

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

FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

UNICYCIVE THERAPEUTICS, INC.
(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

81-3638692

(I.R.S. Employer
Identification Number)

**4300 El Camino Real, Suite 210
Los Altos, CA 94022
(650) 351-4495**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**Shalabh Gupta
Chief Executive Officer
Unicycive Therapeutics, Inc.
4300 El Camino Real, Suite 210
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(Name, address, including zip code, and telephone number, including area code, of agent for service)

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Approximate date of commencement of proposed sale to the public: From time to time, after the effective date of this registration statement.

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

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

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

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

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

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

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

Large accelerated filer ☐
Non-accelerated filer ☒

Accelerated filer ☐
Smaller reporting company ☒
Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of Securities Act. ☐

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 that 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 Commission, acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. The selling stockholders listed herein may not sell these securities until the registration statement filed with the U.S. Securities and Exchange Commission becomes effective. This prospectus is not an offer to sell the securities and it is not soliciting an offer to buy the securities in any state where offers or sales are not permitted.

PRELIMINARY PROSPECTUS
Subject to completion, dated July 12, 2023



111,017,635 Shares of Common Stock

The selling stockholders named in this prospectus may use this prospectus to offer and resell from time to time up to 111,017,635 shares (the "Shares") of common stock, par value \$0.001 per share (the "Common Stock") of Unicycive Therapeutics, Inc. (referred to in this prospectus as "we," "us," "our," "Unicycive" or "Unicycive Therapeutics," or the "Company"). Such Shares are issuable to the selling stockholders pursuant to terms of that certain Securities Purchase Agreement, dated as of March 3, 2023, by and among us and the investors named therein (the "Securities Purchase Agreement").

Pursuant to the Securities Purchase Agreement, we issued 30,190 shares of Series A-1 Convertible Preferred Stock, par value \$0.001 per share (the "Series A-1 Preferred Stock"), which were each convertible into a unit (the "Units"), each Unit consisting of (i) shares of Common Stock and, if applicable, shares of Series A-2 Convertible Preferred Stock, par value \$0.001 per share, of the Company (the "Series A-2 Preferred Stock"), in lieu of Common Stock, (ii) a tranche A warrant to acquire shares of Series A-3 Convertible Preferred Stock (the "Tranche A Warrants"), (iii) a tranche B warrant to acquire shares of Series A-4 Convertible Preferred Stock (the "Tranche B Warrants"), and (iv) a tranche C warrant to acquire shares of Series A-5 Convertible Preferred Stock (the "Tranche C Warrants", together with the Tranche A Warrants and the Tranche B Warrants, the "Warrants"). The Series A-3 Convertible Preferred Stock, Series A-4 Convertible Preferred Stock and Series A-5 Convertible Preferred Stock issuable upon exercise of the Warrants are collectively referred to herein as the "Preferred Warrant Shares". Each share of Series A-2 Preferred Stock issuable upon conversion of the Series A-1 Preferred Stock and each Preferred Warrant Share issuable upon exercise of the Warrants is convertible into the Shares. The shares of Common Stock underlying the Tranche B Warrants and Tranche C Warrants are not being registered on this prospectus.

The above referenced securities were issued to the investors in reliance upon the exemption from the registration contained in Section 4(a)(2) of the Securities Act of 1933, as amended (the "Securities Act"), and Rule 506 of Regulation D promulgated thereunder. We are registering the offer and resale of the Shares to satisfy the provisions of the Securities Purchase Agreement, pursuant to which we agreed to register the resale of the Shares.

We are not selling any Common Stock under this prospectus and will not receive any of the proceeds from the sale of Shares by the selling stockholders.

The selling stockholders identified in this prospectus may offer the Shares from time to time through public or private transactions at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices. The registration of the Shares on behalf of the selling stockholders, however, does not necessarily mean that any of the selling stockholders will offer or sell their Shares under this registration statement or at any time in the near future. We provide more information about how the selling stockholders may sell their Shares in the section entitled "*Plan of Distribution*" on page 15.

The selling stockholders will bear all commissions and discounts, if any, attributable to the sale or disposition of the Shares, or interests therein and 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 or costs, expenses, and fees in connection with the registration of the Shares described in this prospectus. We will pay the expenses of registering the Shares.

Our Common Stock is traded on The Nasdaq Capital Market under the symbol "UNCY." On July 11, 2023, the last reported sale price of our Common Stock was \$1.22 per share.

We are an "emerging growth company" under the federal securities laws and, as such, are subject to reduced public company reporting requirements.

We may amend or supplement this prospectus from time to time by filing amendments or supplements as required. You should read the entire prospectus and any amendments or supplements carefully before you make your investment decision.

An investment in our Common Stock involves a high degree of risk. See "*Risk Factors*" on page 3 of this prospectus for more information on these risks.

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

The date of this prospectus is , 2023

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You should rely only on the information provided in this prospectus, as well as the information incorporated by reference into this prospectus and any applicable prospectus supplement. Neither we nor the selling stockholders have authorized anyone to provide you with different information. Neither we nor the selling stockholders are making an offer of these securities in any jurisdiction where the offer is not permitted. You should not assume that the information in this prospectus, any applicable prospectus supplement or any documents incorporated by reference is accurate as of any date other than the date of the applicable document. Since the respective dates of this prospectus and the documents incorporated by reference into this prospectus, our business, financial condition, results of operations and prospects may have changed.

SUMMARY

The following summary highlights some information from this prospectus. It is not complete and does not contain all of the information that you should consider before making an investment decision. You should read this entire prospectus, including the "Risk Factors" section on page 3, the financial statements and related notes and the other more detailed information appearing elsewhere or incorporated by reference into this prospectus and any applicable prospectus supplement.

Overview

We are a biotechnology company dedicated to developing treatments for certain medical conditions. Currently, two of our programs are focused on kidney disease, an area we believe we have the potential to offer medical benefit. As we grow the Company and build our team, we intend to focus on identifying medical conditions within and outside of kidney disease. Our current development programs are focused on two novel therapies: lanthanum dioxycarbonate (LDC), previously known as Renazorb, for treatment of hyperphosphatemia in patients with chronic kidney disease on dialysis, and UNI 494, for treatment of acute kidney injury (AKI). LDC and UNI 494 were initially developed by and licensed to us from Spectrum Pharmaceuticals, Inc. ("Spectrum") and Sphaera Pharmaceutical Private Limited, a Singapore-based company ("Sphaera"), respectively. Spectrum conducted a Phase 1 clinical trial with LDC in 2012, prior to the grant of our license in 2018. Sphaera conceived and performed initial characterization of various potential pro-drug linkers, including the initial patent application, and performed some initial physiochemical characterization and preliminary animal pharmacokinetic studies. As discussed herein, during 2021 and 2022 we have conducted preclinical studies with UNI 494.

Chronic kidney disease (CKD) is the gradual loss of kidney function that can get worse over time leading to lasting damage. Our initial focus is on developing drugs and getting them approved in the U.S., and then to partner with global biopharmaceutical companies in the rest of the world. According to the United States Renal Data System (USRDS) 2022 Annual Data Report, 30 million (14%) of adults in the United States are estimated to have CKD and, of these, approximately 13 million patients have advanced CKD (stage 3-5). Approximately 550,000 patients with end-stage renal disease (ESRD) are on dialysis and of those, approximately 450,000 take phosphate binders to control hyperphosphatemia. The number of patients with ESRD in the U.S. is increasing steadily and is projected to reach between 971,000 and 1,259,000 in 2030.

AKI is a sudden episode of kidney failure or kidney damage (within the first 90 days of injury). After 90 days, the patient is considered to have progressed into CKD. AKI affects more than 2 million U.S. patients and costs the healthcare system in excess of \$9 billion per year. AKI kills more than 300,000 patients per year in the U.S. and is caused by multiple etiologies.

Our business model is to license technologies and drugs in order to pursue development, regulatory approval, and commercialization of those products in global markets. Many biotechnology companies utilize similar strategies of in-licensing and then developing and commercializing drugs. We believe, however, that our management team's broad network, expertise in the biopharmaceutical industry, and successful track record gives us an advantage in identifying and bringing these assets into our company.

Pipeline

Our proprietary pipeline is comprised of our two product candidates – LDC and UNI 494 – which are described below.

Unicycive Product Pipeline



Recent Developments

On June 29, 2023, we announced that in preparation for our anticipated New Drug Application (“NDA”) filing for LDC, we requested a pre-NDA meeting with the Food and Drug Administration (FDA) to align on the contents of the NDA. Previously, the FDA had requested a 6-month toxicity study in mice comparing LDC and lanthanum carbonate (LC), the drug substance in Fosrenol®, the Reference Listed Drug for the 505(b)(2) regulatory pathway. The study report was submitted to the FDA as part of the pre-NDA meeting package showing that there was no evidence of any gastrointestinal (GI) neoplasms for either LC- or LDC-dosed mice. However, upon review of the study report, the FDA pointed out that although the GI adverse findings observed with LDC are qualitatively similar to lanthanum carbonate, there were quantitative differences.

Based on the review of this information, the FDA has asked us to provide additional information, including risk assessment and clinical data, to evaluate the tolerability of LDC in patients with chronic kidney disease on dialysis. We have requested a follow-up meeting with the FDA to discuss its additional requests.

Corporate Information

We were incorporated as a Delaware corporation on August 18, 2016. Our principal executive offices are located at 4300 El Camino Real, Suite 210, Los Altos, CA 94022 and our telephone number is (650) 351-4495. Our website address is <http://www.unicycive.com>. The information contained on our website is not incorporated by reference into this prospectus.

JOBS Act

On April 5, 2012, the Jumpstart Our Business Startups (“JOBS”) Act was enacted. Section 107 of the JOBS Act provides that an “emerging growth company” can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act for complying with new or revised accounting standards. In other words, an “emerging growth company” can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies.

We have chosen to take advantage of the extended transition periods available to emerging growth companies under the JOBS Act for complying with new or revised accounting standards until those standards would otherwise apply to private companies provided under the JOBS Act. As a result, our consolidated financial statements may not be comparable to those of companies that comply with public company effective dates for complying with new or revised accounting standards.

Subject to certain conditions set forth in the JOBS Act, as an “emerging growth company,” we intend to rely on certain of these exemptions, including, without limitation, (i) providing an auditor’s attestation report on our system of internal controls over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act of 2002, as amended, and (ii) complying with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor’s report providing additional information about the audit and the consolidated financial statements, known as the auditor discussion and analysis. We will remain an “emerging growth company” until the earliest of (i) the last day of the fiscal year in which we have total annual gross revenues of \$1.235 billion or more; (ii) the last day of our fiscal year following the fifth anniversary of the date of our initial public offering; (iii) the date on which we have issued more than \$1 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the SEC.

RISK FACTORS

Any investment in our Common Stock involves a high degree of risk. Before deciding whether to purchase our Common Stock, investors should carefully consider the risks described below together with the “Risk Factors” described in our most recent Annual Report on Form 10-K and any updates described in our Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, all of which are incorporated herein by reference, as may be amended, supplemented or superseded from time to time by other reports we file with the U.S. Securities and Exchange Commission (the “SEC”). Our business, financial condition, operating results and prospects are subject to the following material risks as well as those material risks incorporated by reference. Additional risks and uncertainties not presently foreseeable to us may also impair our business operations. If any of the following risks actually occurs, our business, financial condition or operating results could be materially adversely affected. In such case, the trading price of our Common Stock could decline, and our shareholders may lose all or part of their investment in the shares of our common stock.

We are an emerging growth company and a smaller reporting company under U.S. securities laws and may take advantage of the reduced disclosure and governance requirements applicable to emerging growth companies and smaller reporting companies, which could make our Common Stock less attractive to investors.

We are an emerging growth company and smaller reporting company and may take advantage of certain exemptions from various reporting requirements that are otherwise applicable to public companies that are not emerging growth companies and/or smaller reporting companies including, but not limited to:

- not being required to comply with the auditor attestation requirements regarding internal controls under Section 404 of the Sarbanes-Oxley Act, as amended;
- reduced disclosure obligations regarding executive compensation in periodic reports and proxy statements;
- exemptions from the requirements of holding a non-binding shareholder advisory vote on executive compensation and shareholder approval of any golden parachute payments not previously approved;
- exemption from the requirement to provide pay for performance disclosure; and
- exemption from the requirement to provide compensation ratio disclosure.

Moreover, we also are eligible under the JOBS Act for an exemption from compliance with any requirement that the Public Company Accounting Oversight Board may adopt regarding mandatory audit firm rotation or supplements to the auditor’s report providing additional information about the audit and the financial statements. We may take advantage of these reporting exemptions until we no longer are an emerging growth company and/or smaller reporting company.

A sale of a substantial number of shares of Common Stock by our shareholders may cause the price of our Common Stock to decline.

If our shareholders sell, or the market perceives that our shareholders intend to sell for various reasons, substantial amounts of our Common Stock in the public market, the price of our Common Stock may decline. Additionally, such conditions may make it more difficult for us to sell equity or equity-related securities in the future at a time and price that we deem reasonable or appropriate.

The price of our Common Stock may fluctuate substantially.

You should consider an investment in our Common Stock to be risky, and you should invest in our Common Stock only if you can withstand a significant loss and wide fluctuations in the market value of your investment. Some factors that may cause the market price of our Common Stock to fluctuate, in addition to the other risks mentioned in this “Risk Factors” section are:

- sale of our Common Stock by our shareholders, executives, and directors;
- volatility and limitations in trading volumes of our shares of Common Stock;
- our ability to obtain financings to conduct and complete research and development activities including, but not limited to, our clinical trials, and other business activities;
- the timing and success of introductions of new products by us or our competitors or any other change in the competitive dynamics of our industry, including consolidation among competitors;
- our ability to attract new customers;
- our ability to secure resources and the necessary personnel to conduct clinical trials on our desired schedule;
- commencement, enrollment or results of our clinical trials for our product candidates;
- changes in the development status of our product candidates;
- any delays or adverse developments or perceived adverse developments with respect to a regulatory agency’s review of our planned pre-clinical and clinical trials;
- any delay in our submission for studies or product approvals or adverse regulatory decisions, including failure to receive regulatory approval for our product candidates;
- unanticipated safety concerns related to the use of our product candidates;
- changes in our capital structure or dividend policy, future issuances of securities and sales of large blocks of Common Stock by our shareholders;

In addition, if the market for stocks in our industry or industries related to our industry, or the stock market in general, experiences a loss of investor confidence, the trading price of our Common Stock could decline for reasons unrelated to our business, financial condition and results of operations. If any of the foregoing occurs, it could cause our stock price to fall and may expose us to lawsuits that, even if unsuccessful, could be costly to defend and a distraction to management.

We will not receive any proceeds from the sale of the shares of Common Stock by the selling stockholders covered by this prospectus.

We are registering the shares of Common Stock that were, or may be, issued by us to the selling stockholders to permit the resale of these shares of Common Stock from time to time after the date of this prospectus. We will not receive any of the proceeds from the sale by the selling stockholders of the shares of Common Stock.

We do not intend to pay cash dividends on our shares of Common Stock so any returns will be limited to the value of our shares.

We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. Any return to shareholders will therefore be limited to the increase, if any, of our share price.

We are currently listed on The Nasdaq Capital Market. If we are unable to maintain listing of our securities on Nasdaq or any stock exchange, our stock price could be adversely affected and the liquidity of our stock and our ability to obtain financing could be impaired and it may be more difficult for our shareholders to sell their securities.

Although our Common Stock is currently listed on The Nasdaq Capital Market, we may not be able to continue to meet the exchange’s minimum listing requirements or those of any other national exchange. If we are unable to maintain listing on Nasdaq or if a liquid market for our Common Stock does not develop or is sustained, our Common Stock may remain thinly traded.

The Listing Rules of Nasdaq require listing issuers to comply with certain standards in order to remain listed on its exchange. If, for any reason, we should fail to maintain compliance with these listing standards and Nasdaq should delist our securities from trading on its exchange and we are unable to obtain listing on another national securities exchange, a reduction in some or all of the following may occur, each of which could have a material adverse effect on our shareholders:

- the liquidity of our Common Stock;
- the market price of our Common Stock;
- our ability to obtain financing for the continuation of our operations;
- the number of investors that will consider investing in our Common Stock;
- the number of market makers in our Common Stock;
- the availability of information concerning the trading prices and volume of our Common Stock; and
- the number of broker-dealers willing to execute trades in shares of our Common Stock.

DISCLOSURE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference into this prospectus and any applicable prospectus supplement may contain forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended (“Exchange Act”), about us and our subsidiary. These forward-looking statements are intended to be covered by the safe harbor for forward-looking statements provided by the Private Securities Litigation Reform Act of 1995. Forward-looking statements are not statements of historical fact, and can be identified by the use of forward-looking terminology such as “believes,” “expects,” “may,” “will,” “could,” “should,” “projects,” “plans,” “goal,” “targets,” “potential,” “estimates,” “pro forma,” “seeks,” “intends,” or “anticipates” or the negative thereof or comparable terminology. Forward-looking statements include, among other things, statements about:

- our business strategies;
- the timing of regulatory submissions;
- our ability to obtain and maintain regulatory approval of our existing product candidates and any other product candidates we may develop, and the labeling under any approval we may obtain;
- risks relating to the timing and costs of clinical trials and the timing and costs of other expenses;
- risks related to market acceptance of products;
- the ultimate impact of the Coronavirus pandemic, or any other health epidemic, on our business, our clinical trials, our research programs, healthcare systems or the global economy as a whole;
- intellectual property risks;
- risks associated with our reliance on third-party organizations;
- our competitive position;
- our industry environment;

- our anticipated financial and operating results, including anticipated sources of revenues;
- assumptions regarding the size of the available market, benefits of our products, product pricing and timing of product launches;
- management's expectation with respect to future acquisitions;
- statements regarding our goals, intentions, plans and expectations, including the introduction of new products and markets; and
- our cash needs and financing plans.

We caution our shareholders and other readers not to place undue reliance on such statements.

You should read this prospectus and the documents incorporated by reference completely and with the understanding that our actual future results may be materially different from what we currently expect. Our business and operations are and will be subject to a variety of risks, uncertainties and other factors. Consequently, actual results may materially differ from those contained in any forward-looking statements. Such risks, uncertainties and other factors that could cause actual results to differ from those projected include, but are not limited to, the risk factors set forth herein, risk factors under the title "*Risk Factors*," in our Annual Report on Form 10-K for the year ended December 31, 2022, and any updates described in our Quarterly Reports on Form 10-Q and Current Reports on Form 8-K and elsewhere in the documents incorporated by reference into this prospectus and any applicable prospectus supplement.

You should assume that the information appearing in this prospectus and any document incorporated herein by reference is accurate as of its date only. Because the risk factors referred to above could cause actual results or outcomes to differ materially from those expressed in any forward-looking statements made by us or on our behalf, you should not place undue reliance on any forward-looking statements. Further, any forward-looking statement speaks only as of the date on which the statement is made. New factors emerge from time to time, and it is not possible for us to predict which factors will arise. In addition, we cannot assess the impact of each factor on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. All written or oral forward-looking statements attributable to us or any person acting on our behalf made after the date of this prospectus and any applicable prospectus supplement are expressly qualified in their entirety by the risk factors and cautionary statements contained in and incorporated by reference into this prospectus and any applicable prospectus supplement. Unless legally required, we do not undertake any obligation to release publicly any revisions to such forward-looking statements to reflect events or circumstances after the date of this prospectus and any applicable prospectus supplement or to reflect the occurrence of unanticipated events.

USE OF PROCEEDS

The net proceeds from any disposition of the shares of Common Stock covered hereby will be received by the selling stockholders. We will not receive any of the proceeds from any such shares of Common Stock offered by this prospectus.

PRIVATE PLACEMENT OF SHARES OF PREFERRED STOCK

On March 3, 2023, we entered into the Securities Purchase Agreement with certain accredited investors (the “Investors”), pursuant to which we agreed to issue and sell, in a private placement (the “Offering”), 30,190 shares of Series A-1 Preferred Stock, for an aggregate offering price of \$30 million.

Pursuant to the Certificate of Designation of Preferences, Rights and Limitations of the Series A Convertible Voting Preferred Stock, which is filed as Exhibit 3.3 to this prospectus (the “Certificate of Designation”), each share of Series A-1 Preferred Stock is, subject to the Stockholder Approval (as defined below), convertible into a Unit consisting of (i) shares of Common Stock and, if applicable, shares of Series A-2 Preferred Stock, in lieu of Common Stock, and (ii) the Warrants. The Tranche A warrants for an aggregate exercise price of approximately \$25 million are exercisable until 21 days following our announcement of receipt of FDA approval for LDC, the Tranche B warrants for an aggregate exercise price of approximately \$25 million are exercisable until 21 days following our announcement of receipt of Transitional Drug Add-On Payment Adjustment (“TDAPA”) approval for LDC, and the Tranche C Warrant for an aggregate exercise price of approximately \$50 million are exercisable until 21 days following four quarters of commercial sales of LDC following receipt of TDAPA approval.

Subject to the terms and limitations contained in the Certificate of Designation, the Series A-1 Preferred Stock issued in the Offering did not become convertible until our stockholders approved the issuance of the Units upon conversion of the Series A-1 Preferred Stock and the issuance of all Common Stock upon conversion of the Series A Preferred Stock (as defined below), among other items (the “Stockholder Approval”) which occurred on June 26, 2023. On the tenth (10th) Trading Day (as defined in the Certificate of Designation) following the announcement of the Stockholder Approval, each share of Series A-1 Preferred Stock automatically converted into a Unit. Subject to the limitations set forth in the Certificate of Designation, at the option of the holder, each share of Series A-2 Preferred Stock and each Preferred Warrant Share is convertible into one share of Common Stock.

Pursuant to the Securities Purchase Agreement, as soon as practicable following the receipt of the Stockholder Approval (the “Filing Date”) (and in any event no later than 15 days thereafter), we agreed to file a registration statement on Form S-3 providing for the resale by the Investors of the Common Stock issuable upon conversion of the Series A-1 Preferred Stock, Series A-2 Preferred Stock and the Preferred Warrant Shares (the “Registrable Shares”) and to use commercially reasonable efforts to have the registration statement declared effective within thirty (30) days following the Filing Date (or, in the event that the staff of the Securities and Exchange Commission reviews and has written comments to such registration statement, within sixty (60) days following the Filing Date). We further agreed to take and all steps necessary to keep such registration statement effective at all times until all Registrable Shares have been resold, or there remains no Registrable Shares.

SELLING STOCKHOLDERS

The Common Stock being offered by the selling stockholders are those previously issued to the selling stockholders, and those issuable to the selling stockholders, upon conversion of the Series A-2 Preferred Stock and the Series A-3 Convertible Preferred Stock underlying the Tranche A Warrants. For additional information regarding the issuances of those securities, see “Private Placement of Shares of Preferred Stock” above. We are registering the shares of Common Stock in order to permit the selling stockholders to offer the shares for resale from time to time. Except for the ownership of the shares of Common Stock, or as otherwise set forth herein the selling stockholders have not had any material relationship with us within the past three years.

The table below lists the selling stockholders and other information regarding the beneficial ownership of the shares of Common Stock by each of the selling stockholders. The first column lists the number of shares of Common Stock beneficially owned by each selling stockholder, based on its ownership of the shares of our securities, as of June 30, 2023, assuming conversion of the Series A-2 Convertible Preferred Stock and the Series A-3 Convertible Preferred Stock underlying the Tranche A Warrants held by the selling stockholders on that date, without regard to any limitations on conversion.

The second column lists the shares of Common Stock being offered by this prospectus by the selling stockholders.

This prospectus generally covers the resale of the maximum number of shares of Common Stock issuable upon conversion of the Series A-2 Preferred Stock and the Series A-3 Convertible Preferred Stock underlying the Tranche A Warrants, determined as if the outstanding Series A-2 Preferred Stock, the Tranche A Warrants and the Series A-3 Convertible Preferred Stock underlying the Tranche A Warrants were converted in full as of the trading day immediately preceding the date this registration statement was initially filed with the SEC, each as of the trading day immediately preceding the applicable date of determination. As of the date of this prospectus, there were 126,253,651 shares of Common Stock outstanding assuming conversion of the Series A-2 Preferred Stock and Series A-3 Convertible Preferred Stock issuable upon exercise of the Tranche A Warrants. For purposes of the Selling Stockholders we are not assuming conversion of the Series A-4 and Series A-5 Convertible Preferred Stock issuable upon exercise of the Tranche B and Tranche C Warrants, respectively. The third column assumes the sale of all of the shares offered by the selling stockholders pursuant to this prospectus. The selling stockholders may sell all, some or none of their shares in this offering. See “Plan of Distribution.”

Name of Selling Stockholder	Number of shares of Common Stock Beneficially Owned Prior to Offering	Maximum Number of shares of Common Stock to be Sold Pursuant to this Prospectus	Number of shares of Common Stock Beneficially Owned After Offering	Percent of Common Stock Beneficially Owned After Offering
Shalabh Gupta, M.D. (1)	6,091,473	183,864	5,907,609	4.7%
Doug Jermasek (2)	298,013	183,864	114,149	*
Pramod Gupta, Ph.D. (3)	227,009	73,546	153,463	*
Satyanarayana Medicherla, Ph.D. (4)	36,772	36,772	-	-
Guru Reddy, Ph.D. (5)	187,947	183,864	4,083	*
Atul R. Khare, Ph.D. (6)	42,896	36,772	6,124	*
Rosalind Advisors, Inc. (7)	5,213,086	4,243,602	969,484	*
Entities affiliated with Nantahala Capital Management, LLC (8)	22,421,751	21,214,335	1,207,416	1.0%
Vivo Opportunity Fund Holdings, L.P. (9)	29,701,540	29,701,540	-	-
Entities affiliated with BVF Inc. (10)	21,214,335	21,214,335	-	-
RA Capital Healthcare Fund, L.P. (11)	25,457,936	25,457,936	-	-
Logos Opportunities Fund III LP (12)	8,487,205	8,487,205	-	-
TOTAL	119,379,963	111,017,635	8,362,328	

* Represents beneficial ownership of less than 1%

- (1) Dr. Gupta is the Founder and Chief Executive Officer of the Company. Common shares beneficially owned prior to the Offering consist of (i) 183,864 shares that are being offered pursuant to this prospectus, (ii) 5,868,849 shares held by Dr. Gupta and/or entities controlled by Dr. Gupta, and (iii) 38,760 shares of common stock underlying vested options.
- (2) Mr. Jermasek is the Executive Vice President, Corporate Strategy for the Company. Common shares beneficially owned prior to the Offering consist of (i) 183,864 shares that are being offered pursuant to this prospectus, (ii) 70,400 shares held by Mr. Jermasek, (iii) 41,666 shares of common stock underlying vested options, and (iv) 2,083 shares of common stock underlying options that will vest within 60 days.
- (3) Dr. Gupta is the Executive Vice President, Pharmaceutical and Business Operations for the Company. Common shares beneficially owned prior to the Offering consist of (i) 73,546 shares that are being offered pursuant to this prospectus, (ii) 138,565 shares of common stock underlying vested options, and (iii) 14,898 shares of common stock underlying options that will vest within 60 days.
- (4) Dr. Medicherla is the Vice President, Pharmacology for the Company. Common shares beneficially owned prior to the Offering consist of 36,772 shares that are being offered pursuant to this prospectus.

- (5) Dr. Reddy is the Vice President, Preclinical Development for the Company. Common shares beneficially owned prior to the Offering consist of (i) 183,864 shares that are being offered pursuant to this prospectus, (ii) 3,791 shares of common stock underlying vested options, and (iii) 292 shares of common stock underlying options that will vest within 60 days.
- (6) Dr. Khare is the Vice President, Scientific Affairs for the Company. Common shares beneficially owned prior to the Offering consist of (i) 36,772 shares that are being offered pursuant to this prospectus, (ii) 5,833 shares of common stock underlying vested options, and (iii) 291 shares of common stock underlying options that will vest within 60 days.
- (7) Common shares beneficially owned prior to the Offering consist of (i) 4,243,602 shares that are being offered pursuant to this prospectus, and (ii) 969,484 shares held by Rosalind Advisors, Inc., based on a Schedule 13G/A filed with the SEC on January 20, 2022, reporting beneficial ownership as of December 31, 2021. Each of Rosalind Advisors, Inc., Rosalind Master Fund, L.P., Steven Salamon, and Gilad Aharon have shared voting and dispositive power with respect to these shares. The address for Rosalind Advisors, Inc., Mr. Salamon and Mr. Aharon is 175 Bloor Street East, Suite 1316, North Tower, Toronto, Ontario M4W 3R8, Canada. The address for Rosalind Master Fund, L.P. is P.O. Box 309, Ugland House, Grand Cayman KY1-1104, Cayman Islands.
- (8) Common shares beneficially owned prior to the Offering consist of (i) 21,214,335 shares that are being offered pursuant to this prospectus, and (ii) 1,207,416 shares held by entities affiliated with Nantahala Capital Management, LLC, based on a Schedule 13G/A filed with the SEC on February 14, 2023, reporting beneficial ownership as of December 31, 2022. Each of Nantahala Capital Management, LLC, Wilmot B. Harkey and Daniel Mack have shared voting and dispositive power with respect to these shares. The address of these stockholders is 130 Main St. 2nd Floor, New Canaan, CT 06840.
- (9) Common shares beneficially owned prior to the Offering consist of 29,701,540 shares that are being offered pursuant to this prospectus. Vivo Opportunity Fund Holdings, L.P. is the record holder of the securities. Dr. Gaurav Aggarwal is a managing member of Vivo Opportunity, LLC, which is the general partner of Vivo Opportunity Fund Holdings, L.P. Dr. Aggarwal is a member of the Unicycive Therapeutics Board of Directors. Dr. Aggarwal disclaims beneficial ownership over such securities except to the extent of his pecuniary interest therein, and the inclusion of such securities in this registration statement shall not be deemed an admission of beneficial ownership of the reported securities for purposes of Section 16 or for any other purposes.
- (10) Common shares beneficially owned prior to the Offering consist of 21,214,335 shares that are being offered pursuant to this prospectus. Mark Lampert, as the President of BVF Inc., and Chief Executive Officer of certain entities affiliated with BVF Inc. may also be deemed to beneficially own such securities. The parties hold shared voting and dispositive power over such shares. The business address of each entity affiliated with BVF Inc. and Mr. Lampert is 44 Montgomery St, 40th Floor, San Francisco, CA 94104.
- (11) Common shares beneficially owned prior to the Offering include 25,457,936 shares that are being offered pursuant to this prospectus. RA Capital Healthcare Fund GP, LLC is the general partner of RA Capital Healthcare Fund, L.P. (the "Fund"). The general partner of RA Capital is RA Capital Management GP, LLC, of which Dr. Peter Kolchinsky and Mr. Rajeev Shah are the controlling persons. RA Capital serves as investment adviser for the Fund and may be deemed a beneficial owner, for purposes of Section 13(d) of the Act, of any securities of the Issuer held by the Fund. The Fund has delegated to RA Capital the sole power to vote and the sole power to dispose of all securities held in the Fund's portfolio, including the shares of the Issuer's Common Stock reported herein. The address of RA Capital Healthcare Fund, L.P. is c/o RA Capital Management, L.P., 200 Berkeley Street, 18th Floor, Boston, MA 02116.
- (12) Common shares beneficially owned prior to the Offering include 8,487,205 shares that are being offered pursuant to this prospectus. Graham Walmsley is the Managing Member of Logos Opportunities Fund III LP. The business address of Logos Opportunities Fund III LP is 1 Letterman Drive, Suite C3-350, Bldg. C, San Francisco, CA 94129.

DESCRIPTION OF CAPITAL STOCK

The following is a summary description of the material terms of our Common Stock as provided in our Certificate of Incorporation, as amended (“Certificate of Incorporation”), and Amended and Restated Bylaws, as amended (“Bylaws”), copies of which are incorporated by reference as exhibits to the registration statement of which this prospectus forms a part. The following discussion is only a summary and may not contain all the information that is important to you or that you should consider before investing in our stock, and is qualified in its entirety by reference to the complete text of the Certificate of Incorporation and Bylaws. For a more detailed description of these securities, you should read the applicable provisions of Delaware law, our Certificate of Incorporation, our Bylaws and the reports that we file with the SEC, which are incorporated herein by reference.

General

As of the date of this prospectus, our authorized capital stock consisted of 200,000,000 shares of Common Stock, \$0.001 par value per share, and 10,000,000 shares of preferred stock, \$0.001 par value per share, of which 30,190 shares of our preferred stock have been designated as Series A-1 Preferred Stock, 1,800,000 have been designated as Series A-2 Preferred Stock, 1,800,000 have been designated as Series A-3 Preferred Stock, 1,800,000 have been designated as Series A-4 Preferred Stock, and 3,600,000 have been designated as Series A-5 Preferred Stock. All shares of Series A-1 Preferred Stock were issued in the Offering and are automatically convertible into Units on the tenth trading day following the announcement of Stockholder Approval. Subject to the limitations set forth in the Certificate of Designation, at the option of the holder, each share of Series A-2 Preferred Stock, Series A-3 Preferred Stock, Series A-4 Preferred Stock or Series A-5 Preferred Stock shall be convertible into one share of Common Stock. Our board of directors may establish the rights and preferences of the preferred stock from time to time. As of the date of this prospectus, there were 34,488,093 shares of our Common Stock issued and outstanding, no shares of Series A-1 Preferred Stock issued and outstanding, 43,649 shares of Series A-2 Preferred Stock issued and outstanding, no shares of Series A-3 Preferred Stock issued and outstanding, no shares of Series A-4 Preferred Stock issued and outstanding, and no shares of Series A-5 Preferred Stock issued and outstanding.

Common Stock

Authorized Capital Shares

We are authorized to issue 200,000,000 shares of Common Stock.

Voting Rights

Holders of our Common Stock are entitled to one vote per share on all matters voted on by our shareholders, including the election of directors. Our Certificate of Incorporation and Bylaws do not provide for cumulative voting in the election of directors.

Dividend Rights

Holders of our Common Stock are entitled, subject to the rights, privileges, restrictions and conditions attaching to any other class of shares ranking in priority to the Common Stock, to receive any dividend declared by our board of directors.

Liquidation Rights

If we are voluntarily or involuntarily liquidated, dissolved or wound-up, the holders of our Common Stock will be entitled to receive, after distribution in full of the preferential amounts, if any, all of the remaining assets available for distribution ratably in proportion to the number of shares of Common Stock held by them.

Preferred Stock

Our board of directors is authorized, subject to limitations prescribed by Delaware law, to issue shares of our preferred stock in one or more series, to establish from time to time the number of shares to be included in each series, and to fix the designation, powers, preferences, and rights of the shares of each series and any of its qualifications, limitations or restrictions, in each case without further vote or action by our shareholders. Our board of directors can also increase or decrease the number of shares of any series of preferred stock, but not below the number of shares of that series then outstanding, without any further vote or action by our shareholders. Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of our Common Stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in control of our Company and might adversely affect the market price of our Common Stock and the voting and other rights of the holders of our Common Stock.

Series A Preferred Stock

Voting Rights

Subject to certain limitations described in the Certificate of Designation, the Series A Preferred Stock is voting stock. Holders of the Series A Preferred Stock are entitled to vote together with the Common Stock on an as-if-converted-to-Common-Stock basis. Holders of Common Stock are entitled to one vote for each share of Common Stock held on all matters submitted to a vote of stockholders. Accordingly, holders of Series A Preferred Stock will be entitled to one vote for each whole share of Common Stock into which their Series A Preferred Stock is then-convertible on all matters submitted to a vote of stockholders.

Prior to the Stockholder Approval, the number of shares of Common Stock that shall be deemed issued upon conversion of the Series A Preferred Stock (for purposes of calculating the number of aggregate votes that the holders of Series A Preferred Stock are entitled to on an as-converted basis) will be equal to that number of shares equal to 19.9% of the Company's outstanding Common Stock as of the Signing Date (excluding for purposes of the calculation, any securities issued on the Signing Date) (the "Cap"), which each such holder being able to vote the number of shares of Series A Preferred Stock held by it relative to the total number of shares of Series A Preferred Stock then outstanding multiplied by the Cap. Notwithstanding the foregoing, the holders of the Series A Preferred Stock are not entitled to vote together with the Common Stock on an as-if-converted-to-Common-Stock-basis with regard to the approval of the issuance of Units upon conversion of the Series A-1 Preferred Stock and the issuance of all Common Stock upon conversion of the Series A Preferred Stock.

Dividend Rights

Prior to the Stockholder Approval, dividends will accrue, on all issued and outstanding shares of Series A Preferred Stock, prior to and in preference to all other shares of capital stock of the Company, at an annual rate of eight percent (8%) compounded annually on the Original Per Share Price (plus any such accreted compounded amounts); provided that such annual dividend rate shall increase to fourteen percent (14%) if the Stockholder Approval is not obtained at the first meeting of stockholders following the Issuance Date (collectively, the "Accruing Dividends"). If such dividends are not declared and paid in cash, the dividend amounts will be added to the aggregate Liquidation Preference then outstanding of the Series A Preferred Stock (such dividends will accumulate and will be included (i) in the payments made upon redemption or Liquidation and (ii) for purposes of conversion and voting, but not to exceed 19.9% of the number of shares of Common Stock outstanding as of the Signing Date without the Stockholder Approval).

At all times following the Issuance Date, while shares of Series A Preferred Stock are issued and outstanding, holders of Series A Preferred Stock shall be entitled to receive, and the Company shall pay, dividends on shares of Series A Preferred Stock equal (on an as-if-converted-to-Common-Stock basis and without regard to any limitations on conversion set forth herein or otherwise) to and in the same form as dividends (other than dividends in the form of Common Stock, which shall be made in accordance with the terms of the Certificate of Designation) actually paid on shares of the Common Stock when, as and if such dividends (other than dividends in the form of Common Stock, which shall be made in accordance with the terms of the Certificate of Designation) are paid on shares of the Common Stock.

Liquidation Rights

Prior to the Stockholder Approval, in the event of any voluntary or involuntary liquidation, dissolution or winding up of the Company, including a change of control transaction, or Deemed Liquidation Event (any such event, a “Liquidation”) the holders of shares of Series A Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Company available for distribution to its stockholders, and in the event of a Deemed Liquidation Event, the holders of shares of Series A Preferred Stock then outstanding shall be entitled to be paid out of the consideration payable to stockholders in such Deemed Liquidation Event or the other proceeds available for distribution to stockholders, before any payment shall be made to the holders of any other shares of capital stock of the Company by reason of their ownership thereof, an amount per share equal to the greater of (i) one times (1x) the Original Per Share Price, *plus* any Accruing Dividends accrued but unpaid thereon, whether or not declared, together with any other dividends declared but unpaid thereon (the “Liquidation Preference”) or (ii) such amount per share as would have been payable had all shares of Series A Preferred Stock been converted into Common Stock (without regard to any limitations on conversion set forth in the Certificate of Designation or otherwise) immediately prior to such Liquidation (the amount payable pursuant to this sentence is hereinafter referred to as the “Series A Liquidation Amount”). If upon any such Liquidation, the assets of the Company available for distribution to its stockholders shall be insufficient to pay the holders of shares of Series A Preferred Stock the full Liquidation Preference, the holders of shares of Series A Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full. After the payment in full of all Series A Liquidation Amount, the remaining assets of the Company available for distribution to its stockholders or, in the case of a Deemed Liquidation Event, the consideration not payable to the holders of shares of Series A Preferred Stock pursuant to the Certificate of Designation shall be distributed among the holders of shares of Common Stock, pro rata based on the number of shares held by each such holder.

Following the Stockholder Approval, upon any Liquidation, the assets of the Company available for distribution to its stockholders shall be distributed among the holders of the shares of Series A Preferred Stock and Common Stock, pro rata based on the number of shares held by each such holder, treating for this purpose all shares of Series A Preferred Stock as if they had been converted to Common Stock pursuant to the terms of the Certificate of Designation immediately prior to such Liquidation, without regard to any limitations on conversion set forth in the Certificate of Designation or otherwise.

Conversion Rights

Subject to the terms and limitations contained in the Certificate of Designation, on the tenth (10th) Trading Day following the announcement of the Stockholder Approval, each share of Series A-1 Preferred Stock automatically converted into a Unit. Subject to the foregoing and the limitations set forth in the Certificate of Designation, at the option of the holder, each share of Series A-2 Preferred Stock, Series A-3 Convertible Preferred Stock, Series A-4 Convertible Preferred Stock or Series A-5 Convertible Preferred Stock shall be convertible into one share of Common Stock.

Redemption Rights

Unless prohibited by Delaware law governing distributions to stockholders, in the event the Stockholder Approval is not obtained within one (1) year following the Issuance Date, shares of Series A Preferred Stock shall be redeemed by the Company at a price equal to the then Liquidation Preference at any time for up to three (3) years following the Issuance Date commencing not more than sixty (60) days after receipt by the Company at any time on or after the one (1) year anniversary of the Issuance Date of written notice from the holders of a majority of the then outstanding shares of Series A Preferred Stock, voting together as a single class (the “Redemption Request”) requesting redemption of all shares of Series A Preferred Stock (such date, the “Redemption Date”). Upon receipt of a Redemption Request, the Company shall apply all of its assets to any such redemption, and to no other corporate purpose, except to the extent prohibited by Delaware law governing distributions to stockholders. On the Redemption Date, the Company shall redeem, on a pro rata basis in accordance with the number of shares of Series A Preferred Stock owned by each holder, the total number of shares of Series A Preferred Stock outstanding immediately prior to the Redemption Date; provided, however, that Excluded Shares shall not be redeemed and shall be excluded from the calculations set forth in this sentence. If, on the Redemption Date, Delaware law governing distributions to stockholders prevents the Company from redeeming all shares of Series A Preferred Stock to be redeemed, the Company shall ratably redeem the maximum number of shares that it may redeem consistent with such law, and shall redeem the remaining shares as soon as it may lawfully do so under such law.

The foregoing summary of the terms of the Series A Preferred Stock is qualified in its entirety by reference to the text of the Certificate of Designation, which is filed hereto as Exhibit 3.3 and is incorporated herein by reference.

Warrants

As of June 30, 2023, there were outstanding warrants to purchase an aggregate of 4,784,193 shares of our Common Stock at a weighted average exercise price of \$6.00 per share not including the warrants issued pursuant to the Securities Purchase Agreement.

Private Placement Warrants

Additionally, as of July 11, 2023, there were 47,852,430 outstanding Tranche A Warrants to purchase an aggregate of 47,852,430 shares of our Series A-3 Convertible Preferred Stock at a weighted average exercise price of \$0.54 per share, 43,502,206 outstanding Tranche B Warrants to purchase an aggregate of 43,502,206 shares of our Series A-4 Convertible Preferred Stock at a weighted average exercise price of \$0.59 per share, and 69,603,531 outstanding Tranche C Warrants to purchase an aggregate of 69,603,531 shares of our Series A-5 Convertible Preferred Stock at a weighted average exercise price of \$0.74 per share.

The Tranche A Warrants are exercisable for an aggregate exercise price of approximately \$25 million until 21 days following our announcement of receipt of FDA approval for LDC, the Tranche B Warrants are exercisable for an aggregate exercise price of approximately \$25 million until 21 days following our announcement of receipt of TDAPA approval for LDC, and the Tranche C Warrants are exercisable for an aggregate exercise price of approximately \$50 million until 21 days following four quarters of commercial sales of LDC following receipt of TDAPA approval.

Applicable Anti-Takeover Law

Board of Directors Vacancies

Our Bylaws authorize only our board of directors to fill vacant directorships. In addition, the number of directors constituting our board of directors may be set only by resolution of the majority of the incumbent directors.

Special Meeting of Shareholders

Our Bylaws provide that special meetings of our shareholders may be called only by the Chief Executive Officer, the Chairman of the Board, or a majority of the board of directors.

Advance Notice Requirements for Shareholder Proposals and Director Nominations

Our Bylaws provide that shareholders seeking to bring business before our annual meeting of shareholders, or to nominate candidates for election as directors at our annual meeting of shareholders, must provide timely notice of their intent in writing. To be timely, a shareholder's notice must be delivered to our secretary at our Company's principal executive offices not later than the close of business on the 90th day nor earlier than the close of business on the 120th day prior to the first anniversary of the preceding year's annual meeting; provided, however, that if the date of the annual meeting is more than 30 days before or more than 60 days after such anniversary date, or if no annual meeting was held in the preceding year, notice by the stockholder to be timely must be so delivered not earlier than the close of business on the 120th day prior to such annual meeting and not later than the close of business on the later of the 90th day prior to such annual meeting or the 10th day following the day on which a public announcement of the date of such meeting is first made. These provisions may preclude our shareholders from bringing matters before our annual meeting of shareholders or from making nominations for directors at our annual meeting of shareholders.

Authorized but Unissued Share

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

Exclusive Forum

Our Certificate of Incorporation, provides that unless we consent in writing to the selection of an alternative forum, the State of Delaware is the sole and exclusive forum for: (i) any derivative action or proceeding brought on behalf of us, (ii) any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee of our Company to us or our stockholders, (iii) any action asserting a claim against us, our directors, officers or employees arising pursuant to any provision of the Delaware General Corporation Law (the “DGCL”) or our Amended and Restated Certificate of Incorporation or our Amended and Restated Bylaws or (iv) any action asserting a claim against us, our directors, officers, employees or agents governed by the internal affairs doctrine, except for, as to each of (i) through (iv) above, any claim as to which the Court of Chancery determines that there is an indispensable party not subject to the jurisdiction of the Court of Chancery (and the indispensable party does not consent to the personal jurisdiction of the Court of Chancery within ten days following such determination), which is vested in the exclusive jurisdiction of a court or forum other than the Court of Chancery, or for which the Court of Chancery does not have subject matter jurisdiction. This exclusive forum provision would not apply to suits brought to enforce any liability or duty created by the Securities Act, the Exchange Act, or other federal securities laws or any other claim for which the federal courts have exclusive jurisdiction. To the extent that any such claims may be based upon federal law claims, Section 27 of the Exchange Act creates exclusive federal jurisdiction over all suits brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder.

Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder. However, our Amended and Restated Certificate of Incorporation contains a federal forum provision which provides that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States of America will be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock are deemed to have notice of and consented to this provision. The Supreme Court of Delaware has held that this type of exclusive federal forum provision is enforceable. There may be uncertainty, however, as to whether courts of other jurisdictions would enforce this provision, if applicable.

These choice of forum provisions may limit a stockholder’s ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees. Alternatively, if a court were to find our choice of forum provisions contained in our Amended and Restated Certificate of Incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our business, results of operations, and financial condition.

Transfer Agent and Registrar

Our transfer agent and registrar is Pacific Stock Transfer Company whose address is 6725 Via Austi Pkwy, Suite 300, Las Vegas, NV 89119.

Listing

Our Common Stock is listed on The Nasdaq Capital Market under the symbol “UNCY.”

PLAN OF DISTRIBUTION

Each selling stockholder and any of their pledgees, assignees and successors-in-interest may, from time to time, sell any or all of their securities covered hereby on the principal Trading Market or any other stock exchange, market or trading facility on which the securities are traded or in private transactions. "Trading Market" means any of the following markets or exchanges on which the Company's Common Stock is listed or quoted for trading on the date in question: the NYSE American, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, the New York Stock Exchange, OTCQB or OTCQX (or any successors to any of the foregoing). These sales may be at fixed or negotiated prices. A selling stockholder may use any one or more of the following methods when selling securities:

- 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;
- 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 supplement to this prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with FINRA Rule 2121; and in the case of a principal transaction a markup or markdown in compliance with FINRA Rule 2121.

In connection with the sale of the securities or interests therein, the selling stockholders 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 stockholders 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 us 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 securities. We have agreed to indemnify the selling stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

We have agreed to keep this prospectus effective until the earlier to occur of: (i) such time that all Registrable Shares (as defined in the Securities Purchase Agreement) have been resold, or (ii) such time as such Shares no longer remain Registrable Shares. 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 issuance of the securities offered hereby will be passed upon for us by Sheppard, Mullin, Richter & Hampton LLP, New York, New York. Additional legal matters may be passed upon for us or any underwriters, dealers, or agents by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The financial statements as of and for the years ended December 31, 2022 and 2021, included in our Annual Report on Form 10-K for the year ended December 31, 2022, have been audited by Mayer Hoffman McCann P.C., independent registered public accounting firm, as set forth in their report, and have been incorporated herein by reference in reliance on the report of Mayer Hoffman McCann P.C., given on the authority of such firm as experts in auditing and accounting in giving said reports.

WHERE YOU CAN FIND MORE INFORMATION

We are a reporting company and file annual, quarterly and current reports, proxy statements and other information with the SEC. We have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the sale, from time to time, of the shares of Common Stock held by the selling stockholders named in this prospectus and any applicable prospectus supplement.

This prospectus does not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information with respect to us and the securities being offered under this prospectus, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement.

You may read and copy the registration statement, as well as our reports, proxy statements and other information, on the SEC’s website at <http://www.sec.gov>. You can also obtain copies of materials we file with the SEC from our website found at www.unicycive.com. Information on our website does not constitute a part of, nor is it incorporated in any way, into this prospectus and should not be relied upon in connection with making an investment decision.

INCORPORATION OF DOCUMENTS BY REFERENCE

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

The following documents are incorporated by reference into this prospectus and any applicable prospectus supplement:

- our Annual Report on [Form 10-K](#) for the fiscal year ended December 31, 2022, filed with the SEC on March 31, 2023;
- our Quarterly Report on [Form 10-Q](#) for the fiscal quarter ended March 31, 2023, filed with the SEC on May 16, 2023;
- our Current Reports on Form 8-K (other than Current Reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items) filed with the SEC on [February 2, 2023](#), [February 7, 2023](#), [March 2, 2023](#), [March 6, 2023](#), [March 30, 2023](#), [April 10, 2023](#), [May 23, 2023](#), [June 26, 2023](#) and [June 30, 2023](#);
- our definitive Proxy Statement on [Schedule 14A](#) for our 2023 Annual Meeting of Shareholders, filed with the SEC on April 28, 2023;
- the description of our Common Stock contained in our registration statement on [Form 8-A](#) filed with the SEC on July 6, 2021, including any amendments or reports filed with the SEC for the purposes of updating such description.

All documents subsequently filed by us (other than Current Reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items unless such Form 8-K expressly provides to the contrary) with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made after the date of the initial filing of the registration statement of which this prospectus forms a part and prior to effectiveness of such registration statement, until we file a post-effective amendment that indicates the termination of the offering of the shares of Common Stock made by this prospectus are deemed to be incorporated by reference into this prospectus. Such future filings will become a part of this prospectus from the respective dates that such documents are filed with the SEC.

Any statement contained herein or in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes hereof to the extent that such statement contained herein or in any other subsequently filed document, which is also incorporated or deemed to be incorporated 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.

The documents incorporated by reference into this prospectus are also available on our corporate website at www.unicycive.com. Information contained on, or that can be accessed through, our website is not part of this prospectus, and you should not consider information on our website to be part of this prospectus or any prospectus supplement unless specifically incorporated herein by reference. We will provide to each person, including any beneficial owner, to whom a prospectus is delivered a copy of any or all of the documents incorporated by reference in this prospectus and any prospectus supplement free of charge upon request for such documents in writing at the below address or by telephone at (650) 351-4495:

Unicycive Therapeutics, Inc.
4300 El Camino Real, Suite 210
Los Altos, California 94022
Attention: Secretary



111,017,635 Shares of Common Stock

PROSPECTUS

, 2023

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following table sets forth an estimate of the fees and expenses relating to the issuance and distribution of the securities being registered hereby, other than underwriting discounts and commissions, all of which shall be borne by the selling stockholders. All of such fees and expenses, except for the SEC Registration Fee, are estimated:

SEC registration fee	\$	14,926
Legal fees and expenses	\$	25,000
Printing fees and expenses	\$	5,000
Accounting fees and expenses	\$	15,000
Miscellaneous fees and expenses	\$	5,074
Total	\$	65,000

Item 15. Indemnification of Officers and Directors.

Section 102 of the General Corporation Law of the State of Delaware (the “DGCL”) permits a corporation to eliminate the personal liability of directors of a corporation to the corporation or its stockholders for monetary damages for a breach of fiduciary duty as a director, except where the director breached his duty of loyalty, failed to act in good faith, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of Delaware corporate law or obtained an improper personal benefit. Our amended and restated certificate of incorporation, as amended, provides that no director of the Company shall be personally liable to it or its stockholders for monetary damages for any breach of fiduciary duty as a director, notwithstanding any provision of law imposing such liability, except to the extent that the DGCL prohibits the elimination or limitation of liability of directors for breaches of fiduciary duty.

Section 145 of the DGCL provides that a corporation has the power to indemnify a director, officer, employee, or agent of the corporation, or a person serving at the request of the corporation for another corporation, partnership, joint venture, trust or other enterprise in related capacities against expenses (including attorneys’ fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with an action, suit or proceeding to which he was or is a party or is threatened to be made a party to any threatened, ending or completed action, suit or proceeding by reason of such position, if such person acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation, and, in any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful, except that, in the case of actions brought by or in the right of the corporation, no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or other adjudicating court determines that, despite the adjudication of liability but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Court of Chancery or such other court shall deem proper.

Our Certificate of Incorporation and Bylaws will provide indemnification for our directors and officers to the fullest extent permitted by the DGCL. We will indemnify each person who was or is a party or threatened to be made a party to any threatened, pending action by or in the right of us by reason of the fact that he or she is or was, or has agreed to become, a director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (all such persons being referred to as an "Indemnitee"), or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding and any appeal therefrom, if such Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, and, with respect to any criminal action or proceeding, he or she had no reasonable cause to believe his or her conduct was unlawful. Our amended and restated certificate of incorporation, as amended, and bylaws provide that we will indemnify any Indemnitee who was or is a party to an action or suit by or in the right of us to procure a judgment in our favor by reason of the fact that the Indemnitee is or was, or has agreed to become, a director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise, or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees) and, to the extent permitted by law, amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding, and any appeal therefrom, if the Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, except that no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to us, unless a court determines that, despite such adjudication but in view of all of the circumstances, he or she is entitled to indemnification of such expenses. Notwithstanding the foregoing, to the extent that any Indemnitee has been successful, on the merits or otherwise, he or she will be indemnified by us against all expenses (including attorneys' fees) actually and reasonably incurred in connection therewith. Expenses must be advanced to an Indemnitee under certain circumstances.

We have entered into separate indemnification agreements with each of our directors and executive officers. Each indemnification agreement provides, among other things, for indemnification to the fullest extent permitted by law and our amended and restated certificate of incorporation, as amended, and bylaws against any and all expenses, judgments, fines, penalties and amounts paid in settlement of any claim. The indemnification agreements will provide for the advancement or payment of all expenses to the indemnitee and for the reimbursement to us if it is found that such indemnitee is not entitled to such indemnification under applicable law and our amended and restated certificate of incorporation and amended and restated bylaws.

We maintain a general liability insurance policy that covers certain liabilities of directors and officers of our corporation arising out of claims based on acts or omissions in their capacities as directors or officers.

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

Item 16. Exhibits.

a) Exhibits.

Exhibit Numbers	Exhibit Description
3.1	<u>Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.4 to Amendment No. 2 to Form S-1 filed on June 21, 2021)</u>
3.2	<u>Amended and Restated Bylaws (incorporated by reference to Exhibit 3.5 to Amendment No. 2 to Form S-1 filed on June 21, 2021)</u>
3.3	<u>Certificate of Designation of Preferences, Rights and Limitations of the Series A Convertible Voting Preferred Stock (incorporated by reference to Exhibit 3.1 to Form 8-K filed on March 6, 2023)</u>
4.1	<u>Form of Securities Purchase Agreement, dated March 3, 2023, by and between Unicycive Therapeutics, Inc. and the purchasers named therein (incorporated by reference to Exhibit 10.1 to Form 8-K filed on March 6, 2023)</u>
4.2	<u>Form of Tranche A Warrant (incorporated by reference to Exhibit 4.2 to Form 8-K filed on March 6, 2023)</u>
4.3	<u>Form of Tranche B Warrant (incorporated by reference to Exhibit 4.3 to Form 8-K filed on March 6, 2023)</u>
4.4	<u>Form of Tranche C Warrant (incorporated by reference to Exhibit 4.4 to Form 8-K filed on March 6, 2023)</u>
4.5	<u>Form of Specimen Stock Certificate for Series A-1 Preferred Stock (incorporated by reference to Exhibit 4.1 to Form 8-K filed on March 6, 2023)</u>
5.1*	<u>Opinion of Sheppard, Mullin, Richter & Hampton LLP as to the legality of the securities being registered</u>
23.1*	<u>Consent of Mayer Hoffman McCann P.C.</u>
23.2*	<u>Consent of Sheppard, Mullin, Richter & Hampton LLP (included in Exhibit 5.1)</u>
24.1*	<u>Power of Attorney (included on signature pages to the registration statement)</u>
107*	<u>Filing Fee Table</u>

* Filed herewith.

Item 17. Undertakings.

(a) The undersigned Registrant hereby undertakes:

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

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

(ii) to reflect in the prospectus any facts or events arising after the effective date of the Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the Registration Statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high 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 20% change in the maximum aggregate offering price set forth in the "Calculation of Filing Fee" table in the effective Registration Statement; and

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

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

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

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

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

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

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

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

- (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
- (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
- (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
- (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser;

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

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

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Los Altos, State of California, on July 12, 2023.

UNICYCIVE THERAPEUTICS, INC.

By: /s/ Shalabh Gupta
Shalabh Gupta
Chief Executive Officer, President and
Chairman of the Board of Directors
(Principal Executive Officer)

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each individual whose signature appears below constitutes and appoints Shalabh Gupta, his/her true and lawful attorney-in-fact and agent with full power of substitution and re-substitution, for him/her and in his/her name, place and stead, in any and all capacities to sign any or all amendments (including, without limitation, post-effective amendments) to this Registration Statement, any related Registration Statement filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended, and any or all pre- or post-effective amendments thereto, and to file the same, with all exhibits thereto, and all other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully for all intents and purposes as he or she might or could do in person, hereby ratifying and confirming that said attorney-in-fact and agent, or any substitute or substitutes for him, may lawfully do or cause to be done by virtue hereof.

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

Signature	Title	Date
<u>/s/ Shalabh Gupta</u> Shalabh Gupta	Chief Executive Officer, President and Chairman of the Board of Directors (Principle Executive Officer)	July 12, 2023
<u>/s/ John Townsend</u> John Townsend	Chief Financial Officer (Principal Financial and Accounting Officer)	July 12, 2023
<u>/s/ John Ryan, M.D., Ph.D.</u> John Ryan, M.D., Ph.D.	Director	July 12, 2023
<u>/s/ Sandeep Laumas, M.D.</u> Sandeep Laumas, M.D.	Director	July 12, 2023
<u>/s/ Gaurav Aggarwal, M.D.</u> Gaurav Aggarwal, M.D.	Director	July 12, 2023



July 12, 2023

VIA ELECTRONIC MAIL

Unicycive Therapeutics, Inc.
4300 El Camino Real, Suite 210
Los Altos, CA 94022

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to Unicycive Therapeutics, Inc., a Delaware corporation (the “Company”), in connection with the issuance of this opinion which relates to a registration statement on Form S-3 (the “Registration Statement”) filed by the Company with the Securities and Exchange Commission under the Securities Act of 1933, as amended (the “Securities Act”). The Registration Statement covers the resale of up to 111,017,635 shares of the Company’s common stock, \$0.001 par value per share (the “Common Stock”), consisting of shares of Common Stock held by the selling stockholders and shares of Common Stock underlying the shares of Series A-2 Convertible Preferred Stock and Series A-3 Convertible Preferred Stock issuable to the selling stockholders (collectively, the “Shares”) pursuant to the terms of that certain Securities Purchase Agreement, dated as of March 3, 2023, by and among the Company and the investors named therein.

This opinion letter is being delivered in accordance with the requirements of Item 601(b)(5)(i) of Regulation S-K under the Securities Act, and no opinion is expressed herein as to any matter pertaining to the contents of the Registration Statement.

In connection with the issuance of this opinion letter, we have examined originals or copies, certified or otherwise identified to our satisfaction, of:

- a. the Registration Statement, including the prospectus contained therein and all exhibits thereto;
- b. specimen certificates representing the Common Stock, Series A-1 Convertible Preferred Stock, Series A-2 Convertible Preferred Stock, and Series A-3 Convertible Preferred Stock;
- c. the Tranche A Warrants;
- d. the Certificate of Designation of Preferences, Rights and Limitations of Series A Convertible Voting Preferred Stock, as presently in effect (the “Series A COD”);
- e. the Certificate of Incorporation of the Company, as amended and presently in effect (the “Charter”);
- f. the Bylaws of the Company, as amended and presently in effect (the “Bylaws”); and
- g. certain resolutions adopted by the Board of Directors of the Company relating to the issuance of the Shares.

We have also examined originals or copies, certified or otherwise identified to our satisfaction, of such records of the Company and such agreements, certificates and receipts of public officials, certificates of officers or other representatives of the Company and others, and such other documents as we have deemed necessary or appropriate as a basis for the opinions stated below.

In our examination, we have assumed the genuineness of all signatures, including endorsements, the legal capacity and competency of all natural persons, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as facsimile, electronic, certified or photostatic copies, and the authenticity of the originals of such copies. As to any facts relevant to the opinions stated herein that we did not independently establish or verify, we have relied upon statements and representations of officers and other representatives of the Company and others and of public officials.



For the purposes of this opinion letter, we have assumed that at the time of issuance of the Shares, the Charter, the Bylaws, and the Series A COD, as applicable, will not have been modified or amended and will be in full force and effect. In addition, it is understood that this opinion is to be used only in connection with the offer and sale of the securities being registered while the Registration Statement is effective under the Securities Act.

Based upon the foregoing and subject to the qualifications and assumptions stated herein, we are of the following opinions:

1. The shares of Common Stock, the shares of Series A-2 Convertible Preferred Stock and the shares of Common Stock issuable upon conversion of the Series A-2 Convertible Preferred Stock held by the selling stockholders have been duly authorized by all requisite corporate action on the part of the Company under the General Corporation Law of the State of Delaware (the “DGCL”) and are or will be validly issued, fully paid and non-assessable.

2. The shares of Series A-3 Convertible Preferred Stock issuable upon exercise of the Tranche A Warrants, and the shares of Common Stock issuable upon conversion of the Series A-3 Convertible Preferred Stock, when delivered and paid for in accordance with the terms of the Tranche A Warrants and when evidence of the issuance thereof is duly recorded in the Company’s books and records, will be validly issued, fully paid and non-assessable.

The opinion which we render herein is limited to those matters governed by the DGCL as of the date hereof. Our opinion expressed herein is as of the date hereof, and we assume no obligation to revise or supplement the opinion rendered herein should the above-referenced laws be changed by legislative or regulatory action, judicial decision or otherwise. We express no opinion as to whether, or the extent to which, the laws of any particular jurisdiction apply to the subject matter hereof.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement. We also hereby consent to the reference to our firm under the heading “Legal Matters” in the Registration Statement. In giving this consent, we do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the General Rules and Regulations under the Securities Act.

This opinion letter is rendered as of the date first written above and we disclaim any obligation to advise you of facts, circumstances, events or developments which hereafter may be brought to our attention and which may alter, affect or modify the opinion expressed herein. Our opinion is expressly limited to the matters set forth above and we render no opinion, whether by implication or otherwise, as to any other matters relating to the Company, the Shares, or any other agreements or transactions that may be related thereto or contemplated thereby. We are expressing no opinion as to any obligations that parties other than the Company may have under or in respect of the Shares or as to the effect that their performance of such obligations may have upon any of the matters referred to above. No opinion may be implied or inferred beyond the opinion expressly stated above.

Very truly yours,

/s/ Sheppard, Mullin, Richter & Hampton LLP

SHEPPARD, MULLIN, RICHTER & HAMPTON LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement on Form S-3 and related Prospectus, of our report dated March 30, 2023 with respect to the financial statements of Unicycive Therapeutics, Inc. (Company) as of December 31, 2022 and 2021 and for each of the two years in the period ended December 31, 2022, included in the Company's Annual Report on Form 10-K for the year ended December 31, 2022, and to the reference to us under the heading "Experts" in the related Prospectus which is part of this Registration Statement.

/s/ Mayer Hoffman McCann P.C.
San Diego, California
July 12, 2023

Calculation of Filing Fee Tables

Form S-3
(Form Type)

Unicycive Therapeutics, Inc.
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered and Carry Forward Securities

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Newly Registered Securities								
Fees to Be Paid	Equity	Common Stock, par value \$0.001 per share	Rule 457(c)	111,017,635 Shares ⁽¹⁾	\$ 1.22 ⁽²⁾	\$ 135,441,515 ⁽²⁾	\$110.20 per \$1,000,000	\$ 14,926
Fees Previously Paid	-	-	-	-	-	-	-	-
		Total Offering Amounts				\$ 135,441,515		\$ 14,926
		Total Fees Previously Paid						-
		Total Fee Offsets						-
		Net Fee Due						\$ 14,926

- (1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the “Securities Act”), this registration statement includes an indeterminate number of additional shares that may be offered and sold to prevent dilution resulting from stock splits, stock dividends or similar transactions.
- (2) Estimated solely for the purpose of calculating the amount of registration fee pursuant to Rule 457(c) under the Securities Act based upon the average of the high and low sale prices of the registrant’s shares of common stock on July 10, 2023, as reported on the Nasdaq Capital Market.