by the Selling Stockholders. The Selling Stockholder's address is c/o BVF Partners L.P., 44 Montgomery St, 40th Floor, San Francisco, CA 94104.
- Consists of 938,828 shares of Common Stock and 239,959 shares of Common Stock held by entities affiliated with Rosalind Advisors, Inc. which includes Rosalind Opportunities Fund I L.P. and Rosalind Master Fund L.P. ("Rosalind") issuable upon exercise of 239,959 warrants (the "Rosalind Warrants"). In addition to the foregoing shares of Common Stock, as of June 5, 2023, Rosalind held (i) an aggregate of 219,180 shares of Common Stock issuable upon the conversion of an aggregate 2,192 shares of Series E Preferred Stock, at a conversion rate of \$1,198 per share, following an election by Rosalind Opportunities Fund I L.P. and Rosalind Master Fund L.P. to convert an aggregate \$2 million principal amount of 8% senior secured promissory notes issued by the Company to such Selling Stockholders, together and with all accrued interest thereon into shares of Series E Preferred Stock (ii) 914,865 shares of Common Stock issuable upon conversion of 9,148 shares of Series E-1 Preferred Stock, (iii) an aggregate of 175,256 shares of Common Stock issuable upon the conversion of an aggregate 1,752 shares of Series E-1 Preferred Stock, (iv) 480,006 shares of Common Stock issuable upon exercise of the Rosalind Warrants, (v) 651,515 shares of Common Stock issuable upon conversion of 2,150 shares of Series F-2 Preferred Stock, (vi) 668,888 shares of Common Stock issuable upon conversion of Series F-4 Preferred Stock. The

foregoing clauses (i) through (vii) reflect securities convertible into shares of Common Stock, all of which are subject to a beneficial ownership blocker that otherwise limits their ability to exercise or convert such security if such exercise would result in beneficially owning more than 9.99% of our outstanding Common Stock and therefore such securities are not included in the shares reported under "Total Shares of Common Stock Beneficially Owned Prior to Offering." Mr. Salamon and Dr. Aharon are members of the Board of Directors of the Company pursuant to a Board Appointment Agreement. Mr. Salamon and Dr. Aharon disclaim beneficial ownership with respect to these securities. The Selling Stockholder's address is c/o Rosalind Advisors, Inc., 15 Wellesley Street West, Suite 326, Toronto, ON M4Y OG7.

- (7) Consists of (i) 378,787 shares of Common Stock, (ii) 388,888 shares of Common Stock issuable upon conversion of 1,750 shares of Series F-3 Preferred Stock and (iii) 208,333 shares of Common Stock issuable upon conversion of 1,250 shares of Series F-4 Preferred Stock. The Selling Stockholder's address is Stonepine Capital Management, Attn: Jeff Nunnenkamp, 919 NW Bond Street, Suite 204, Bend, OR 97703.
- (8) Consists of 1,178,787 shares of Common Stock. In addition to the foregoing shares of Common Stock, as of June 5, 2023, Mitchell Robbins held (i) 118,787 shares of Common Stock issuable upon conversion of 392 shares of Series F-2 Preferred Stock, (ii) 279,555 shares of Common Stock issuable upon conversion of 1,258 shares of Series F-3 Preferred Stock and (iii) 149,833 shares of Common Stock issuable upon conversion of 899 shares of Series F-4 Preferred Stock that are not included in the shares reported under "Total Shares of Common Stock Beneficially Owned Prior to Offering" because they are subject to limitations on exercisability if such exercise would result in Mitchell Robbins beneficially owning more than 9.99% of our outstanding Common Stock. The Selling Stockholder's address is 461 South Maya Palm Drive, Boca Raton, FL 33432.
- (9) Consists of (i) 181,818 shares of Common Stock, (ii) 186,666 shares of Common Stock issuable upon conversion of 840 shares of Series F-3 Preferred Stock and (iii) 100,000 shares of Common Stock issuable upon conversion of 600 shares of Series F-4 Preferred Stock. The Selling Stockholder's address is Serrado Capital LLC (c/o Stewart Hen), 40 Worth Street, Suite 702, New York, NY 10013.
- (10) Consists of (i) 386,712 shares of Common Stock, (ii) 77,777 shares of Common Stock issuable upon conversion of 350 shares of Series F-3 Preferred Stock, (iii) 41,666 shares of Common Stock issuable upon conversion of 250 shares of Series F-4 Preferred Stock and (iv) 157,554 shares of Common Stock which may be acquired upon exercise of certain common stock warrants. Michael Bigger has the power to vote or dispose of the shares owned by Bigger Capital Fund, LP, Matthias Bigger—UTMA and the Andreas Bigger Irrevocable Trust Agreement. The Selling Stockholder's address is 11700 W Charleston Blvd 170-659, Las Vegas, NV 89135. Michael Bigger disclaims beneficial ownership over these securities.
- (11) Consists of (i) 236,385 shares of Common Stock, (ii) 34,722 shares of Common Stock which may be acquired upon exercise of certain common stock warrants, (iii) 77,777 shares of Common Stock issuable upon conversion of 350 shares of Series F-3 Preferred Stock and (iv) 41,666 shares of Common Stock issuable upon conversion of 250 shares of Series F-4 Preferred Stock. Michael Bigger has the power to vote or dispose of the shares owned by District 2 Capital Fund LP. The Selling Stockholder's address is 14 Wall Street, 2nd Floor, Huntington, New York 11743.

 Michael Bigger disclaims beneficial ownership over these securities.
- (12) Consists of (i) 161,608 shares of Common Stock, (ii) 155,555 shares of Common Stock issuable upon conversion of 700 shares of Series F-3 Preferred Stock and (iii) 83,333 shares of Common Stock issuable upon conversion of 500 shares of Series F-4 Preferred Stock. The Selling Stockholder's address is 3503 Wild Cherry Drive, Building 9, Austin, TX 78738.
- (13) Consists of (i) 392,935 shares of Common Stock,(ii) 77,777 shares of Common Stock issuable upon conversion of 350 shares of Series F-3 Preferred Stock and (iii) 41,667 shares of Common Stock issuable upon conversion of 250 shares of Series F-4 Preferred Stock. The Selling Stockholder's address is 445 Central Ave, Suite 317, Cedarhurst, NY 11516.
- (14) Consists of (i) 177,589 shares of Common Stock, (ii) 645,502 shares of Common Stock that may be acquired through the exercise of options, (iii) 47,776 shares of Common Stock, issuable upon exercise of the Common Warrants.

Relationship with Selling Stockholders

On April 8, 2020, we entered into a Board Appointment Agreement, dated as of April 8, 2020, with Rosalind, pursuant to which Steven Salamon and Gil Aharon, who are principals of Rosalind, have been appointed as directors of the Company's board of Directors. Certain shares of Common Stock registered for resale hereunder are also held by Gerard Michel, who is the Chief Executive Officer of the Company.

Other than this relationship with Rosalind and Gerard Michel, none of the Selling Stockholders has had a material relationship with us or any of our predecessors or affiliates within the past three years, other than as a result of the ownership of our shares of Common Stock or other securities.

PLAN OF DISTRIBUTION

The Selling Stockholders, which includes any of their pledgees, assignees and successors-in-interest may, from time to time, sell any or all of their Shares covered hereby on the principal trading market or any other stock exchange, market or trading facility on which the Common Stock are traded or in private transactions. These sales may be at fixed or negotiated prices. A Selling Stockholder may use any one or more of the following methods when selling the Shares:

- ordinary brokerage transactions and transactions in which the broker dealer solicits purchasers;
- block trades in which the broker dealer will attempt to sell the securities as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker dealer as principal and resale by the broker dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- settlement of short sales entered into after the effective date of the registration statement of which this prospectus is a part;
- in transactions through broker dealers that agree with the Selling Stockholders to sell a specified number of such securities at a stipulated price per security;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- a combination of any such methods of sale; or
- any other method permitted pursuant to applicable law.

The Selling Stockholders may also sell securities under Rule 144 or any other exemption from registration under the Securities Act, if available, rather than under this prospectus.

Broker-dealers engaged by the Selling Stockholders may arrange for other brokers dealers to participate in sales. Broker-dealers may receive commissions or discounts from the Selling Stockholders (or, if any broker dealer acts as agent for the purchaser of securities, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplements to this Prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with FINRA Rule 2121.

In connection with the sale of the securities or interests therein, the Selling Stockholder may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the securities in the course of hedging the positions they assume. The Selling Stockholder may also sell securities short and deliver these securities to close out their short positions, or loan or pledge the securities to broker-dealers that in turn may sell these securities. The Selling Stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or create one or more derivative securities which require the delivery to such broker-dealer or other financial institution of securities offered by this prospectus, which securities such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The Selling Stockholders and any broker-dealers or agents that are involved in selling the securities may be deemed to be "underwriters" within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the securities purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. Each Selling Stockholder has informed the Company that it does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the securities.

We are required to pay certain fees and expenses that we incur incident to the registration of the Shares covered by this prospectus. We have agreed to indemnify the Selling Stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

We agreed to keep this prospectus effective continuously effective under the Securities Act until the date that all the Shares being offered by the Selling Stockholders (i) have been sold pursuant to this registration statement or pursuant to Rule 144, or (ii) may be sold without volume or manner-of-sale restrictions pursuant to Rule 144 and without the requirement for us to be in compliance with the current public information requirement under Rule 144. The resale securities will be sold only through registered or licensed brokers or dealers if required under applicable state securities laws. In addition, in certain states, the resale securities covered hereby may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

Under applicable rules and regulations under the Exchange Act, any person engaged in the distribution of the resale securities may not simultaneously engage in market making activities with respect to the Common Stock for the applicable restricted period, as defined in Regulation M, prior to the commencement of the distribution. In addition, the Selling Stockholders will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including Regulation M, which may limit the timing of purchases and sales of the Common Stock by the Selling Stockholders or any other person. We will make copies of this prospectus available to the Selling Stockholders and have informed them of the need to deliver a copy of this prospectus to each purchaser at or prior to the time of the sale (including by compliance with Rule 172 under the Securities Act).

LEGAL MATTERS

The validity of the shares of Common Stock to be offered for resale by the Selling Stockholders under this prospectus will be passed upon for us by Cooley LLP, Boston, Massachusetts.

EXPERTS

The consolidated financial statements as of December 31, 2022 and 2021 and for each of the two years in the period ended December 31, 2022 incorporated by reference in this prospectus have been so incorporated in reliance on the report of Marcum, LLP, an independent registered public accounting firm, incorporated herein by reference, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of the registration statement on Form S-3 we filed with the SEC under the Securities Act and does not contain all the information set forth in the registration statement. Whenever a reference is made in this prospectus to any of our contracts, agreements or other documents, the reference may not be complete and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated by reference into this prospectus for a copy of such contract, agreement or other document. Because we are subject to the information and reporting requirements of the Exchange Act, we file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at http://www.sec.gov.

You may also access our SEC filings at our website www.delcath.com. Our website and the information contained on, or that can be accessed through, our website will not be deemed to be incorporated by reference in, and are not considered part of, this prospectus. You should not rely on our website or any such information in making your decision whether to purchase our securities.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus the information contained in other documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents. Any statement contained in any document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded, for purposes of this prospectus, to the extent that a statement contained in or omitted from this prospectus, or in any other subsequently filed document that also is or is deemed to be incorporated by reference herein, modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus. We incorporate by reference the documents listed below which have been filed by us:

- Our Annual Report on Form 10-K for the year ended December 31, 2022, filed with the SEC on March 27, 2023, including those portions of the Form 10-K incorporated by reference from our definitive proxy statement filed with the SEC on May 1, 2023;
- Our Quarterly Report on Form 10-Q for the period ended March 31, 2023, filed with the SEC on May 22, 2023;
- Our Current Reports on Form 8-K, filed with the SEC on March 28, 2023, March 30, 2023, June 7, 2023, June 13, 2023 and June 22, 2023; and
- The description of our Common Stock contained in our registration on <u>Form 8-Al2B</u> (File No. 001-16133) filed with the SEC on April 30, 2020, including any amendment or report filed for the purpose of updating such description.

All documents we file with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, except as to any portion of any report or documents that is not deemed filed under such provisions, (1) on or after the date of filing of the registration statement containing this prospectus and prior to the effectiveness of the registration statement and (2) on or after the date of this prospectus until the earlier of the date on which all of the securities registered hereunder have been sold or the registration statement of which this prospectus is a part has been withdrawn, shall be deemed incorporated by reference in this prospectus and to be a part of this prospectus from the date of filing of those documents and will be automatically updated and, to the extent described above, supersede information contained or incorporated by reference in this prospectus and previously filed documents that are incorporated by reference in this prospectus.

Nothing in this prospectus shall be deemed to incorporate information furnished but not filed with the SEC pursuant to Item 2.02, 7.01 or 9.01 of Form 8-K. Upon written or oral request, we will provide without charge to each person, including any beneficial owner, to whom a copy of the prospectus is delivered a copy of any or all of the reports or documents incorporated by reference herein (other than exhibits to such documents, unless such exhibits are specifically incorporated by reference herein). You may request a copy of these filings, at no cost, by writing or telephoning us at the following address: Delcath Systems, Inc., 1633 Broadway, Suite 22C, New York, New York 10019.

* * *



Up to 19,509,749 Shares of Common Stock Offered by the Selling Stockholders

PROSPECTUS