

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM S-3

REGISTRATION STATEMENT UNDER
THE SECURITIES ACT OF 1933

ENSYSCE BIOSCIENCES, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or Other Jurisdiction of
Incorporation or Organization)

2834

(Primary Standard Industrial
Classification Code Number)

82-2755287

(I.R.S. Employer
Identification Number)

**7946 Ivanhoe Avenue, Suite 201
La Jolla, California 92037
(858) 263-4196**

(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

**Dr. Lynn Kirkpatrick
Chief Executive Officer & Director
7946 Ivanhoe Avenue, Suite 201
La Jolla, California 92037
(858) 263-4196**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Gregory J. Rubis, Esq.
Eric D. Kline, Esq.
Troutman Pepper Locke LLP
104 Carnegie Center, Suite 203
Princeton, New Jersey 08540
Telephone: (609) 452-0808

Approximate date of commencement of proposed sale to the public: As soon as practicable after this registration statement becomes effective.

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

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

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

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

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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 the 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 which specifically states that this registration statement shall thereafter become effective in accordance with section 8(a) of the Securities Act of 1933 or until the registration statement shall become effective on such date as the Commission acting pursuant to said section 8(a), may determine.

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

Subject to Completion. Dated October [__], 2026.

PRELIMINARY PROSPECTUS



ENSYSCE BIOSCIENCES, INC.

Up to 433,907,000 Shares of Common Stock

This prospectus (the “*prospectus*”) relates to the offer and the resale by the selling security holders named in this prospectus (the “*Selling Securityholders*”) of up to an aggregate of 433,907,000 shares of common stock, par value \$0.0001 per share (“*common stock*”), issuable to certain Selling Securityholders upon the conversion of our Series C Non-Voting Convertible Preferred Stock, par value \$0.0001 per share (“*preferred stock*”) into shares of common stock, which consists of up to (i) 282,122,000 shares of common stock that are issuable upon conversion of preferred stock issued or to be issued by us in a merger transaction (the “*Merger*”) pursuant to that certain Agreement and Plan of Merger (the “*Merger Agreement*”), dated as of August 5, 2026, by and among us, PHRMA Merger Sub I, Inc., a Delaware corporation (“*First Merger Sub*”), PHRMA Merger Sub II, LLC, a Delaware limited liability company (“*Second Merger Sub*”), and Cy Biopharma, Inc., and other agreements; (ii) 120,260,000 shares of common stock issuable upon conversion of preferred stock issued or to be issued by us in a private placement transaction (the “*Financing*”) pursuant to that certain Securities Purchase Agreement, dated as of August 5, 2026, by and among us and the purchasers named therein (the “*Securities Purchase Agreement*”); (iii) 22,166,000 shares of common stock issuable upon conversion of preferred stock to be issued by us, subject to achievement of a clinical trial milestone, in a private placement transaction pursuant to certain side letter agreements (the “*Side Letter Agreements*”); (iv) 7,183,000 shares of common stock that are issuable upon conversion of preferred stock issued by us in connection with the execution of that certain Omnibus Amendment and Termination Agreement (the “*OTA*”), dated as of August 5, 2026, between us and a Selling Securityholder; and (v) 2,176,000 shares of common stock that are issuable upon conversion of preferred stock issued by us in connection with the execution of an amendment to a contractual obligation we have (the “*Manufacture Agreement*”), dated as of July 1, 2026, between us and the contract manufacturer of our products. See “*Selling Securityholders*” beginning on page 13 of this prospectus.

Our registration of the securities covered by this prospectus does not mean that either we or the Selling Securityholders will issue, offer or sell, as applicable, any of the securities being registered. The Selling Securityholders may offer, sell, or distribute all or a portion of the securities being registered publicly or through private transactions at prevailing market prices or at negotiated prices. We will not receive any of the proceeds from the sales of common stock by the Selling Securityholders pursuant to this prospectus. We will bear all costs, expenses and fees in connection with the registration of these securities, including with regard to compliance with state securities or “blue sky” laws. The Selling Securityholders will bear all commissions and discounts, if any, attributable to their sale of shares of common stock. See “*Plan of Distribution*” beginning on page 19 of this prospectus.

Our common stock is listed on The Nasdaq Capital Market under the symbol “*ENSC*.” On October 19, 2026, the last reported sale price of common stock on The Nasdaq Capital Market was \$0.5029 per share.

We may amend or supplement this prospectus from time to time by filing amendments or supplements as required. You should read this prospectus and any prospectus supplement or amendment carefully before you invest in our securities.

Our business and investing in our securities involve a high degree of risk. See “*Risk Factors*” beginning on page 5 of this prospectus.

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

Prospectus dated [__], 2026.

TABLE OF CONTENTS

	<u>Page(s)</u>
<u>ABOUT THIS PROSPECTUS</u>	1
<u>CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS</u>	2
<u>PROSPECTUS SUMMARY</u>	3
<u>THE OFFERING</u>	4
<u>RISK FACTORS</u>	5
<u>RECENT EVENTS</u>	6
<u>USE OF PROCEEDS</u>	8
<u>DESCRIPTION OF CAPITAL STOCK</u>	9
<u>SELLING SECURITYHOLDERS</u>	13
<u>PLAN OF DISTRIBUTION</u>	19
<u>LEGAL MATTERS</u>	21
<u>EXPERTS</u>	21
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	21
<u>DOCUMENTS INCORPORATED BY REFERENCE</u>	22

ABOUT THIS PROSPECTUS

Ensysis Biosciences, Inc. and its consolidated subsidiaries is referred to herein as “Ensysis,” the “Company,” “we,” “us,” and “our,” unless otherwise specified or the context indicates otherwise. As the context requires, “Cy” refers to Cy Biopharma, Inc., a Delaware corporation, prior to the Merger and Cy Biopharma, LLC, a Delaware limited liability company, after the Merger.

This prospectus is part of a registration statement on Form S-3 (“*registration statement*”) that we filed with the SEC. Under the registration statement, the Selling Securityholders may, from time to time, sell in one or more offerings the common stock described in this prospectus.

You should rely only on the information contained in this prospectus. We have not authorized anyone to provide you with information other than the information that we have provided or incorporated by reference in this prospectus and your reliance on any unauthorized information or representation is at your own risk. This prospectus may be used only in jurisdictions where offers and sales of these securities are permitted. You should assume that the information contained in this prospectus is accurate only as of the date of this prospectus, and that any information we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus or of any sale of our securities. Our business, financial condition, results of operations and prospects may have changed since those dates. This prospectus contains market data and industry statistics and forecasts that are based on independent industry publications and other publicly available information. Although we believe these sources are reliable, we do not guarantee the accuracy or completeness of this information and we have not independently verified this information. In addition, the market and industry data and forecasts that may be included in this prospectus may involve estimates, assumptions and other risks and uncertainties and are subject to change based on various factors, including those discussed under the heading “*Risk Factors*” contained in this prospectus. Accordingly, investors should not place undue reliance on this information.

The representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference herein were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

To the extent there is a conflict between the information contained in this prospectus, on the one hand, and the information contained in any document incorporated by reference filed with the SEC before the date of this prospectus, on the other hand, you should rely on the information in this prospectus. If any statement in a document incorporated by reference is inconsistent with a statement in another document incorporated by reference having a later date, the statement in the document having the later date modifies or supersedes the earlier statement.

Neither we nor the Selling Securityholders have authorized anyone to provide you with any information or to make any representations other than those contained in this prospectus, any post-effective amendment, or any applicable prospectus supplement prepared by or on behalf of us or to which we have referred you. We and the Selling Securityholders take no responsibility for and can provide no assurance as to the reliability of, any other information that others may give you. Neither we, nor the Selling Securityholders, will make an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus, any post-effective amendment and any applicable prospectus supplement to this prospectus is accurate only as of the date on its respective cover.

This prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All the summaries are qualified in their entirety by the actual documents. Copies of certain documents have been filed as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under “*Where You Can Find More Information*.”

We own or have rights to trademarks, trade names and service marks that we use in connection with the operation of our business. In addition, our name, logos and website name and address are our trademarks or service marks. Solely for convenience, in some cases, the trademarks, trade names and service marks referred to in this prospectus are listed without the applicable ®, ™ and SM symbols, but we will assert, to the fullest extent under applicable law, our rights to these trademarks, trade names and service marks. Other trademarks, trade names and service marks appearing in this prospectus are the property of their respective owners.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus includes statements that express our opinions, expectations, beliefs, plans, objectives, assumptions, or projections regarding future events or future results and therefore are, or may be deemed to be, “*forward-looking statements*.” These forward-looking statements can generally be identified by the use of forward-looking terminology, including the terms “*believes*,” “*estimates*,” “*anticipates*,” “*expects*,” “*seeks*,” “*projects*,” “*intends*,” “*plans*,” “*may*,” “*will*,” or “*should*” or, in each case, their negative or other variations or comparable terminology. These forward-looking statements include all matters that are not historical facts. They appear in several places throughout this prospectus and include statements regarding our intentions, beliefs or current expectations concerning, among other things, results of operations, financial condition, liquidity, prospects, growth, strategies and the markets in which we operate. Such forward-looking statements are based on available current market material and management’s expectations, beliefs and forecasts concerning future events impacting our company. Factors that may impact such forward-looking statements include:

- the Company has incurred and will incur substantial costs related to the Merger and the integration of Cy;
- the Company may fail to realize the anticipated benefits of the Merger;
- upon conversion of the preferred stock, existing holders of the common stock will experience substantial dilution of their ownership interest in the Company, which could materially reduce the value of their Company shareholdings;
- future results of the Company may suffer if it cannot effectively manage its expanded operations;
- the Company may be unable to retain Ensytex’s and/or Cy’s personnel, including key members of their management teams;
- the unaudited pro forma combined consolidated financial information of the Company and Cy is preliminary and the actual financial condition and results of operations of the combined company may differ materially;
- the Company’s directors, executive officers and principal stockholders will have substantial control over the Company, which could limit other stockholders’ ability to influence the outcome of corporate matters and key transactions;
- certain of the Company’s directors and executive officers may have other interests that may differ from, or are in addition to, the interests of the Company’s stockholders;
- the risk that our common stock will be delisted from The Nasdaq Stock Market LLC (“*Nasdaq*”) if we are not able to maintain compliance with applicable listing standards;
- the risk that psilocybin, the active ingredient in Cy’s product candidate, may remain subject to Schedule I or other controlled-substance restrictions, and that required registrations, licenses, quotas, security, recordkeeping or import and export authorizations may delay or prevent development or commercialization;
- the risk that adverse publicity, public perception or stigma concerning psilocybin and psychedelic therapies may delay approval or limit physician, patient, payor or market acceptance of Cy’s product candidate;
- the risk that clinical trials of Cy’s product candidate may be delayed, suspended or terminated, or may fail to demonstrate safety or efficacy, due to clinical holds, adverse events, enrollment or retention challenges, functional unblinding, expectancy bias or other trial-design and execution challenges;
- our estimates regarding expenses, revenue, capital requirements and timing and availability of and the need for additional financing will almost certainly not match actual amounts and timing;
- the need for substantial additional funding to complete the development and commercialization of our product candidates;
- the risk that our clinical trials may fail to replicate positive results from earlier preclinical studies or clinical trials conducted by us or third parties;
- the risk that the potential product candidates that we develop may not progress through clinical development or receive required regulatory approvals within expected timelines or at all;
- the risk that clinical trials may not confirm any safety, potency, or other product characteristics described or assumed by us;
- the risk that we will be unable to successfully market or gain market acceptance of our product candidates;
- the risk that our product candidates may not be beneficial to patients or successfully commercialized;
- the risk that we have overestimated the size of the target market, patients’ willingness to try new therapies, and the willingness of physicians to prescribe these therapies;
- effects of competition;
- the risk that third parties on which we depend for laboratory, clinical development, manufacturing, and other critical services will fail to perform satisfactorily;
- the risk that we will be unable to obtain and maintain sufficient intellectual property protection for our investigational products or will infringe the intellectual property protection of others;
- changes in our regulatory environment;
- the ability to attract and retain key scientific, medical, commercial, or management personnel;
- changes in our industry;
- other factors disclosed by us in reports incorporated by reference into this prospectus; and
- other factors beyond our control.

The forward-looking statements contained in this prospectus are based on our current expectations and beliefs concerning future developments and their potential effects on the Company. There can be no assurance that future developments affecting us will be those that we have anticipated. These forward-looking statements involve risks, uncertainties or other assumptions that may cause actual results or performance to be materially different from those expressed or implied by these forward-looking statements. These risks and uncertainties include, but are not limited to, those factors described under the heading “*Risk Factors*” in this prospectus. Should one or more of these risks or uncertainties materialize, or should any of the assumptions prove incorrect, actual results may vary in material respects from those projected in these forward-looking statements. We will not undertake any obligation to update or revise any forward-looking statements, whether because of new information, future events or otherwise, except as may be required under applicable securities laws.

PROSPECTUS SUMMARY

This summary may not contain all the information that you should consider before investing in securities. You should read the entire prospectus and the information incorporated by reference in this prospectus carefully, including “Risk Factors” and the financial data and related notes and other information incorporated by reference herein, before making an investment decision.

Company Overview

We were originally incorporated in the State of Delaware in April 2003. In June 2021, we merged with and into Leisure Acquisition Corporation (“LACQ”). As part of the transaction, LACQ changed its name to Ensysce Biosciences, Inc, and we became a publicly traded company.

On August 5, 2026, we completed our acquisition of Cy pursuant to the Merger Agreement, by and among us, First Merger Sub, Second Merger Sub and Cy. Our acquisition of Cy, the Merger, the Merger Agreement and related agreements, including our entering into the Securities Purchase Agreement and Side Letter Agreements, are discussed below under “Recent Events”.

The net proceeds from the Securities Purchase Agreement and Side Letter Agreements are expected to be used to advance Cy’s technology platform, which platform is based on serotonergic modulation of neural networks through the 5-HT_{2A} serotonin receptor and a neuroplastogenic approach intended to address neural circuitry associated with severe chronic and complex pain disorders. Cy’s technology platform includes CY200, a clinical-stage psilocybin-based therapy whose active ingredient has received U.S. Food and Drug Administration Orphan Drug Designation. CY200 is a psilocybin-predominant botanical extract being developed as an oral therapy for the treatment of Type 1 Complex Regional Pain Syndrome, a severe chronic pain disorder.

Smaller Reporting Company Status

We are a “smaller reporting company” as defined in the Securities Exchange Act of 1934, as amended (the “Exchange Act”), meaning that the market value of our stock held by non-affiliates is less than \$700 million and our annual revenue was less than \$100 million during the most recently completed fiscal year. As a result, we may take advantage of certain of the scaled disclosures available to smaller reporting companies, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended, and reduced disclosure obligations regarding executive compensation. We will continue to be a smaller reporting company until either (i) the market value of our stock held by non-affiliates is more than \$250 million or (ii) our annual revenue is more than \$100 million during the most recently completed fiscal year and the market value of our stock held by non-affiliates is more than \$700 million.

THE OFFERING

Issuer	Ensysce Biosciences, Inc.
Shares of common stock offered by the Selling Securityholders	Up to 433,907,000 shares of common stock
Shares of common stock outstanding immediately prior to this offering	19,456,794 shares of common stock (as of October 19, 2026)
Shares of common stock outstanding immediately prior to this offering plus shares of common stock issuable upon conversion of all preferred stock	453,363,794 shares of common stock
Plan of Distribution	Each Selling Securityholder will determine when and how it sells all or a portion of its shares of common stock offered pursuant to this prospectus. See “ <i>Plan of Distribution</i> .”
Use of Proceeds	We are not selling any securities under this prospectus and will not receive any proceeds from the sale of common stock by the Selling Securityholders pursuant to this prospectus. See “ <i>Use of Proceeds</i> .”
Nasdaq Symbol	“ENSC”
Risk Factors	See “ <i>Risk Factors</i> ” in this prospectus for a discussion of factors you should carefully consider before deciding to invest in our common stock.
Transfer Agent	The transfer agent and registrar for our common stock is Continental Stock Transfer & Trust Company.

RISK FACTORS

An investment in our securities involves a high degree of risk. You should carefully consider the risks and uncertainties described under “Risk Factors” in our Annual Report on Form 10-K for the fiscal year ended December 31, 2025, filed on March 30, 2026, which is incorporated herein by reference, and subsequent Quarterly Reports on Form 10-Q and our other filings with the SEC, all of which are incorporated herein by reference, together with the risk factors set forth below, before making an investment decision. The occurrence of one or more of the events or circumstances described in these risk factors, alone or in combination with other events or circumstances, may have an adverse effect on our business, cash flows, financial condition and results of operations. You should also carefully consider the following risk factors in addition to the other information included in this prospectus, including matters addressed in the section entitled “*Cautionary Note Regarding Forward-Looking Statements.*” We may face additional risks and uncertainties that are not presently known to us or that we currently deem immaterial, which may also impair our business or financial condition.

Risks Related to this Offering and Our Securities

Sales of shares of common stock registered for resale by the Selling Securityholders pursuant to this prospectus, or the perception that such sales may occur, could cause the market price of shares of common stock to decline.

Sales of shares of common stock in the public market pursuant to this prospectus or otherwise, or the perception that such sales may occur, could reduce the prevailing market price of shares of common stock and increase volatility. These sales or the perception of these sales could make it more difficult for us to (i) sell equity securities in the future at a time and price we deem appropriate and (ii) regain and maintain compliance with Nasdaq listing standards, including the minimum bid price requirement and the initial listing requirements applicable in connection with the change of control. The shares of common stock offered for resale pursuant to this prospectus, prior to issuance of those shares, represent approximately 2230% of our outstanding common stock as of October 19, 2026. The registration of these shares of common stock permits the Selling Securityholders to resell such shares while the registration statement of which this prospectus forms a part remains effective. In addition, the Lock-up Agreements (as defined below) covering certain holders of Cy capital stock (“*Cy Stockholders*”) and our directors and officers expire 180 days after the Closing (as defined below), after which additional shares of common stock may be sold. We may also enter into future financings involving debt, preferred stock or common stock, any of which could further depress the market price of common stock.

We will not receive any proceeds from the sale of the shares of common stock by the Selling Securityholders.

We are registering shares of common stock issuable upon conversion of preferred stock to permit the Selling Securityholders to resell those shares. We will not receive any proceeds from sales by the Selling Securityholders, and we will bear the expenses of registration.

The preferred stock cannot be converted into common stock without stockholder approval and completion of the Nasdaq initial listing process, and there is no guarantee these approvals will be obtained.

Under the Merger Agreement and the Securities Purchase Agreement, we agreed to hold a stockholders’ meeting to seek approval of the Meeting Proposals (as defined below). Nasdaq has notified us that the transaction with Cy constitutes a change of control requiring us to complete the Nasdaq initial listing application process, including satisfying the \$4.00 minimum bid price requirement, before our stockholders may approve the conversion of the preferred stock into common stock. Although support agreements have been entered into, there can be no assurance that these approvals will be obtained. If the approvals are not obtained, the holders of the preferred stock will continue to hold non-voting preferred stock, and the shares of common stock registered hereunder cannot be issued or resold. We may be required to hold additional stockholders’ meetings, which would be time-consuming and costly.

RECENT EVENTS

On August 5, 2026, we acquired Cy in accordance with the terms of the Merger Agreement, by and among the Company, First Merger Sub, Second Merger Sub and Cy. Pursuant to the Merger Agreement, First Merger Sub merged with and into Cy, pursuant to which Cy was the surviving corporation and became a wholly owned subsidiary of the Company (the “*First Merger*”). Immediately following the First Merger, Cy merged with and into Second Merger Sub, pursuant to which Second Merger Sub was the surviving entity and a wholly owned subsidiary of the Company.

Under the terms of the Merger Agreement, upon the consummation of the Merger on August 5, 2026 (the “*Closing*”), in exchange for the outstanding shares of capital stock of Cy immediately prior to the effective time of the First Merger, Ensysce issued to the equity holders of Cy the right to receive 282,122 shares of preferred stock. Each share of preferred stock is convertible into 1,000 shares of common stock, subject to certain conditions described below.

Pursuant to the Merger Agreement, Ensysce agreed to hold a stockholders’ meeting to submit the following matters to its stockholders for their consideration: (i) the approval of the conversion of shares of preferred stock into shares of common stock in accordance with the rules of Nasdaq (the “*Conversion Proposal*”) and (ii) if deemed necessary or appropriate by Ensysce or as otherwise required by applicable law or contract, the approval of an amendment to Ensysce’s certificate of incorporation, as amended, to authorize sufficient shares of common stock for the conversion of preferred stock issued pursuant to the Merger Agreement and/or to effectuate a reverse stock split for the purpose of maintaining compliance with Nasdaq listing standards (the “*Charter Amendment Proposal*” and together with the Conversion Proposal, the “*Meeting Proposals*”).

The Board of Directors of Ensysce (the “*Board*”) unanimously approved the Merger Agreement and the related transactions, and the consummation of the Merger, the concurrent Financing and the execution of the OATA and the Manufacture Agreement (each as described below and each of which imposes obligations on the Company described below) were not subject to approval of Company stockholders.

Support Agreements

In connection with the execution of the Merger Agreement, Ensysce and Cy entered into stockholder support agreements (the “*Company Stockholder Support Agreements*”) with certain of Ensysce’s stockholders (solely in their capacity as stockholders of Ensysce). Pursuant to the Company Stockholder Support Agreements, among other things, each of Ensysce stockholder parties thereto has agreed to vote or cause to be voted all of the shares of common stock owned by such stockholder in favor of the Meeting Proposals.

In connection with the execution of the Merger Agreement, Ensysce and Cy entered into stockholder support agreements (the “*Cy Stockholder Support Agreements*”) with certain Cy Stockholders (solely in their capacity as Cy Stockholders). Pursuant to the Cy Stockholder Support Agreements, among other things, each of the Cy Stockholders agreed to the terms and conditions of the Merger Agreement, to waive any dissenters’ rights and to release any claims such stockholder may have against Ensysce and Cy.

Lock-up Agreements

Concurrently and in connection with the execution of the Merger Agreement, certain Cy Stockholders as of immediately prior to the Closing, and certain directors and officers of Ensysce as of immediately prior to the Closing, entered into lock-up agreements with Ensysce and Cy, pursuant to which each such stockholder agreed to be subject to a 180-day lock-up on the sale or transfer of shares of Ensysce held by each such stockholder at the Closing, including those shares of preferred stock (including the shares of common stock into which such preferred stock is convertible) received by each such stockholder in the Merger (the “*Lock-up Agreements*”).

Private Placement and Securities Purchase Agreement

On August 5, 2026, Ensysce entered into the Securities Purchase Agreement with the purchasers party thereto (the “*Investors*”). Pursuant to the Securities Purchase Agreement, Ensysce agreed to issue and sell an aggregate of 120,260 shares of preferred stock (the “*PIPE Securities*”) for an aggregate purchase price of approximately \$43 million over two tranches. At the initial closing of the Financing, which occurred on August 5, 2026, Ensysce issued to the Investors 66,811 shares of preferred stock at a price of \$321.79 per share (or \$0.32179 per share on an as-converted basis), and subject to achievement of a clinical trial milestone (the “*Milestone*”), Ensysce will issue to the Investors 53,449 shares of preferred stock at a price of \$402.24 per share (or \$0.40224 per share on an as-converted basis). Each share of preferred stock is convertible into 1,000 shares of common stock, subject to certain conditions. The powers, preferences, rights, qualifications, limitations and restrictions applicable to the preferred stock are set forth in the Certificate of Designation (as defined and described below).

Side Letter Agreements

On August 5, 2026, Ensysce entered into the Side Letter Agreements with certain holders of convertible notes that had been issued by Cy as of August 4, 2026 for the purchase of preferred stock, subject to the Milestone. If the Milestone occurs, Ensysce will issue to such holders an aggregate of 22,166 shares of preferred stock at a price of \$402.24 per share (or \$0.40224 per share on an as-converted basis). Each share of preferred stock is convertible into 1,000 shares of common stock, subject to certain conditions. The powers, preferences, rights, qualifications, limitations and restrictions applicable to the preferred stock are set forth in the Certificate of Designation.

Registration Rights Agreements

Registration Rights Agreement with the Investors

On August 5, 2026, in connection with the Securities Purchase Agreement, Ensysce entered into a Registration Rights Agreement (the “*PIPE Registration Rights Agreement*”) with the Investors. Pursuant to the PIPE Registration Rights Agreement, Ensysce is required to prepare and file a resale registration statement with the SEC within 90 calendar days following the Closing Date (as defined in the Securities Purchase Agreement) (subject to certain extensions set forth therein), with respect to the shares of common stock underlying the PIPE Securities. This prospectus is a part of that resale registration statement. Ensysce will use its commercially reasonable efforts to cause such registration statement to be declared effective by the SEC by the earlier of (i) five business days after the SEC determines that it will not review the registration statement or will be subject to no further review or (ii) 90 calendar days following the initial filing date of the registration statement if the SEC reviews the registration statement (subject to applicable extensions under the PIPE Registration Rights Agreement).

Ensysce has also agreed to, among other things, indemnify the Investors, and each of their respective directors, officers, partners, employees, members, managers, agents, representatives and advisors, each person who controls any Investor (within the meaning of Section 15 of the Securities Act of 1933, as amended (the “*Securities Act*”), or Section 20 of the Exchange Act) and the directors, officers, partners, employees, members, managers, agents, representatives and advisors of each such controlling person under such registration statement from certain liabilities.

Registration Rights Agreement with Security Holders of the Company and Cy

On August 5, 2026, Ensysce entered into a Registration Rights Agreement (the “*3i/Cy Registration Rights Agreement*”) with 3i, LP (“*3i*”) and certain Cy Stockholders as of immediately prior to the Closing. Pursuant to the 3i/Cy Registration Rights Agreement, Ensysce is required to prepare and file a resale registration statement with the SEC within 90 calendar days following the Closing (subject to certain extensions set forth therein), with respect to the shares of common stock underlying the preferred stock issued to such security holders. This prospectus is a part of that resale registration statement. Ensysce will use its commercially reasonable efforts to cause such registration statement to be declared effective by the SEC by the earlier of (i) 5 business days after the SEC determines that it will not review the registration statement or will be subject to no further review or (ii) 90 calendar days following the initial filing date of the registration statement if the SEC reviews the registration statement (subject to applicable extensions under the 3i/Cy Registration Rights Agreement).

In addition, the 3i/Cy Registration Rights Agreement provides the holders with certain demand and piggyback registration rights. Specifically, if, at any time after February 1, 2027, Ensysce is not eligible to use a Form S-3 registration statement, holders of at least 40% of the then-outstanding Registrable Securities (as defined in the 3i/Cy Registration Rights Agreement) may request that Ensysce file a Form S-1 registration statement (Ensysce is obligated to effect up to three such demand registrations). If Ensysce is eligible to use Form S-3, holders of at least 30% of the then-outstanding Registrable Securities may request a Form S-3 registration covering securities with an anticipated aggregate offering price of at least \$20 million (Ensysce is obligated to effect up to two such demand registrations in any 12-month period). In addition, the holders are entitled to customary piggyback registration rights, pursuant to which they may include their Registrable Securities in any registration statement filed by Ensysce for a public offering of its securities. The registration rights are subject to customary cutback provisions in the event of an underwritten offering.

Ensysce has also agreed to, among other things, indemnify the holders of the preferred stock party to the 3i/Cy Registration Rights Agreement, and each of their respective partners, members, directors, officers and stockholders; legal counsel and accountants for each such stockholder; any underwriter (as defined in the Securities Act) for each such stockholder; and each person, if any, who controls such stockholder or underwriter within the meaning of the Securities Act or the Exchange Act from certain liabilities.

Omnibus Amendment and Termination Agreement

On August 5, 2026, Ensysce and 3i entered into the OATA, pursuant to which Ensysce and 3i agreed, among other things, to terminate all continuing requirements under all agreements and understandings among Ensysce, subsidiaries of Ensysce and 3i, including eliminating by amending Ensysce's Certificate of Designation of Series B Preferred Stock (the "*Series B Preferred Stock*"), cancelling the securities purchase agreement entered into by Ensysce and 3i on November 13, 2025 and converting any outstanding Series B Preferred Stock into common stock. Under the OATA, all outstanding shares of the Series B Preferred Stock were converted into 3,229,276 shares of common stock, of which 910,905 shares of common stock were initially issued directly to 3i and 2,318,371 shares of common stock were to be initially issued to a *bona fide* financial institution to be held in an abeyance account.

In addition, all warrants to purchase shares of common stock held by 3i were converted into 7,183 shares of preferred stock at an initial conversion ratio of one share of preferred stock to 1,000 shares of common stock. The OATA also includes a payment of \$250,000 to 3i and the imposition of a beneficial ownership limitation of 4.99% (or up to 9.99%, which increase shall not take effect until notice of the increase is provided by 3i and 61 days then elapse) of Ensysce's then outstanding shares of common stock (the "*3i Beneficial Ownership Limitation*"), with the shares exceeding the 3i Beneficial Ownership Limitation held in abeyance for the benefit of 3i until such time, if ever, as 3i's right to such shares would not result in 3i exceeding the 3i Beneficial Ownership Limitation.

The OATA required 3i to execute (i) a Company Stockholder Support Agreement and (ii) the 3i/Cy Registration Rights Agreement. The OATA includes a mutual general release of claims by each of 3i and Ensysce against the other.

Manufacture Agreement

In connection with the Merger, to satisfy a contractual obligation under the Manufacture Agreement, Ensysce issued 2,176 shares of preferred stock to the manufacturer of Ensysce's products, Galephar Pharmaceutical Research, Inc. ("*Galephar*").

USE OF PROCEEDS

We will not receive any of the proceeds from the resale of shares of common stock by the Selling Securityholders under this prospectus. The Selling Securityholders will receive all the proceeds from this offering. The Selling Securityholders will pay any underwriting discounts and commissions and expenses incurred by the Selling Securityholders for brokerage, accounting, tax or legal services or any other expenses incurred by the Selling Securityholders in disposing of the shares. We will bear all other costs, fees and expenses incurred in effecting the registration of the shares covered by this prospectus, including all registration and filing fees, and fees and expenses for our counsel and our independent registered public accountants.

DESCRIPTION OF CAPITAL STOCK

The following summary of the material terms of our common stock and description of certain of our other securities is not intended to be a complete summary of the rights and preferences of our common stock or such other securities. We urge you to read the third amended and restated certificate of incorporation in its entirety for a complete description of the rights and preferences of our common stock. See “*Where You Can Find More Information.*”

Pursuant to the third amended and restated certificate of incorporation, our authorized capital stock consists of 250,000,000 shares of common stock, \$0.0001 par value, and 1,500,000 shares of preferred stock, \$0.0001 par value.

Preferred Stock

Our certificate of incorporation authorizes the issuance of shares of preferred stock in one or more series, from time to time, with each such series to consist of such number of shares and to have such voting powers relative to other classes or series of preferred stock, if any, or common stock, full or limited, or no voting powers, and such designations, preferences and relative, participating, optional or other rights, and the qualifications, limitations or restrictions thereof, as shall be stated in the resolution or resolutions providing for the issuance of such series adopted by the Board.

We previously eliminated our Series A Preferred Stock and Series B Preferred Stock. We have one class of preferred stock outstanding, Series C Non-Voting Convertible Preferred Stock, par value \$0.0001 per share. Our certificate of incorporation includes a Certificate of Designation of Series C Non-Voting Convertible Preferred Stock, as corrected and as amended (the “*Certificate of Designation*”) that sets forth the terms of the preferred stock.

Liquidation Preference; Ranking

Upon any liquidation, dissolution or winding-up of the Company, whether voluntary or involuntary (a “*Liquidation*”), each holder of preferred stock (a “*Holder*”) will be entitled to receive out of the assets, whether capital or surplus, of the Company the same amount that a holder of common stock would receive if the preferred stock were fully converted (disregarding for such purpose any Beneficial Ownership Limitation (as defined below)) to common stock which amounts will be paid *pari passu* with all holders of common stock, plus an additional amount equal to any dividends declared on but unpaid to such shares. If, upon a Liquidation, the assets of the Company are insufficient to pay the Holders the amount required under the preceding sentence, then all remaining assets of the Company will be distributed ratably to the Holders and the holders of common stock in accordance with the respective amounts that would be payable on all such securities if all amounts payable thereon were paid in full. A Fundamental Transaction (as defined below) will not be deemed a Liquidation unless the Company expressly declares that it will be treated as a Liquidation.

The preferred stock ranks on parity with the common stock as to distributions of assets upon a Liquidation.

Conversion

The preferred stock automatically converts into shares of common stock as of 5:00 p.m. Eastern time on the third business day after the date that the Company’s stockholders approve the conversion of the preferred stock into shares of common stock in accordance with the listing rules of Nasdaq, as set forth in Section 4.1 of the Merger Agreement (the “*Stockholder Approval*”), subject to adjustment, each share of preferred stock converting into 1,000 shares of common stock (the “*Conversion Ratio*”), subject to the Beneficial Ownership Limitation. Any shares of preferred stock not automatically converted as a result of the Beneficial Ownership Limitation will remain outstanding and may be converted at the option of the Holder at any time following 5:00 p.m. Eastern time on the third business day after the Stockholder Approval, subject to the Beneficial Ownership Limitation. In applying the Beneficial Ownership Limitation to the automatic conversion, the Company will take into account shares of common stock reported by a Holder in a written beneficial ownership statement delivered within 30 days prior to the Stockholder Approval; if no such statement is delivered, the Holder’s beneficial ownership of common stock (excluding shares issuable on conversion) will be presumed to be zero.

Beneficial Ownership Limitation

The Certificate of Designation restricts the Company from converting any share of preferred stock, if that conversion would cause the Holder to beneficially own shares of common stock in excess of a percentage of outstanding shares of common stock (the “*Beneficial Ownership Limitation*”). Beneficial ownership will be calculated in accordance with the Exchange Act and applicable rules and regulations of the SEC. Initially set at 19.9%, the Beneficial Ownership Limitation may be adjusted by the Holder at any time by written notice to the Company to a percentage between 4.9% and 19.9%, which calculation gives effect to the issuance of the shares of common stock to be converted. Following Stockholder Approval, the Holder may, by written notice to the Company delivered not less than 60 days prior to effectiveness, adjust the Beneficial Ownership Limitation to any percentage at or above 4.9%. The Company is entitled to rely on representations made to it by the Holder in any notice of conversion.

In the notice of conversion: (i) which will not be effective until the sixty-first (61st) day after such written notice is delivered to the Company, the Holder may reset the Beneficial Ownership Limitation percentage to a higher percentage, which prior to Stockholder Approval shall not exceed 19.9%, to the extent then applicable and (ii) which will be effective immediately after such notice is delivered to the Company, the Holder may reset the Beneficial Ownership Limitation percentage to a lower percentage (but in no event less than 4.9%) provided that such decrease shall not become effective until the later of (x) 5:00 p.m. Eastern time on the third business day after the date of the Stockholder Approval and (y) if Stockholder Approval is not obtained within six months after the initial issuance of the preferred stock, the date that is three business days after the date that is six months after the initial issuance of the preferred stock.

However, notwithstanding the foregoing, at any time following notice of a Fundamental Transaction (as defined below), the Holder may waive and/or change the Beneficial Ownership Limitation effective immediately upon written notice to the Company and may reinstitute a Beneficial Ownership Limitation at any time thereafter effective immediately upon written notice to the Company.

Fundamental Transaction

A “*Fundamental Transaction*” occurs if at any time while the preferred stock is outstanding, (A) the Company effects any merger or consolidation of the Company with or into another person or any stock sale to, or other business combination (including, without limitation, a reorganization, recapitalization, spin-off, share exchange or scheme of arrangement) with or into another person (other than such a transaction in which the Company is the surviving or continuing entity and its common stock is not exchanged for or converted into other securities, cash or property), (B) the Company effects any sale, lease, transfer or exclusive license of all or substantially all of its assets in one transaction or a series of related transactions, (C) any tender offer or exchange offer (whether by the Company or another person) is completed pursuant to which more than 50% of the common stock not held by the Company or such person is exchanged for or converted into other securities, cash or property, or (D) the Company effects any reclassification of the common stock or any compulsory share exchange pursuant (other than as a result of certain dividends, subdivisions or combinations) to which the common stock is effectively converted into or exchanged for other securities, cash or property.

Upon any subsequent conversion following a Fundamental Transaction, Holders will be entitled to receive, in lieu of common stock and without regard to the Beneficial Ownership Limitation, the same kind and amount of securities, cash or property that a holder of one share of common stock would have received in the Fundamental Transaction for each share of common stock then issuable upon conversion (the “*Alternate Consideration*”), and will be given the same choice as to Alternate Consideration as holders of common stock. Any successor must assume these obligations, and the Company must give Holders at least 20 calendar days’ prior written notice of any Fundamental Transaction.

Stock Split/Stock Dividend Adjustment

If the Company, at any time while the preferred stock is outstanding: (A) pays a stock dividend or otherwise makes a distribution or distributions payable in shares of common stock (which, for avoidance of doubt, shall not include any shares of common stock issued by the Company upon conversion of the preferred stock) with respect to the then outstanding shares of common stock; (B) subdivides outstanding shares of common stock into a larger number of shares; or (C) combines (including by way of a reverse stock split) outstanding shares of common stock into a smaller number of shares, then the Conversion Ratio shall be multiplied by a fraction of which the numerator shall be the number of shares of common stock (excluding any treasury shares of the Company) outstanding immediately after such event and of which the denominator shall be the number of shares of common stock outstanding immediately before such event (excluding any treasury shares of the Company).

Dividends

Holders will be entitled to receive, and the Company will pay, dividends on shares of the preferred stock (on an as-if-converted-to-common-stock basis, without regard to the Beneficial Ownership Limitation) equal to and in the same form, and in the same manner, as dividends (other than dividends on shares of the common stock payable in the form of common stock) actually paid on shares of the common stock when, as and if such dividends (other than dividends payable in the form of common stock) are paid on shares of the common stock. No dividend shall be paid on shares of preferred stock, and the Company will pay no dividend (other than a dividend payable in the form of common stock) on shares of the common stock unless it simultaneously complies with the previous sentence.

Voting Rights

The preferred stock has no voting rights, except as required by the Delaware General Corporation Law (the “*DGCL*”). The written consent or affirmative vote of the holders of a majority of the outstanding shares of preferred stock is required to: (i) adversely alter or change the powers, preferences or rights of the preferred stock or amend the Certificate of Designation, the Company’s third amended and restated certificate of incorporation or bylaws in a manner adverse to the preferred stock; (ii) issue additional shares of preferred stock or change the authorized number of shares of preferred stock; (iii) other than transactions contemplated by the Merger Agreement, prior to Stockholder Approval or while at least 30% of the originally issued shares of preferred stock remain outstanding, consummate a Fundamental Transaction or a change-of-control merger or sale of the Company’s stock; (iv) prior to Stockholder Approval, authorize or issue any senior stock; (v) amend the Merger Agreement in a manner reasonably likely to prevent, impede or materially delay Stockholder Approval or the automatic conversion of the preferred stock; or (vi) agree to any of the foregoing.

Common Stock

As of October 19, 2026, 19,456,794 shares of common stock were issued and outstanding.

Common stockholders of record are entitled to one vote for each share held on all matters to be voted on by stockholders. Unless specified in our third amended and restated certificate of incorporation or bylaws, or as required by applicable provisions of the *DGCL* or applicable stock exchange rules, once a quorum is present, the affirmative vote of a majority of our shares of common stock that are voted is required to approve any such matter voted on by our stockholders. Our Board is divided into three classes, each of which will generally serve for a term of three years with only one class of directors being elected in each year. There is no cumulative voting with respect to the election of directors or any other matter, with the result that the holders of more than 50% of the shares voted for the election of directors can elect all the directors. Our stockholders are entitled to receive ratable dividends when, as and if declared by the Board out of funds legally available therefor.

In the event of liquidation, dissolution or winding up, our stockholders are entitled to share ratably in all assets remaining available for distribution to them after payment of liabilities and after provision is made for each class of stock, if any, having preference over the common stock. Our stockholders have no preemptive or other subscription rights. There are no sinking fund provisions applicable to the common stock.

Certain Anti-Takeover Provisions of our Third Amended and Restated Certificate of Incorporation and our Bylaws

Our third amended and restated certificate of incorporation and bylaws contain provisions that may delay, defer or discourage another party from acquiring control of us. These provisions, which are summarized below, discourage coercive takeover practices or inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our Board, which may result in an improvement of the terms of any such acquisition in favor of our stockholders. However, they also give the Board the power to discourage acquisitions that some stockholders may favor.

Classified Board

Our third amended and restated certificate of incorporation provides that our Board is classified into three classes of directors. As a result, in most circumstances, a person can gain control of our Board only by successfully engaging in a proxy contest at two or more annual meetings.

Authorized but Unissued Shares

Our authorized but unissued shares of common and preferred stock are available for future issuances without stockholder approval and could be utilized for a variety of corporate purposes, including future offerings to raise additional capital, acquisitions and employee benefit plans. However, the listing requirements of Nasdaq, which apply if and so long as our common stock remains listed on Nasdaq, require stockholder approval of certain issuances equal to or exceeding 20% of the then outstanding voting power or then outstanding number of shares of common stock (the “*Nasdaq Limitation*”). Additional shares that may be used in the future may be issued for a variety of corporate purposes, including future public offerings, to raise additional capital, or to facilitate acquisitions. The existence of authorized but unissued and unreserved common stock and preferred stock could render it more difficult or discourage an attempt to obtain control of us by means of a proxy contest, tender offer, merger or otherwise.

Special Meetings of Stockholders

Our bylaws provide that special meetings of our stockholders may be called only by a majority vote of our Board.

Advance Notice Requirements for Stockholder Proposals and Director Nominations

Our bylaws provide that stockholders seeking to bring business before our annual meeting of stockholders, or to nominate candidates for election as directors at our annual meeting of stockholders, must provide timely notice of their intent in writing. To be timely, a stockholder’s notice will need to be received by the company secretary at our 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 anniversary date of the immediately preceding annual meeting of stockholders. Pursuant to Rule 14a-8 of the Exchange Act, proposals seeking inclusion in our annual proxy statement must comply with the notice periods contained therein. Our bylaws also specify certain requirements as to the form and content of a stockholders meeting. These provisions may preclude our stockholders from bringing matters before our annual meeting of stockholders or from making nominations for directors at our annual meeting of stockholders.

Amendment of Charter or Bylaws

The amendment, alteration or repeal of the provisions of the third amended and restated certificate of incorporation governing limitation of director liability, indemnification and advancement of expenses or the adoption of any provision or bylaw inconsistent with those provisions may only be effected by the affirmative vote of the stockholders holding at least sixty five percent (65%) of the voting power of our outstanding shares entitled to vote generally in the election of directors, voting together as a single class, at a meeting of the stockholders called for that purpose. The affirmative vote of the stockholders holding at least 65% of the voting power of all outstanding shares of our capital stock is required for any amendment of the indemnification provisions in the bylaws or adoption of a provision inconsistent with them.

Exclusive Forum

Under our charter, unless we consent in writing to the selection of an alternative forum, subject to certain limitations, the sole and exclusive forum will be the Court of Chancery of the State of Delaware (or, if such court does not have jurisdiction, the Superior Court of the State of Delaware, or, if the Superior Court of the State of Delaware also does not have jurisdiction, the United States District Court for the District of Delaware) for:

- any derivative action or proceeding brought on our behalf;
- any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders;
- any action asserting a claim against us arising pursuant to any provision of the DGCL, our charter or our bylaws (as either may be amended, restated, modified, supplemented or waived from time to time);
- any action to interpret, apply, enforce or determine the validity of our charter or our bylaws; and
- any action asserting a claim against us governed by the internal affairs doctrine.

For the avoidance of doubt, the foregoing provisions of our charter will not apply to any action or proceeding asserting a claim under the Securities Act or the Exchange Act. These provisions of our charter could limit the ability of our stockholders to obtain a favorable judicial forum for certain disputes with us or with our current or former directors, officers or other employees, which may discourage such lawsuits against us and our current or former directors, officers and employees. Alternatively, if a court were to find these provisions of our charter inapplicable to, or unenforceable in respect of, one or more of the types of actions or proceedings listed above, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business, financial condition and results of operations.

Delaware Anti-Takeover Statute

We are subject to the provisions of Section 203 of the DGCL (sometimes referred to as Section 203) regulating corporate takeovers. In general, Section 203 prohibits a publicly held Delaware corporation from engaging, under specified circumstances, in a business combination with an interested stockholder for a period of three years following the date the person became an interested stockholder unless:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares of voting stock outstanding (but not the outstanding voting stock owned by the stockholder)(1) shares owned by persons who are directors and also officers and (2) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- on or subsequent to the date of the transaction, the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66-2/3% of the outstanding voting stock that is not owned by the interested stockholder.

Generally, a business combination includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. An interested stockholder is a person who, together with affiliates and associates, owns or, within three years prior to the determination of interested stockholder status, did own 15% or more of a corporation's outstanding voting securities. We expect the existence of this provision to have an anti-takeover effect with respect to transactions our Board does not approve in advance. We also anticipate that Section 203 may also discourage attempts that might result in a premium over the market price for the shares of common stock held by stockholders.

The provisions of Delaware law, our certificate of incorporation and our bylaws could have the effect of discouraging others from attempting hostile takeovers and, consequently, they may also inhibit temporary fluctuations in the market price of common stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

SELLING SECURITYHOLDERS

The term "Selling Securityholders" includes the securityholders listed below and their transferees, pledgees, donees or other successors-in-interest who may acquire shares from a Selling Securityholder as a gift, pledge, partnership distribution or other non-sale related transfer after the date of this prospectus. Information concerning the Selling Securityholders may change after the date of this prospectus and changed information will be presented in a supplement to this prospectus if and when required.

This prospectus relates to the resale by the Selling Securityholders from time to time of up to 433,907,000 shares of common stock issuable upon conversion of the preferred stock, which consists of up to (i) 282,122,000 shares of common stock that are issuable upon conversion of preferred stock issued or to be issued by us in the Merger pursuant to the Merger Agreement, and other agreements; (ii) 120,260,000 shares of common stock issuable upon conversion of preferred stock issued or to be issued by us in the Financing pursuant to the Securities Purchase Agreement; (iii) 22,166,000 shares of common stock issuable upon conversion of preferred stock to be issued by us, subject to achievement of the Milestone, pursuant to the Side Letter Agreements; (iv) 7,183,000 shares of common stock that are issuable upon conversion of preferred stock issued by us in connection with the OATA; and (v) 2,176,000 shares of common stock that are issuable upon conversion of preferred stock issued by us in connection with the Manufacture Agreement.

We agreed to file the registration statement of which this prospectus is a part pursuant to the PIPE Registration Rights Agreement and the 3i/Cy Registration Rights Agreement. Additional information with respect to the PIPE Registration Rights Agreement and 3i/Cy Registration Rights Agreement is contained in this prospectus under “Recent Events – Registration Rights Agreements” and in our Current Report on Form 8-K filed with the SEC on August 6, 2026.

The table below sets forth (i) the name of each Selling Securityholder, (ii) the number of shares of common stock owned by each Selling Securityholder on or about October 19, 2026 (solely for purposes of the table below, treating all 358,292 shares of preferred stock outstanding as of October 19, 2026 and all 75,615 shares of preferred stock issuable upon achievement of the Milestone as if they had been issued and converted into 433,907,000 shares of common stock as of October 19, 2026, and disregarding certain of the terms of the Certificate of Designation that would prevent or limit such conversion as further described below), (iii) the number of shares of common stock offered by each Selling Securityholder hereunder, (iv) the number of shares of common stock owned by each Selling Securityholder following the completion of this offering (assuming each Selling Securityholder sells all of the shares of common stock that are being offered by such Selling Securityholder pursuant to this prospectus), and (v) the percentage of common stock owned by each Selling Securityholder following the completion of this offering (assuming each Selling Securityholder sells all of the shares of common stock that are being offered by such Selling Securityholder pursuant to this prospectus), based on 19,456,794 shares of common stock outstanding as of October 19, 2026 and, solely for purposes of the table below, treating all 358,292 shares of preferred stock outstanding as of October 19, 2026 and all 75,615 shares of preferred stock issuable upon achievement of the Milestone as if they had been issued and converted into 433,907,000 shares of common stock as of October 19, 2026 and disregarding certain of the terms of the Certificate of Designation that would prevent or limit such conversion as further described below. Stock information with respect to ownership is based upon information obtained from the Selling Securityholders.

The terms of the Certificate of Designation provide that (i) each outstanding share of preferred stock is convertible into 1,000 shares of common stock, subject to and contingent upon obtaining Stockholder Approval, at 5:00 p.m. Eastern time on the third business day after Stockholder Approval, subject to the Beneficial Ownership Limitation and (ii) each outstanding share of preferred stock that is not automatically converted following Stockholder Approval will remain outstanding and may be converted at the option of the Holder at any time following 5:00 p.m. Eastern time on the third business day after Stockholder Approval, subject to the Beneficial Ownership Limitation.

As of the date of this prospectus, we have not obtained Stockholder Approval and, therefore, in accordance with the terms of the Certificate of Designation, at this time none of the outstanding shares of preferred stock have converted or are convertible into shares of common stock. The terms of the preferred stock provide that no shares of preferred stock shall at any time be convertible by the Holder thereof into shares of common stock if and to the extent that such conversion would result in the Holder of such shares of preferred stock being converted, together with such holder’s affiliates and certain other persons or entities that are aggregated with such holder and its affiliates, beneficially owning more than the Beneficial Ownership Limitation. A Holder may waive or change the Beneficial Ownership Limitation as provided in the Certificate of Designation.

Solely for purposes of the table below, the information under the headings “Shares Owned Prior to Offering” and “Shares Owned After Offering” disregards the Nasdaq Limitation and the Beneficial Ownership Limitation and treats all shares of preferred stock outstanding as of October 19, 2026 as if they had been converted into shares of common stock as of that date. Accordingly, to that extent and solely for purposes of the table below, each Selling Securityholder’s beneficial ownership of common stock has not been determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. Each Selling Securityholder and its affiliates and other aggregation persons or entities disclaim beneficial ownership of any shares of common stock that are reflected in the table below as beneficially owned by such Selling Securityholder or any of its affiliates and other aggregation persons or entities solely because the Nasdaq Limitation and the Beneficial Ownership Limitation have been disregarded.

The Selling Securityholders are not making any representation that any shares of common stock covered by this prospectus will be offered for sale. Because each Selling Securityholder may dispose of all, none or some portion of the shares of common stock covered by this prospectus that they own, no estimate can be given as to the number of shares that will be owned by a Selling Securityholder upon termination of this offering. In addition, the Selling Securityholders may have sold, transferred or otherwise disposed of their shares of common stock in transactions exempt from the registration requirements of the Securities Act, after the date for which the information in the table is presented. For purposes of the table below, however, we have assumed that after termination of this offering, none of the shares of common stock registered for resale under this prospectus will be owned by the Selling Securityholders, and we have further assumed that the Selling Securityholders will not acquire beneficial ownership of any additional shares of common stock during this offering.

To our knowledge, except as indicated in the footnotes to this table, each Selling Securityholder named in the table has sole voting and investment power with respect to all shares of common stock shown in the table to be owned by such securityholder. Except as described below, or as otherwise described herein or in the documents incorporated by reference herein, none of the Selling Securityholders has had any position, office or other material relationship with us or any of our predecessors or affiliates within the past three years. In addition, based on information provided to us, none of the Selling Securityholders that are affiliates of broker-dealers, if any, purchased the shares of common stock outside the ordinary course of business or, at the time of their acquisition of such shares, had any agreements, understandings or arrangements with any other person, directly or indirectly, to dispose of the shares. Information concerning the Selling Securityholders may change from time to time, and any changed information will be set forth in supplements to this prospectus to the extent required.

Please see the section titled “*Plan of Distribution*” in this prospectus for further information regarding the Selling Securityholders’ methods of distributing these shares.

Name	Shares Owned Prior to Offering	Shares Registered for Sale Hereby	Shares Owned After Offering	Percent Beneficially Owned After Offering
Belgarion Ventures Ltd.(1)	154,821,000	154,821,000	—	—
Maria Teresa Arida(2)	2,010,000	2,010,000	—	—
Sobremesa Investments GmbH(3)	4,021,000	4,021,000	—	—
Social Impact Capital Fund I, L.P.(4)	40,213,000	40,213,000	—	—
Twilight Holding Ltd(5)	13,936,000	13,936,000	—	—
Carolina Banales(6)	346,000	346,000	—	—
Carolina Gutierrez(7)	346,190	346,000	190	*
Christoph Teschner(8)	941,000	941,000	—	—
Frank Lucas(9)	152,000	152,000	—	—
Martin Guerra(10)	471,000	471,000	—	—
Tokens Ventures Ltd.(11)	692,000	692,000	—	—
Charles Morrison(12)	595,000	595,000	—	—
Jack Coleman(13)	1,025,000	1,025,000	—	—
Daniel Holzmann(14)	357,000	357,000	—	—
Casey Martin(15)	178,000	178,000	—	—
Josif Perovic(16)	119,000	119,000	—	—
Charles Knight(17)	36,000	36,000	—	—
Thomas Farrant(18)	1,959,000	1,959,000	—	—
Wendy Moss(19)	1,679,000	1,679,000	—	—
Samuel Peppiatt(20)	11,390,000	11,190,000	200,000	*
Saad Rahim(21)	311,000	311,000	—	—
Ross Ridgway(22)	3,109,000	3,109,000	—	—
Henry Phillips(23)	312,000	312,000	—	—
Joseph Ray(24)	113,000	113,000	—	—
Edward Little(25)	412,000	412,000	—	—
Samuel Cook(26)	206,000	206,000	—	—
Daniel Woodbridge(27)	16,048,000	15,542,000	506,000	*
Treme Holdings Ltd.(28)	27,973,000	27,973,000	—	—
Thomas De Quincey(29)	15,102,000	15,102,000	—	—
Lorena Lustenberger(30)	56,000	56,000	—	—
The Rodger Partnership(31)	142,000	142,000	—	—
Andrea Olivi(32)	5,596,000	5,596,000	—	—
Edward Dyson(33)	141,000	141,000	—	—
Windward JR Limited(34)	186,000	186,000	—	—
Ally Bridge MedAlpha Master Fund L.P.(35)	22,374,000	22,374,000	—	—
Ally Bridge MedAlpha Long Opportunities Fund L.P.(36)	11,187,000	11,187,000	—	—
Perceptive Life Sciences Master Fund, Ltd.(37)	27,968,000	27,968,000	—	—
Adage Capital Partners, L.P.(38)	16,929,711	16,780,000	149,711	*
Boothbay Diversified Alpha Master Fund, LP(39)	1,427,000	1,427,000	—	—
Boothbay Absolute Return Strategies, LP(40)	4,320,000	4,320,000	—	—
Ikarian Healthcare Master Fund, LP(41)	13,830,000	13,830,000	—	—
Dellora Investments Master Fund LP(42)	20,584,000	20,584,000	—	—
Dellora Long Only Master Fund LP(43)	1,790,000	1,790,000	—	—
3i, LP(44)	7,183,000	7,183,000	—	—
Galephar Pharmaceutical Research, Inc.(45)	2,649,350	2,176,000	473,350	*

* Less than 1%

- (1) Consists of 154,821,000 shares of common stock issuable upon the conversion of the preferred stock. James Morrison, as a director of, and the holder of a controlling interest in, Belgarion Ventures Ltd., is the controlling person of Belgarion Ventures Ltd. and, in such capacity, has voting and investment power over the securities held by Belgarion Ventures Ltd. Mr. Morrison may therefore be deemed to be the beneficial owner of the shares held by Belgarion Ventures Ltd. Mr. Morrison disclaims beneficial ownership of such securities except to the extent of his pecuniary interest therein. Mr. Morrison is also the President and a director of Ensysce. The business address of Belgarion Ventures Ltd. and Mr. Morrison is c/o Ensysce Biosciences, Inc., 7946 Ivanhoe Avenue, Suite 201, La Jolla, California 92037.
- (2) Consists of 2,010,000 shares of common stock issuable upon the conversion of the preferred stock.
- (3) Consists of 4,021,000 shares of common stock issuable upon the conversion of the preferred stock. Fabian Strüngmann, as a director of Sobremesa Investments GmbH, is the controlling person of Sobremesa Investments GmbH and, in such capacity, has voting and investment power over the securities held by Sobremesa Investments GmbH. Mr. Strüngmann may therefore be deemed to be the beneficial owner of the shares held by Sobremesa Investments GmbH. Mr. Strüngmann disclaims beneficial ownership of such securities except to the extent of his pecuniary interest therein. The business address of Sobremesa Investments GmbH and Mr. Strüngmann is c/o ATHOS KG, Bergfeldstr. 9, Holzkirchen, Germany 83607.

- (4) Consists of 40,213,000 shares of common stock issuable upon the conversion of the preferred stock. Sarah Cone, as the managing member of Social Impact Capital Fund I GP, L.L.C. ("SIC GP"), the general partner of Social Impact Capital Fund I, L.P., is the controlling person of Social Impact Capital Fund I, L.P. As such, each of SIC GP and Ms. Cone may be deemed to share voting and investment power over, and to be the beneficial owner of, the shares held by Social Impact Capital Fund I, L.P. Each of Social Impact Capital Fund I, L.P., SIC GP and Ms. Cone disclaims beneficial ownership of such securities except to the extent of its or her pecuniary interest therein. Prior to the Merger, Social Impact Capital Fund I, L.P. was represented on the board of directors of Cy Biopharma, Inc. The business address of each of the foregoing is 188 Grand Street, Unit #210, New York, NY 10013.
- (5) Consists of 13,936,000 shares of common stock issuable upon the conversion of the preferred stock. Garrett Perez, as a director of Twilight Holding Ltd, is the controlling person of Twilight Holding Ltd and, in such capacity, has voting and investment power over the securities held by Twilight Holding Ltd. Mr. Perez may therefore be deemed to be the beneficial owner of the shares held by Twilight Holding Ltd. Mr. Perez disclaims beneficial ownership of such securities except to the extent of his pecuniary interest therein. The business address of Twilight Holding Ltd is Central Park Towers, Residential Tower, Unit 2536, Dubai International Financial Centre, Dubai, United Arab Emirates.
- (6) Consists of 346,000 shares of common stock issuable upon the conversion of the preferred stock.
- (7) Consists of (i) 346,000 shares of common stock issuable upon the conversion of the preferred stock and (ii) 190 shares of common stock that are not being registered for resale under this prospectus.
- (8) Consists of 941,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 249,000 shares of common stock that are issuable subject to the Milestone.
- (9) Consists of 152,000 shares of common stock issuable upon the conversion of the preferred stock.
- (10) Consists of 471,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 125,000 shares of common stock that are issuable subject to the Milestone.
- (11) Consists of 692,000 shares of common stock issuable upon the conversion of the preferred stock. Matias Woloski, as a director of Tokens Ventures Ltd., is the controlling person of Tokens Ventures Ltd. and, in such capacity, has voting and investment power over the securities held by Tokens Ventures Ltd. Mr. Woloski may therefore be deemed to be the beneficial owner of the shares held by Tokens Ventures Ltd. Mr. Woloski disclaims beneficial ownership of such securities except to the extent of his pecuniary interest therein. The business address of Tokens Ventures Ltd. and Mr. Woloski is Palm Grove House, P.O. Box 438, Road Town, Tortola, British Virgin Islands VG1110.
- (12) Consists of 595,000 shares of common stock issuable upon the conversion of the preferred stock. Charles Morrison is the brother of James Morrison, the President and a director of Ensysce. Since March 25, 2026, Charles Morrison serves as a consultant to Cy Biopharma UK, which became a subsidiary of the Company upon the completion of the Merger.
- (13) Consists of 1,025,000 shares of common stock issuable upon the conversion of the preferred stock. Mr. Coleman serves as the General Counsel of Cy Biopharma AG, which is a subsidiary of the Company.
- (14) Consists of 357,000 shares of common stock issuable upon the conversion of the preferred stock.
- (15) Consists of 178,000 shares of common stock issuable upon the conversion of the preferred stock.
- (16) Consists of 119,000 shares of common stock issuable upon the conversion of the preferred stock. Mr. Perovic was a former service provider to Cy Biopharma, Inc. prior to the Merger, for which he was compensated in equity.
- (17) Consists of 36,000 shares of common stock issuable upon the conversion of the preferred stock.
- (18) Consists of 1,959,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 871,000 shares of common stock that are issuable subject to the Milestone.
- (19) Consists of 1,679,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 746,000 shares of common stock that are issuable subject to the Milestone.
- (20) Consists of (i) 11,190,000 shares of common stock issuable upon the conversion of the preferred stock and (ii) 200,000 shares of common stock that are not being registered for resale under this prospectus. The number of shares of common stock issuable upon the conversion of the preferred stock includes 4,973,000 shares of common stock that are issuable subject to the Milestone.
- (21) Consists of 311,000 shares of common stock issuable upon the conversion of the preferred stock.
- (22) Consists of 3,109,000 shares of common stock issuable upon the conversion of the preferred stock.
- (23) Consists of 312,000 shares of common stock issuable upon the conversion of the preferred stock.
- (24) Consists of 113,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 50,000 shares of common stock that are issuable subject to the Milestone.
- (25) Consists of 412,000 shares of common stock issuable upon the conversion of the preferred stock.
- (26) Consists of 206,000 shares of common stock issuable upon the conversion of the preferred stock.
- (27) Consists of (i) 15,542,000 shares of common stock issuable upon the conversion of the preferred stock and (ii) 506,000 shares of common stock that are not being registered for resale under this prospectus.
- (28) Consists of 27,973,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 12,431,000 shares of common stock that are issuable subject to the Milestone. Geoffrey Cone, as a director of Treme Holdings Ltd., is the controlling person of Treme Holdings Ltd. and, in such capacity, has voting and investment power over the securities held by Treme Holdings Ltd. Mr. Cone may therefore be deemed to be the beneficial owner of the shares held by Treme Holdings Ltd. Mr. Cone disclaims beneficial ownership of such securities except to the extent of his pecuniary interest therein. The business address of Treme Holdings Ltd. and Mr. Cone is PO Box 2437, Road Town, Tortola, British Virgin Islands VG1110.
- (29) Consists of 15,102,000 shares of common stock issuable upon the conversion of the preferred stock.
- (30) Consists of 56,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 25,000 shares of common stock that are issuable subject to the Milestone.
- (31) Consists of 142,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 63,000 shares of common stock that are issuable subject to the Milestone. Angus Burt has the power to vote and dispose of the securities held by The Rodger Partnership and may therefore be deemed to be the beneficial owner of such shares. Mr. Burt disclaims beneficial ownership of such securities except to the extent of his pecuniary interest therein.

- (32) Consists of 5,596,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 2,487,000 shares of common stock that are issuable subject to the Milestone.
- (33) Consists of 141,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 63,000 shares of common stock that are issuable subject to the Milestone.
- (34) Consists of 186,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 83,000 shares of common stock that are issuable subject to the Milestone. John Reilly, as a director of Windward JR Limited, is the controlling person of Windward JR Limited and, in such capacity, has voting and investment power over the securities held by Windward JR Limited. Mr. Reilly may therefore be deemed to be the beneficial owner of the shares held by Windward JR Limited. Mr. Reilly disclaims beneficial ownership of such securities except to the extent of his pecuniary interest therein.
- (35) Consists of 22,374,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 9,944,000 shares of common stock that are issuable subject to the Milestone. Mr. Fan Yu is the sole shareholder of ABG Management Ltd., which is the sole member of Ally Bridge Group (NY) LLC, which manages investments of Ally Bridge MedAlpha Master Fund L.P. (the “*MedAlpha Fund*”). As such, each of the foregoing entities and Mr. Fan Yu may be deemed to share beneficial ownership of the shares held by the MedAlpha Fund. Each of them disclaims any such beneficial ownership. The address of the above person and entities is 430 Park Avenue, 12th Floor, New York, NY 10022.
- (36) Consists of 11,187,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 4,972,000 shares of common stock that are issuable subject to the Milestone. Mr. Fan Yu is the sole shareholder of ABG Management Ltd., which is the sole member of Ally Bridge Group (NY) LLC, which manages investments of Ally Bridge MedAlpha Long Opportunities Fund L.P. (the “*MedAlpha Long Fund*”). As such, each of the foregoing entities and Mr. Fan Yu may be deemed to share beneficial ownership of the shares held by the MedAlpha Long Fund. Each of them disclaims any such beneficial ownership. The address of the above person and entities is 430 Park Avenue, 12th Floor, New York, NY 10022.
- (37) Consists of 27,968,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 12,430,000 shares of common stock that are issuable subject to the Milestone. Perceptive Advisors LLC (“*Perceptive Advisors*”) is the investment advisor of the Perceptive Life Sciences Master Fund, Ltd. (the “*Perceptive Master Fund*”) and may be deemed to have beneficial ownership of the shares beneficially owned thereby. Joseph Edelman is the controlling person of Perceptive Advisors and accordingly, may be deemed to have beneficial ownership of the shares beneficially owned by the Perceptive Master Fund and Perceptive Advisors. Perceptive Advisors, the Perceptive Master Fund and Mr. Edelman disclaim beneficial ownership of all such securities except to the extent of its or his pecuniary interest therein. The business address for each of Perceptive Advisors, the Perceptive Master Fund and Mr. Edelman is 51 Astor Place, 10th Floor, New York, NY 10003.
- (38) Consists of (i) 16,780,000 shares of common stock issuable upon the conversion of the preferred stock and (ii) 149,711 shares of common stock that are not being registered for resale under this prospectus. The number of shares of common stock includes 7,458,000 shares of common stock that are issuable subject to the Milestone. Bob Atchinson and Phillip Gross, as the managing members of Adage Capital Advisors, L.L.C., which is the managing member of Adage Capital Partners GP, L.L.C., which is the general partner of Adage, and each such person or entity, as the case may be, has shared voting and/or investment power over the securities held by Adage Capital Partners, LP and may be deemed the beneficial owner of such shares, and each such person or entity, as the case may be, disclaims beneficial ownership of such securities except to the extent of their respective pecuniary interest therein. The business address of each of the foregoing is 200 Clarendon Street, 52nd Floor, Boston, MA 02116.
- (39) Consists of 1,427,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 634,000 shares of common stock that are issuable subject to the Milestone. Boothbay Diversified Alpha Master Fund, LP is managed by Boothbay Fund Management, LLC (“*Boothbay*”), which, in its capacity as investment manager, has delegated to Ikarian Capital, LLC (“*Ikarian Capital*”), as sub-advisor, the power to vote and the power to direct the disposition of the securities held by Boothbay Diversified Alpha Master Fund, LP. Ari Glass is the managing member of Boothbay, and Neil Shahrestani, as the sole manager of Ikarian Capital, is the controlling person of Ikarian Capital. As such, each of Ikarian Capital and Mr. Shahrestani may be deemed to share voting and investment power over, and to be the beneficial owner of, the shares held by Boothbay Diversified Alpha Master Fund, LP. Each of Boothbay Diversified Alpha Master Fund, LP, Boothbay, Mr. Glass, Ikarian Capital and Mr. Shahrestani disclaims beneficial ownership of such securities except to the extent of its or his pecuniary interest therein. The business address of Boothbay Diversified Alpha Master Fund, LP, Boothbay and Mr. Glass is 140 East 45th Street, 16th Floor, New York, NY 10017, and the business address of Ikarian Capital and Mr. Shahrestani is 100 Crescent Court, Suite 1620, Dallas, TX 75201.

- (40) Consists of 4,320,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 1,920,000 shares of common stock that are issuable subject to the Milestone. Boothbay Absolute Return Strategies, LP is managed by Boothbay, which, in its capacity as investment manager, has delegated to Ikarian Capital, as sub-advisor, the power to vote and the power to direct the disposition of the securities held by Boothbay Absolute Return Strategies, LP. Ari Glass is the managing member of Boothbay, and Neil Shahrestani, as the sole manager of Ikarian Capital, is the controlling person of Ikarian Capital. As such, each of Ikarian Capital and Mr. Shahrestani may be deemed to share voting and investment power over, and to be the beneficial owner of, the shares held by Boothbay Absolute Return Strategies, LP. Each of Boothbay Absolute Return Strategies, LP, Boothbay, Mr. Glass, Ikarian Capital and Mr. Shahrestani disclaims beneficial ownership of such securities except to the extent of its or his pecuniary interest therein. The business address of Boothbay Absolute Return Strategies, LP, Boothbay and Mr. Glass is 140 East 45th Street, 16th Floor, New York, NY 10017, and the business address of Ikarian Capital and Mr. Shahrestani is 100 Crescent Court, Suite 1620, Dallas, TX 75201.
- (41) Consists of 13,830,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 6,147,000 shares of common stock that are issuable subject to the Milestone. Ikarian Healthcare Master Fund, LP is managed by Ikarian Capital, which, in its capacity as investment manager, has the power to vote and the power to direct the disposition of the securities held by Ikarian Healthcare Master Fund, LP. Neil Shahrestani, as the CEO and sole manager of Ikarian Capital, is the controlling person of Ikarian Capital. As such, each of Ikarian Capital and Mr. Shahrestani may be deemed to share voting and investment power over, and to be the beneficial owner of, the shares held by Ikarian Healthcare Master Fund, LP. Each of Ikarian Healthcare Master Fund, LP, Ikarian Capital and Mr. Shahrestani disclaims beneficial ownership of such securities except to the extent of its or his pecuniary interest therein. The business address of each of the foregoing is 100 Crescent Court, Suite 1620, Dallas, TX 75201.
- (42) Consists of 20,584,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 9,148,000 shares of common stock that are issuable subject to the Milestone. Kevin Pyun, as the principal of Dellora Investments LP (*"Dellora"*), the investment adviser of Dellora Investments Master Fund LP, is the controlling person of Dellora Investments Master Fund LP. As such, each of Dellora and Mr. Pyun may be deemed to share voting and investment power over, and to be the beneficial owner of, the shares held by Dellora Investments Master Fund LP. Each of Dellora Investments Master Fund LP, Dellora and Mr. Pyun disclaims beneficial ownership of such securities except to the extent of its or his pecuniary interest therein. The business address of each of the foregoing is [41 W. Putnam Avenue, #204, Greenwich, CT 06830].
- (43) Consists of 1,790,000 shares of common stock issuable upon the conversion of the preferred stock. The number of shares of common stock includes 796,000 shares of common stock that are issuable subject to the Milestone. Kevin Pyun, as the principal of Dellora, the investment adviser of Dellora Long Only Master Fund LP, is the controlling person of Dellora Long Only Master Fund LP. As such, each of Dellora and Mr. Pyun may be deemed to share voting and investment power over, and to be the beneficial owner of, the shares held by Dellora Long Only Master Fund LP. Each of Dellora Long Only Master Fund LP, Dellora and Mr. Pyun disclaims beneficial ownership of such securities except to the extent of its or his pecuniary interest therein. The business address of each of the foregoing is [41 W. Putnam Avenue, #204, Greenwich, CT 06830].
- (44) Consists of 7,183,000 shares of common stock issuable upon the conversion of the preferred stock. 3i Management LLC is the general partner of 3i, LP, and Maier Joshua Tarlow is the manager of 3i Management LLC. As such, Mr. Tarlow exercises sole voting and investment discretion over securities beneficially owned directly or indirectly by 3i, LP and 3i Management LLC. Mr. Tarlow disclaims beneficial ownership of the securities beneficially owned directly by 3i, LP and indirectly by 3i Management LLC. The business address of each of the aforementioned parties is 2 Wooster Street, 2nd Floor, New York, NY 10013. We have been advised that none of Mr. Tarlow, 3i Management LLC, or 3i, LP is a member of the Financial Industry Regulatory Authority, or FINRA, or an independent broker-dealer, or an affiliate or associated person of a FINRA member or independent broker-dealer.
- (45) Consists of (i) 473,350 shares of common stock and (ii) 2,176,000 shares of common stock issuable upon the conversion of the preferred stock. The business address of Galephar Pharmaceutical Research, Inc. is Carr. 925 M 6.1 Bo, Junquito, Humacao, PR 00792. Arthur M. Deboeck has sole voting control and investment discretion over securities beneficially owned directly or indirectly by Galephar. Arthur M. Deboeck disclaims any beneficial ownership of the securities beneficially owned by Galephar.

PLAN OF DISTRIBUTION

The Selling Securityholders, which as used herein includes donees, pledgees, transferees or other successors-in-interest selling shares of common stock or interests in shares of common stock received after the date of this prospectus from a Selling Securityholder as a gift, pledge, partnership distribution or other transfer, may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of common stock or interests in shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be 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 Selling Securityholders may use any one or more of the following methods when disposing of shares or interests therein:

- distributions to members, partners, stockholders or other equityholders of the Selling Securityholders;
- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares 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;
- short sales and settlement of short sales entered into after the effective date of the registration statement of which this prospectus is a part;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- broker-dealers may agree with the Selling Securityholders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale; and
- any other method permitted pursuant to applicable law.

The Selling Securityholders may, from time to time, pledge or grant a security interest in some or all of the shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock, from time to time, under this prospectus, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act, amending the list of Selling Securityholders to include the pledgee, transferee or other successors in interest as Selling Securityholders under this prospectus. The Selling Securityholders also may transfer the shares of common stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the Selling Securityholders for purposes of this prospectus.

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

The aggregate proceeds to the Selling Securityholders from the sale of the common stock offered by them will be the purchase price of the common stock less discounts or commissions, if any. Each of the Selling Securityholders reserves the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of common stock to be made directly or through agents. We will not receive any of the proceeds from this offering.

The Selling Securityholders also may resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act, provided that they meet the criteria and conform to the requirements of that rule, or another available exemption from the registration requirements under the Securities Act.

The Selling Securityholders and any underwriters, broker-dealers or agents that participate in the sale of the common stock or interests therein may be “underwriters” within the meaning of Section 2(a)(11) of the Securities Act (it being understood that the Selling Securityholders shall not be deemed to be underwriters solely as a result of their participation in this offering). Any discounts, commissions, concessions or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act. Selling Securityholders who are “underwriters” within the meaning of Section 2(a)(11) of the Securities Act will be subject to the prospectus delivery requirements of the Securities Act.

To the extent required, the shares of common stock to be sold, the names of the Selling Securityholders, the respective purchase prices and public offering prices, the names of any agent, dealer or underwriter, and any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

In order to comply with the securities laws of some states, if applicable, the common stock may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the common stock may not be sold unless it has been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

We have advised the Selling Securityholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the Selling Securityholders and their affiliates. In addition, to the extent applicable, we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the Selling Securityholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The Selling Securityholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act.

We have agreed to indemnify the Selling Securityholders against liabilities, including liabilities under the Securities Act and state securities laws, relating to the registration of the shares offered by this prospectus.

We have agreed with the Selling Securityholders to use commercially reasonable efforts to cause the registration statement of which this prospectus constitutes a part to become effective and to remain continuously effective until the earlier of: (i) the date on which the Selling Securityholders shall have resold or otherwise disposed of all the shares covered by this prospectus and (ii) the date on which the shares covered by this prospectus no longer constitute “Registrable Securities” as such term is defined in the PIPE Registration Rights Agreement or the 3i/Cy Registration Rights Agreement, as applicable, such that they may be resold by the Selling Securityholders without registration and without regard to any volume or manner-of-sale limitations and without current public information pursuant to Rule 144 under the Securities Act or any other rule of similar effect.

LEGAL MATTERS

The validity of the securities offered hereby will be passed upon for us by Troutman Pepper Locke LLP.

EXPERTS

Our consolidated financial statements as of December 31, 2025, and 2024, and for the years then ended, appearing in our Annual Report on Form 10-K for the year ended December 31, 2025, incorporated in this prospectus by reference, have been audited by Baker Tilly US, LLP, an independent registered public accounting firm, as stated in their report (which report expresses an unqualified opinion and includes an explanatory paragraph relating to a going concern uncertainty). Such consolidated financial statements are incorporated by reference in reliance upon the report of such firm given their authority as experts in accounting and auditing.

The consolidated financial statements of Cy Biopharma, Inc. as of December 31, 2025 and 2024 and for the years then ended, incorporated in this prospectus by reference, have been audited by EisnerAmper LLP, an independent registered public accounting firm, as stated in their report, which report includes an explanatory paragraph about the existence of substantial doubt concerning Cy Biopharma, Inc.'s ability to continue as a going concern. Such financial statements are incorporated by reference in reliance upon the report of such firm given their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of the registration statement on Form S-3 filed with the SEC under the Securities Act and does not contain all the information set forth in the registration statement. Whenever a reference is made in this prospectus to any of our contracts, agreements or other documents, the reference may not be complete and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated herein by reference for a copy of such contract, agreement or other document.

We are currently subject to the reporting requirements of the Exchange Act, and in accordance therewith file periodic reports, proxy statements and other information with the SEC. Our SEC filings are available to you on the SEC's website at <http://www.sec.gov> and in the "Investors" section of our website at www.ensysce.com. Our website and the information contained on that site, or connected to that site, are not incorporated into and are not a part of this prospectus.

DOCUMENTS INCORPORATED BY REFERENCE

The SEC allows us to “incorporate by reference” information from other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus, while information that we file later with the SEC will automatically update and supersede the information in this prospectus. We incorporate by reference into this prospectus and the registration statement of which this prospectus is a part the information or documents listed below that we have filed with the SEC (provided, however, that we are not incorporating, in each case, any documents or information deemed to have been “furnished” and not filed in accordance with SEC rules):

- Our Annual Report on [Form 10-K](#) for the year ended December 31, 2025 filed with the SEC on March 30, 2026;
- Our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2026 (filed with the SEC on [May 15, 2026](#)) and June 30, 2026 (filed with the SEC on [August 13, 2026](#));
- Our Current Reports on Form 8-K filed with the SEC on [January 8, 2026](#), [February 27, 2026](#), [March 23, 2026](#), [March 30, 2026](#), [April 3, 2026](#), [April 8, 2026](#), [May 22, 2026](#), [July 15, 2026](#), [August 6, 2026](#) (as amended on [August 6, 2026](#) and [October 16, 2026](#)), [August 24, 2026](#), [August 25, 2026](#), and [September 29, 2026](#) (in each case other than any portions thereof deemed furnished and not filed);
- All other reports filed with the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act, since the end of the fiscal year covered by the Annual Report on Form 10-K referenced above; and
- The [Form 8-A](#) filed with the SEC on November 28, 2017 by our predecessor corporation, Leisure Acquisition Corp., included a description of common stock that was updated with the filing of our: (i) Third Amended and Restated Certificate of Incorporation as [Exhibit 3.1](#) to our Current Report on Form 8-K, which was filed with the SEC on July 7, 2021 and (ii) Certificate of Amendment to Third Amended and Restated Certificate of Incorporation that was filed as [Exhibit 3.1\(b\)](#) to our Registration Statement on Form S-1 (File No. 333-268038), which was filed with the SEC on October 28, 2022.

We also incorporate by reference any future filings (other than any filings or portions of such reports that are not deemed “filed” under the Exchange Act in accordance with the Exchange Act and applicable SEC rules, including current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits furnished on such form that are related to such items unless such Form 8-K expressly provides to the contrary) made with the SEC pursuant to Sections 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 is a part and prior to the effectiveness of the registration statement, until we file a post-effective amendment that indicates the termination of the offering of the securities made by this prospectus and will become a part of this prospectus from the date that such documents are filed with the SEC. Information in such future filings updates and supplements the information provided in this prospectus. Any statements in any such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later filed document modify or replace such earlier statements.

We will furnish without charge to you, upon written or oral request, a copy of any or all of the documents incorporated by reference, including exhibits to these documents by writing or telephoning us at the following address or phone number. Ensysce Biosciences, Inc., 7946 Ivanhoe Avenue, Suite 201, La Jolla, California 92037, telephone number (858) 263-4196. You may also access this information on our website at www.ensysce.com by viewing the “SEC Filings” subsection of the “Investors” menu.

Up to 433,907,000 Shares of Common Stock



ENSYSCE BIOSCIENCES, INC.

PROSPECTUS

[_____] , 2026

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following is a statement of estimated expenses payable by the registrant, other than placement agent fees and expenses, in connection with the offering described in this registration statement. All amounts are estimates except the SEC registration fee.

SEC registration fee	\$	19,347
Accounting fees and expenses		25,000
Legal fees and expenses		75,000
Miscellaneous		—
Total	\$	119,347

Item 15. Indemnification of Directors and Officers.

Section 102(b)(7) of the Delaware General Corporation Law (the “DGCL”) allows a corporation to provide in its certificate of incorporation that a director of the corporation will not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, except where the director breached the 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. The registrant’s third amended and restated certificate of incorporation provides for this limitation of liability.

Section 145 of the DGCL, provides, among other things, that a Delaware corporation may indemnify any person who was, is or is threatened to be made, party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of such corporation), by reason of the fact that such person is or was an officer, director, employee or agent of such corporation or is or was serving at the request of such corporation as a director, officer, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorneys’ fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding, provided such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation’s best interests and, with respect to any criminal action or proceeding, had no reasonable cause to believe that his or her conduct was unlawful. A Delaware corporation may indemnify any persons who were or are a party to any threatened, pending or completed action or suit by or in the right of the corporation by reason of the fact that such person is or was a director, officer, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorneys’ fees) actually and reasonably incurred by such person in connection with the defense or settlement of such action or suit, provided such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation’s best interests, provided further that no indemnification is permitted without judicial approval if the officer, director, employee or agent is adjudged to be liable to the corporation. Where an officer or director is successful on the merits or otherwise in the defense of any action referred to above, the corporation must indemnify him or her against the expenses (including attorneys’ fees) which such officer or director has actually and reasonably incurred.

Section 145 further authorizes a corporation to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation or enterprise, against any liability asserted against such person and incurred by such person in any such capacity, or arising out of his or her status as such, whether or not the corporation would otherwise have the power to indemnify such person under Section 145.

The registrant’s amended and restated bylaws provide that it must indemnify and advance expenses to its directors and officers to the full extent authorized by the DGCL.

The registrant has entered into indemnification agreements with each of its directors and executive officers. Such agreements may require the registrant, among other things, to advance expenses and otherwise indemnify its executive officers and directors against certain liabilities that may arise by reason of their status or service as executive officers or directors, to the fullest extent permitted by law.

The indemnification rights set forth above shall not be exclusive of any other right which an indemnified person may have or hereafter acquire under any statute, any provision of the registrant's third amended and restated certificate of incorporation, the registrant's amended and restated bylaws, agreement, vote of stockholders or disinterested directors or otherwise. Notwithstanding the foregoing, the registrant shall not be obligated to indemnify a director or officer in respect of a proceeding (or part thereof) instituted by such director or officer, unless such proceeding (or part thereof) has been authorized by the board of directors pursuant to the applicable procedure outlined in the registrant's amended and restated bylaws.

Section 174 of the DGCL provides, among other things, that a director, who willfully or negligently approves of an unlawful payment of dividends or an unlawful stock purchase or redemption, may be held jointly and severally liable for such actions. A director who was either absent when the unlawful actions were approved or dissented at the time may avoid liability by causing his or her dissent to such actions to be entered in the books containing the minutes of the meetings of the board of directors at the time such action occurred or immediately after such absent director receives notice of the unlawful acts.

The registrant maintains and expects to maintain standard insurance policies that provide coverage (1) to its directors and officers against loss rising from claims made by reason of breach of duty or other wrongful act and (2) to the registrant with respect to indemnification payments that the registrant may make to such directors and officers.

These provisions may discourage stockholders from bringing a lawsuit against the registrant's directors for breach of their fiduciary duty. These provisions also may have the effect of reducing the likelihood of derivative litigation against directors and officers, even though such an action, if successful, might otherwise benefit the registrant and its stockholders. Furthermore, a stockholder's investment may be adversely affected to the extent the registrant pays the costs of settlement and damage awards against officers and directors pursuant to these indemnification provisions.

The registrant believes that these provisions, the insurance and the indemnity agreements are necessary to attract and retain talented and experienced officers and directors.

Item 16. Exhibits and Financial Statement Schedules.

(a) Exhibits.

Exhibit Index

No.	Description of Exhibit
2.1†	Agreement and Plan of Merger, dated as of August 5, 2026, by and among Ensysce Biosciences, Inc., PHRMA Merger Sub I, Inc., PHRMA Merger Sub II, LLC and Cy Biopharma, Inc. (incorporated by reference to Exhibit 2.1 filed with the registrant's Current Report on Form 8-K on August 6, 2026).
4.1	Third Amended and Restated Certificate of Incorporation of Ensysce Biosciences, Inc. (incorporated by reference to Exhibit 3.1 filed with the registrant's Current Report on Form 8-K on July 7, 2021).
4.2	Certificate of Amendment to Third Amended and Restated Certificate of Incorporation of Ensysce Biosciences, Inc. (incorporated by reference to Exhibit 3.1(b) filed with the registrant's Registration Statement on Form S-1 (File No. 333-268038) on October 28, 2022).
4.3	Certificate of Second Amendment to the Third Amended and Restated Certificate of Incorporation of Ensysce Biosciences, Inc. (incorporated by reference to Exhibit 3.1 filed with the registrant's Current Report on Form 8-K on October 27, 2022).
4.4	Certificate of Third Amendment to the Third Amended and Restated Certificate of Incorporation of Ensysce Biosciences, Inc. (incorporated by reference to Exhibit 3.1 filed with the registrant's Current Report on Form 8-K on March 30, 2023).
4.5	Certificate of Fourth Amendment to the Third Amended and Restated Certificate of Incorporation of Ensysce Biosciences, Inc. (incorporated by reference to Exhibit 3.1 filed with the registrant's Current Report on Form 8-K on December 3, 2024).
4.6	Certificate of Designation of Series C Non-Voting Convertible Preferred Stock of Ensysce Biosciences, Inc., dated August 5, 2026 (incorporated by reference to Exhibit 3.2 filed with the registrant's Current Report on Form 8-K on August 6, 2026).
4.7	Certificate of Correction to Certificate of Designation of Series C Non-Voting Convertible Preferred Stock of Ensysce Biosciences, Inc. (incorporated by reference to Exhibit 3.3 filed with the registrant's Current Report on Form 8-K/A on August 6, 2026).
4.8	Certificate of Amendment, dated September 25, 2026, to the Certificate of Designation of Series C Non-Voting Convertible Preferred Stock of Ensysce Biosciences, Inc. (incorporated by reference to Exhibit 3 filed with the registrant's Current Report on Form 8-K on September 29, 2026).
4.9	Amended and Restated Bylaws of Ensysce Biosciences, Inc. (incorporated by reference to Exhibit 3.2 filed with the registrant's Current Report on Form 8-K on July 7, 2021).
4.10	Amendment, effective November 1, 2024, to Amended and Restated Bylaws of Ensysce Biosciences, Inc. (incorporated by reference to Exhibit 3.2(b) filed with the registrant's Current Report on Form 8-K on October 18, 2024).
4.11	Form of Registration Rights Agreement, dated as of August 5, 2026, by and between Ensysce Biosciences, Inc. and the purchasers party thereto (incorporated by reference to Exhibit 10.2 filed with the registrant's Current Report on Form 8-K on August 6, 2026).
4.12	Form of Registration Rights Agreement, dated as of August 5, 2026, by and among Ensysce Biosciences, Inc. and certain security holders of Ensysce Biosciences, Inc. and Cy Biopharma, Inc. (incorporated by reference to Exhibit 10.3 filed with the registrant's Current Report on Form 8-K on August 6, 2026).
5.1*	Opinion of Troutman Pepper Locke LLP.
23.1*	Consent of Troutman Pepper Locke LLP (included in Exhibit 5.1).
23.2*	Consent of Baker Tilly US, LLP.
23.3*	Consent of EisnerAmper LLP.
24.1*	Power of Attorney (included on signature page to this registration statement).
107*	Filing Fee Table.

* Filed herewith.

† Certain schedules (or similar attachments) to this Exhibit have been omitted in accordance with Regulation S-K Item 601(a)(5) or 601(b)(2), as applicable. The registrant agrees to furnish supplementally a copy of all omitted schedules to the Securities and Exchange Commission upon its request.

Item 17. Undertakings.

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 the 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 SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Filing Fee Tables" or "Calculation of Registration Fee" table, as applicable, 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), (ii), and (iii) above 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 Securities Exchange Act of 1934 that are incorporated by reference in the registration statement or is contained in a form of prospectus filed pursuant to Rule 424(b) of the Securities Act 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 to any purchaser: (i) If the registrant is relying on Rule 430B, (A) each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and (B) each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5) or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii) or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. *Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date; or (ii) the registrant is subject to Rule 430C, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. *Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.**
- (5) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) 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.
- (6) 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 San Diego, State of California, on October 23, 2026.

ENSYSCE BIOSCIENCES, INC.

By: /s/ Dr. Lynn Kirkpatrick
Name Dr. Lynn Kirkpatrick
Title: Chief Executive Officer and Director

Each person whose signature appears below constitutes and appoints each of Dr. Lynn Kirkpatrick and David Humphrey, acting alone or together with another attorney-in-fact, as his or her true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for such person and in his or her name, place and stead, in any and all capacities, to sign any or all further amendments (including post-effective amendments) to this registration statement (and any additional registration statement related hereto permitted by Rule 462(b) promulgated under the Securities Act of 1933 (and all further amendments, including post-effective amendments, thereto)), and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act, this registration statement has been signed by the following persons in the capacities indicated on October 23, 2026.

<u>Name</u>	<u>Title</u>
By: <u>/s/ Dr. Lynn Kirkpatrick</u> Dr. Lynn Kirkpatrick	Chief Executive Officer and Director (Principal Executive Officer)
By: <u>/s/ David Humphrey</u> David Humphrey	Chief Financial Officer, Secretary and Treasurer (Principal Financial and Accounting Officer)
By <u>/s/ James Morrison</u> James Morrison	President and Director
By: <u>/s/ William Chang</u> William Chang	Director
By: <u>/s/ Bob Gower</u> Bob Gower	Director and Chairman of the Board
By: <u>/s/ Adam Levin</u> Adam Levin	Director
By: <u>/s/ Steve Martin</u> Steve Martin	Director

Troutman Pepper Locke LLP
 Union Trust Building, 501 Grant Street, Suite 300
 Pittsburgh, PA 15219-4429



troutman.com

October 23, 2026

Ensysce Biosciences, Inc.
 7946 Ivanhoe Avenue, Suite 201
 La Jolla, California 92037

Re: Securities Registered under Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to Ensysce Biosciences, Inc., a Delaware corporation (the “Company”), in connection with the registration statement on Form S-3 (the “Registration Statement”) filed with the Securities and Exchange Commission (the “SEC”), and a related prospectus included in the Registration Statement (the “Prospectus”), on October 23, 2026. The Registration Statement relates to the registration under the Securities Act of 1933, as amended (the “Act”), by the Company of an aggregate of 433,907,000 shares (the “Shares”) of the Company’s common stock, par value \$0.0001 per share (the “Common Stock”), for resale by the selling security holders named in the Prospectus (the “Selling Securityholders”), upon the conversion of the Company’s Series C Non-Voting Convertible Preferred Stock, par value \$0.0001 per share (“Preferred Stock”) into shares of Common Stock which consists of up to (i) 282,122,000 shares of Common Stock issuable upon conversion of Preferred Stock issued or to be issued by the Company in a merger transaction (the “Merger”) pursuant to that certain Agreement and Plan of Merger, dated as of August 5, 2026, by and among the Company, PHRMA Merger Sub I, Inc., a Delaware corporation, PHRMA Merger Sub II, LLC, a Delaware limited liability company, and Cy Biopharma, Inc., and together with other agreements providing for the purchase of Preferred Stock by certain of the investors named in the Agreement and Plan of Merger (collectively the “Merger Agreement”); (ii) 120,260,000 shares of Common Stock issuable upon conversion of Preferred Stock issued or to be issued by the Company in a private placement transaction (the “Financing”) pursuant to that certain Securities Purchase Agreement, dated as of August 5, 2026, by and among the Company and the purchasers named therein (the “Securities Purchase Agreement”); (iii) 22,166,000 shares of Common Stock issuable upon conversion of Preferred Stock to be issued by the Company, subject to achievement of a clinical trial milestone, in a private placement transaction pursuant to certain side letter agreements; (iv) 7,183,000 shares of Common Stock that are issuable upon conversion of Preferred Stock issued by the Company in connection with the execution of that certain Omnibus Amendment and Termination Agreement (the “OATA”), dated as of August 5, 2026, between the Company and a Selling Securityholder; and (v) 2,176,000 shares of Common Stock that are issuable upon conversion of Preferred Stock issued by the Company in connection with the execution of an amendment to a contractual obligation of the Company (the “Manufacture Agreement”), dated as of July 1, 2026, between the Company and the contract manufacturer of Company products. The terms of the Preferred Stock are set forth in a Certificate of Designation of Series C Non-Voting Convertible Preferred Stock, as corrected and as amended (the “Certificate of Designation”), which is part of the Company’s Third Amended and Restated Certificate of Incorporation (the “Certificate of Incorporation”).

This opinion is being furnished in accordance with the requirements of Item 16(a) of Form S-3 and Item 601(a) and (b)(5)(i) of Regulation S-K.

For purposes of the opinions we express below, we have examined the originals or copies, certified or otherwise identified, of (i) the Registration Statement, (ii) the Certificate of Incorporation and the Amended and Restated Bylaws of the Company, each as amended and/or restated to date, (iii) the Merger Agreement, (iv) the Securities Purchase Agreement, (v) the OATA, (vi) the Manufacture Agreement and (vii) such other instruments and documents as we considered appropriate for purposes of the opinions hereafter expressed.

In connection with rendering the opinions set forth below, we have assumed without verification (i) the authenticity of all documents submitted to us as originals, (ii) the conformity to the originals of all documents submitted as certified, photostatic or electronic copies and the authenticity of the originals thereof, (iii) the legal capacity of natural persons, (iv) the genuineness of signatures not witnessed by us, including electronic signatures, (v) the due authorization, execution and delivery of all documents by all parties, other than the Company, and the validity, binding effect and enforceability thereof, and (vi) the truth, accuracy and completeness of the information, representations and warranties contained in the records, documents, instruments and certificates we have reviewed.

As to factual matters, we have relied upon the documents furnished to us by the Company, the certificates and other comparable documents of officers and representatives of the Company, statements made to us in discussions with the Company's management and certificates of public officials, without independent verification of their accuracy.

We are opining as to the General Corporation Law of the State of Delaware and we express no opinion with respect to any other laws. We are not opining as to the applicability thereto, or the effect thereon, of the laws of any other jurisdiction or, in the case of Delaware, any other laws, or as to matters of municipal law or the laws of any local agencies within any states (including "blue sky" or other state securities laws).

Based on the foregoing and in reliance thereon, and subject to the limitations, qualifications, assumptions, exceptions and other matters set forth herein, we are of the opinion that:

The Shares have been duly authorized and, when issued by the Company against payment therefor upon conversion of the Preferred Stock in accordance with the terms of the Certificate of Designation, will be legally issued, fully paid and non-assessable.

Our opinion is as of the date hereof and we have no responsibility to update this opinion for events and circumstances occurring after the date hereof or as to facts relating to prior events that are subsequently brought to our attention and we disavow any undertaking to advise you of any changes in law.

We hereby consent to the filing of this opinion letter as Exhibit 5.1 to the Registration Statement and to the use of our name under the caption "Legal Matters" in the Registration Statement and in the Prospectus forming a part thereof and any supplement thereto. 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 Act or the rules and regulations of the SEC promulgated thereunder.

Very truly yours,

/s/ Troutman Pepper Locke LLP

TROUTMAN PEPPER LOCKE LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement on Form S-3 of Ensysce Biosciences, Inc. (the “Company”) of our report dated March 30, 2026, relating to the consolidated financial statements of the Company (which report expresses an unqualified opinion and includes an explanatory paragraph relating to a going concern uncertainty), appearing in the Annual Report on Form 10-K of the Company for the year ended December 31, 2025, filed with the Securities and Exchange Commission. We also consent to the reference to us under the heading “Experts” in such Registration Statement.

/s/ Baker Tilly US, LLP

San Diego, California
October 23, 2026

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement of Ensysce Biosciences, Inc. on Form S-3 to be filed on or about October 23, 2026 of our report dated May 13, 2026, on our audits of the financial statements of Cy Biopharma, Inc. as of December 31, 2025 and 2024 and for each of the years then ended, which report was included in the Ensysce Biosciences, Inc. Form 8-K/A as filed on October 16, 2026. Our report includes an explanatory paragraph about the existence of substantial doubt concerning Cy Biopharma, Inc.'s ability to continue as a going concern. We also consent to the reference to our firm under the caption "Experts" in this Registration Statement.

/s/ EisnerAmper LLP

EISNERAMPER LLP
Iselin, New Jersey
October 23, 2026

Calculation of Filing Fee Tables

S-3

Ensysce Biosciences, Inc.

Table 1: Newly Registered and Carry Forward Securities

☐ Not Applicable

	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	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial Effective Date	Filing Fee Previously Paid in Connection with Unsold Securities to be Carried Forward
Newly Registered Securities												
Fees to be Paid	1 Equity	Common Stock, par value \$0.0001 per share ("Common Stock")	Other	433,907,000	\$ 0.5125	222,377,337.50	\$ 0.000087	\$ 19,346.83				
Fees Previously Paid												
Carry Forward Securities												
Carry Forward Securities												
Total Offering Amounts:						\$		\$ 19,346.83				
						222,377,337.50						
Total Fees Previously Paid:								\$ 0.00				
Total Fee Offsets:								\$ 0.00				
Net Fee Due:								\$ 19,346.83				

Offering Note

1

1 The shares of the Registrant's common stock, par value \$0.0001 per share (the "Common Stock"), offered hereby also include such presently indeterminate number of shares of Common Stock as a result of stock splits, stock dividends or similar transactions in accordance with Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"). Pursuant to Rule 457(c) under the Securities Act, and solely for the purpose of calculating the registration fee at a fee rate of 0.00008700 or \$87 per \$1 million, the proposed maximum offering price per share is \$0.5125, which is the average of the high and low prices of the Common Stock as reported on The Nasdaq Capital Market on October 19, 2026, which date is within five business days prior to filing this Registration Statement. Represents an aggregate of 433,907,000 shares of common stock registered for sale by the selling securityholders named in this registration statement (after giving effect to certain potential anti-dilution and other adjustments).

Table 2: Fee Offset Claims and Sources

☒ Not Applicable

	Registrant or Filer Name	Form or Filing Type	File Number	Initial Filing Date	Filing Date	Fee Offset Claimed	Security Type Associated with Fee Offset Claimed	Security Title Associated with Fee Offset Claimed	Unsold Securities Associated with Fee Offset Claimed	Unsold Aggregate Offering Amount Associated with Fee Offset Claimed	Fee Paid with Fee Offset Source
Rules 457(b) and 0-11(a)(2)											
Fee Offset Claims											
Fee Offset Sources											
Rule 457(p)											
Fee Offset Claims											
Fee Offset Sources											

Table 3: Combined Prospectuses

☒ Not Applicable

Security Type	Security Class Title	Amount of Securities	Maximum Aggregate Offering Price of	Form Type	File Number	Initial Effective
---------------	----------------------	----------------------	-------------------------------------	-----------	-------------	-------------------

			Previously Registered	Securities Previously Registered			Date
--	--	--	--------------------------	-------------------------------------	--	--	------