

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

**PRE-EFFECTIVE AMENDMENT NO. 1
TO
FORM S-3
ON FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

INCANNEX HEALTHCARE 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)

93-2403210

(I.R.S. Employer
Identification No.)

**Suite 105, 8 Century Circuit Norwest,
NSW 2153 Australia
+61 409 840 786**

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

**Joel Latham
Chief Executive Officer and President
Incannex Healthcare Inc.
Suite 105, 8 Century Circuit Norwest,
NSW 2153 Australia
+61 409 840 786**

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

Copies to:

**Scott M. Stanton, Esq.
Melanie Ruthrauff Levy, Esq.
Jason Miller, Esq.
Mintz, Levin, Cohn, Ferris, Glovsky & Popeo, P.C.
3580 Carmel Mountain Road, Suite 300
San Diego, CA 92130
(858) 314-1500**

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

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, as amended, 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, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering:

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

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

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 checkmark if the registrant has not elected 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 that specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

EXPLANATORY NOTE

This Pre-Effective Amendment No. 1 to Form S-3 on Form S-1 is being filed to convert the registration statement on Form S-3 filed by Incannex Healthcare Inc. on November 6, 2024 (Registration No. 333-283025) into a registration statement on Form S-1.

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

Subject to completion, dated November 26, 2024

PROSPECTUS



Incannex Healthcare Inc.

61,389,758 Shares of Common Stock

This prospectus relates to the offer and sale by the selling stockholders named in this prospectus, and any pledgee, donee, transferee or other successor in interest, of up to 61,389,758 shares (the “Shares”) of common stock, par value \$0.0001 per share, of Incannex Healthcare Inc. (the “Common Stock”).

We are registering for resale (i) up to 50,000,000 shares of Common Stock (the “ELOC Shares”) issuable to Arena Business Solutions Global SPC II, Ltd (“Arena Global”) pursuant to an equity line of credit Purchase Agreement, dated as of September 6, 2024 (the “ELOC Purchase Agreement”) relating to the sale of up to \$50.0 million of Common Stock, (ii) up to 250,000 shares of Common Stock (the “Commitment Shares”) issuable to Arena Global as a commitment fee pursuant to the ELOC Purchase Agreement, (iii) up to 585,000 shares of Common Stock (the “ELOC Warrant Shares”) issuable pursuant to a warrant issued to Arena Global (the “ELOC Warrant”) as a commitment fee pursuant to the ELOC Purchase Agreement, (iv) up to 10,101,009 shares of Common Stock (the “First Tranche Debenture Shares”) issuable upon conversion of our 10% original issue discount secured convertible debenture (the “First Tranche Debenture”) that we issued to Arena Special Opportunities (Offshore) Master II LP (“Arena Opportunities”) pursuant to that certain Securities Purchase Agreement, dated September 6, 2024 (the “Securities Purchase Agreement”), by and between us and Arena Opportunities, and (v) up to 453,749 shares of Common Stock (the “First Tranche Warrant Shares”) issuable upon the exercise of outstanding warrants (the “First Tranche Warrant”) issued to Arena Opportunities in connection with the First Tranche Debenture. The ELOC Warrant and the First Tranche Warrant are collectively referred to herein as the “Warrants.” See “Description of the Transactions” beginning on page 7 for a description of the terms and conditions of the ELOC Purchase Agreement, including the Commitment Shares and ELOC Warrant Shares, and the Securities Purchase Agreement.

The selling stockholders named in this prospectus, and any pledgee, donee, transferee or other successor-in-interest, may offer the shares from time to time through public or private transactions at prevailing market prices, at prices related to prevailing market prices or at privately negotiated prices. For further information regarding the possible methods by which our Common Stock may be distributed, see “Plan of Distribution” beginning on page 20 in this prospectus. Each of the selling stockholders is an “underwriter” within the meaning of Section 2(a)(11) of the Securities Act of 1933, as amended (the “Securities Act”). We are not selling any securities under this prospectus and will not receive any of the proceeds from the sale of shares of Common Stock by the selling stockholders. However, we will receive the net proceeds from any exercise of the warrants to purchase Common Stock for cash, we may receive gross proceeds of up to \$50.0 million under the ELOC Purchase Agreement and we have received \$3.0 million of gross proceeds in respect of the First Tranche Debenture.

Our Common Stock is traded on The Nasdaq Global Market under the symbol “IXHL.” On November 20, 2024, the closing sale price of the Common Stock on Nasdaq was \$2.09 per share.

Investing in our Common Stock involves a high degree of risk. Please consider carefully the risks described in this prospectus under “Risk Factors” beginning on page 4 of this prospectus and in our filings with the Securities and Exchange Commission.

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

The date of this prospectus is _____, 2024

TABLE OF CONTENTS

	Page
<u>ABOUT THIS PROSPECTUS</u>	ii
<u>PROSPECTUS SUMMARY</u>	1
<u>RISK FACTORS</u>	4
<u>SPECIAL NOTE REGARDING FORWARD-LOOKING INFORMATION</u>	6
<u>DESCRIPTION OF THE TRANSACTIONS</u>	7
<u>USE OF PROCEEDS</u>	12
<u>DIVIDEND POLICY</u>	12
<u>SELLING STOCKHOLDERS</u>	13
<u>DESCRIPTION OF CAPITAL STOCK</u>	14
<u>PLAN OF DISTRIBUTION</u>	20
<u>EXPERTS</u>	21
<u>LEGAL MATTERS</u>	21
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	21
<u>INCORPORATION OF CERTAIN INFORMATION BY REFERENCE</u>	22

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-1 that we have filed with the Securities and Exchange Commission (the “SEC”) pursuant to which the selling stockholders named herein may, from time to time, offer and sell or otherwise dispose of the Shares covered by this prospectus. You should not assume that the information contained in this prospectus is accurate on any date subsequent to the date set forth on the front cover of this prospectus or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus is delivered or Shares are sold or otherwise disposed of on a later date.

This prospectus does not contain all of the information included in the registration statement. For a more complete understanding of the offering of the Shares, you should refer to the registration statement including the exhibits. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference 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 the heading “Where You Can Find More Information.” This prospectus contains summaries of certain provisions contained in some of the documents described herein, or that are filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. We further note that 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 in the accompanying prospectus 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. It is important for you to read and consider all information contained in this prospectus, including the documents incorporated by reference therein, in making your investment decision. You should also read and consider the information in the documents to which we have referred you under “Where You Can Find More Information” and “Incorporation of Certain Documents by Reference” in this prospectus.

We and the selling stockholders have not authorized anyone to give any information or to make any representation to you other than those contained or incorporated by reference in this prospectus. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus. This prospectus does not constitute an offer to sell or the solicitation of an offer to buy any of our shares of Common Stock other than the Shares covered hereby, nor does this prospectus constitute an offer to sell or the solicitation of an offer to buy any securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. Persons who come into possession of this prospectus in jurisdictions outside the United States are required to inform themselves about, and to observe, any restrictions as to the offering and the distribution of this prospectus applicable to those jurisdictions.

This prospectus incorporates by reference, and any prospectus supplement or free writing prospectus may contain and incorporate by reference, 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. This prospectus, including the documents incorporated by reference herein, include statements that are based on various assumptions and estimates that are subject to numerous known and unknown risks and uncertainties. Some of these risks and uncertainties are described in the section entitled “Risk Factors” beginning on page 4 of this prospectus and as described in Part I, Item 1A (Risk Factors) of our most recent Annual Report on Form 10-K for the year ended June 30, 2024 filed with the SEC on September 30, 2024, as updated by our subsequent filings with the SEC under the Securities Exchange Act of 1934, as amended (the “Exchange Act”). These and other important factors could cause our future results to be materially different from the results expected as a result of, or implied by, these assumptions and estimates. You should read the information contained in, or incorporated by reference into, this prospectus completely and with the understanding that future results may be materially different from and worse than what we expect. See the information included under the heading “Special Note Regarding Forward-Looking Information.”

In this prospectus, references to “Incannex,” “Incannex Healthcare,” the “Company,” “we,” “us,” and “our” refer to Incannex Healthcare Inc. and its subsidiaries. The phrase “this prospectus” refers to this prospectus and any applicable prospectus supplement, unless the context requires otherwise.

We use our trademarks in this prospectus as well as trademarks, tradenames and service marks that are the property of other organizations. Solely for convenience, certain trademarks and tradenames referred to in this prospectus appear without the ® and TM symbols, but those references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or that the applicable owner will not assert its rights, to these trademarks and tradenames.

PROSPECTUS SUMMARY

The following is a summary of what we believe to be the most important aspects of our business and the offering of our securities under this prospectus. We urge you to read this entire prospectus, including the more detailed consolidated financial statements, notes to the consolidated financial statements and other information incorporated by reference from our other filings with the SEC. Investing in our securities involves risks. Therefore, carefully consider the risk factors set forth in this prospectus and in our most recent annual and quarterly filings with the SEC, as well as other information in this prospectus and the documents incorporated by reference herein.

About Incannex Healthcare Inc.

We are a clinical-stage biopharmaceutical company dedicated to developing innovative medicines for patients living with serious chronic diseases and significant unmet needs. We are advancing oral synthetic cannabinoid and psilocybin drug candidates targeting sleep apnea, anxiety, and inflammatory diseases. Our lead programs include IHL-42X, an oral fixed dose combination of dronabinol and acetazolamide, designed to act synergistically in the treatment of OSA, in a global Phase 2/3 study for the treatment of obstructive sleep apnea, PSX-001 in a Phase 2 trial conducted in the U.S. and UK to assess the combination of an oral synthetic psilocybin treatment with psychotherapy for patients with generalized anxiety disorder, and IHL-675A, an oral fixed dose combination of cannabidiol and hydroxychloroquine sulfate, acting synergistically to alleviate inflammation, in an Australian Phase 2 trial. Each of these programs target indications that have limited, inadequate, or no approved pharmaceutical treatment options.

To date, we have not generated any revenue and do not expect to generate significant revenue from the sale of our drug candidates in development in the foreseeable future. If our development efforts for our drug candidates are successful and result in regulatory approval, we may generate revenue in the future from these sales. We cannot predict if, when, or to what extent we will generate revenue from the commercialization and sale of our drug candidates. We may never succeed in obtaining regulatory approval for any of our drug candidates.

Implications of Being an Emerging Growth Company and Smaller Reporting Company

We are an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012 (the “JOBS Act”). We may take advantage of certain exemptions from various public company reporting requirements, including not being required to have our internal control over financial reporting audited by our independent registered public accounting firm under Section 404 of the Sarbanes-Oxley Act of 2002 (the “Sarbanes-Oxley Act”), reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and any golden parachute payments. We may take advantage of these exemptions until the last day of our fiscal year following the fifth anniversary of the date of the first sale of our common equity securities pursuant to an effective registration statement under the Securities Act or until we are no longer an “emerging growth company,” whichever is earlier. We will cease to be an emerging growth company prior to the end of such period if certain earlier events occur, including if we become a “large accelerated filer” as defined in Rule 12b-2 under the Exchange Act, our annual gross revenues exceed \$1.235 billion or we issue more than \$1.0 billion of non-convertible debt in any three-year period.

Under the JOBS Act, emerging growth companies can also delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have elected to use this extended transition period under the JOBS Act until the earlier of the date we (i) are no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act.

We are also a “smaller reporting company” as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company, which would allow us to take advantage of many of the same exemptions available to emerging growth companies, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation. We will be able to take advantage of the scaled disclosures available to smaller reporting companies for so long as our voting and non-voting common stock held by non-affiliates is less than \$250.0 million measured on the last business day of our second fiscal quarter, or our annual revenue is less than \$100.0 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is less than \$700.0 million measured on the last business day of our second fiscal quarter.

Additional Information

For additional information related to our business and operations, please refer to the reports incorporated herein by reference, as described under the caption “Incorporation of Certain Documents by Reference” on page 22 of this prospectus.

Corporate Information

Incannex Healthcare Inc. was incorporated in Delaware in July 2023. On November 28, 2023, the redomiciliation of Incannex Healthcare Limited, an Australian corporation (“Incannex Australia”), was implemented under Australian law in accordance with the Scheme Implementation Deed, as amended and restated on September 13, 2023, between Incannex Australia and the Company. As a result of the redomiciliation, Incannex Australia became a wholly-owned subsidiary of Incannex Healthcare Inc.

Our principal office is located at Suite 105, 8 Century Circuit Norwest, NSW 2153 Australia and our telephone number is +61 409 840 786. Our address on the Internet is <http://www.incannex.com>. The reference to our website address does not constitute incorporation by reference of the information contained at or available through our website, and you should not consider it to be a part of this prospectus.

The information on, or accessible through, our website is not part of this prospectus. We file Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports with SEC. Our filings with the SEC are available free of charge on the SEC’s website and on the “Investors” section of our website as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. The SEC maintains an internet site that contains reports and information statements, and other information regarding issuers that file electronically with the SEC at <http://www.sec.gov>.

THE OFFERING

Common Stock offered by selling stockholders hereunder	61,389,758 shares, consisting of (i) up to 50,000,000 shares of Common Stock issuable to Arena Global under the equity line, (ii) up to 250,000 shares of Common Stock issuable to Arena Global as a commitment fee, (iii) up to 585,000 shares of Common Stock issuable upon exercise of the ELOC Warrant, (iv) up to 10,101,009 shares of Common Stock issuable upon conversion of the First Tranche Debenture, and (v) up to 453,749 shares of Common Stock issuable upon exercise of the First Tranche Warrant, in each case, subject to certain beneficial ownership limitations as described under the caption “Description of the Transactions” on page 7 of this prospectus.
Common Stock outstanding before the offering	17,642,832 shares
Common Stock outstanding after the offering	79,032,590 shares. The actual number of shares outstanding after the offering will vary depending upon the actual number of shares we issue and sell to selling stockholders after the date of this prospectus.
Risk Factors:	Investing in our securities is highly speculative and involves a high degree of risk. You should carefully consider the information set forth in the “Risk Factors” section on page 4 before deciding to invest in our securities.
Use of proceeds	We will not receive any proceeds from the sale of shares in this offering. However, we will receive the proceeds from any exercise of the warrants to purchase Common Stock for cash, we may receive gross proceeds of up to \$50.0 million under the ELOC Purchase Agreement and we have received \$3.0 million of gross proceeds in respect of the First Tranche Debenture. Such proceeds will be used for working capital and general corporate purposes.
Nasdaq Global Market symbol:	IXHL

The number of shares of our Common Stock to be outstanding upon completion of this offering is based on 17,642,832 shares of our Common Stock outstanding as of November 22, 2024 and excludes:

- 1,978,338 shares of Common Stock issuable upon the exercise of outstanding warrants that were issued to stockholders in connection with the Re-domiciliation having a weighted average exercise price of \$20.04 per share;
- 3,464,344 shares of Common Stock reserved for issuance under the Company’s 2023 Equity Incentive Plan, including 670,468 shares of Common Stock reserved for issuance under restricted stock units granted under the Company’s 2023 Equity Incentive Plan;
- An indeterminable number of shares of Common Stock reserved for issuance upon the sale of up to \$50.0 million of shares of Common Stock that we may elect to make to Arena Global pursuant to the ELOC Purchase Agreement, if any, from time to time, estimated for the purposes of this registration statement to be up to 50,000,000 shares;
- An indeterminable number of shares of Common Stock reserved for issuance as Initial Commitment Shares and True-Up Shares as described under the caption “Description of the Transactions” on page 7 of this prospectus, estimated for purposes of this registration statement to be 250,000 shares;
- 585,000 shares of Common Stock reserved for issuance upon the exercise of the ELOC Warrant;
- Up to 10,101,009 shares of Common Stock reserved for issuance upon the conversion of the First Tranche Debenture; and
- 453,749 shares of Common Stock reserved for issuance upon the exercise of the First Tranche Warrant.

RISK FACTORS

Investing in our Common Stock involves a high degree of risk. You should carefully consider the risks and uncertainties and all other information, documents or reports included or incorporated by reference in this prospectus and, if applicable, any prospectus supplement or other offering materials, including the risks and uncertainties discussed and described in Part I, Item 1A (Risk Factors) of our most recent Annual Report on Form 10-K for the year ended June 30, 2024, filed with the SEC on September 30, 2024, as updated by our subsequent filings with the SEC under the Exchange Act, which are incorporated by reference, in this prospectus, and any updates to those risk factors included from time to time in our periodic and current reports filed with the SEC and incorporated by reference in this prospectus, before making any decision to invest in shares of our Common Stock. If any of the events discussed in these risk factors occurs, our business, prospects, results of operations, financial condition and cash flows could be materially harmed. If that were to happen, the trading price of our Common Stock could decline, and you could lose all or part of your investment. Additional risks not currently known to us or other factors not perceived by us to present significant risks to our business at this time also may impair our business operations .

Risks Related to this Offering

It is difficult to predict the actual number of shares we will issue upon conversion of the First Tranche Debenture and under the ELOC Purchase Agreement.

The conversion price of the First Tranche Debenture is based on the daily volume weighted average price (“VWAP”) of our Common Stock during a specified period of time and is also subject to adjustment for certain security issuances by us deemed to be below the conversion price, all subject to a floor price of \$0.33 per share. Accordingly, the exact number of shares of Common Stock issuable upon conversion of the First Tranche Debenture cannot be determined at this time and may change over time.

In addition, under the ELOC Purchase Agreement, the purchase price per share to be paid by the Arena Global for the shares of our common stock that we may elect to sell to Arena Global, if any, will fluctuate based on the market prices of our Common Stock during the applicable Pricing Period (as defined below). Additionally, the price per share on which the Commitment Shares is based will fluctuate based on VWAP of our Common Stock during the applicable time periods following and preceding the date of initial effectiveness of the registration statement of which this prospectus forms a part during which the VWAP for such issuable shares is calculated. The Commitment Shares are also subject to a true-up based on based on market prices of our Common Stock during the applicable time periods during which the VWAP for the true-up is calculated. As a result, it is not possible for us to predict, as of the date of this prospectus and prior to any such sales, the number of shares of our common stock that we will sell to Arena Global under the ELOC Purchase Agreement, the number of Commitment Shares we will issue to Arena Global under the ELOC Purchase Agreement, the purchase price per share that Arena Global will pay for shares purchased from us under the ELOC Purchase Agreement, or the aggregate gross proceeds that we will receive from those purchases by Arena Global under the ELOC Purchase Agreement, if any.

Therefore, because the market prices of our Common Stock may fluctuate from time to time after the date of this prospectus and the actual purchase prices to be paid by Arena Global for shares of our Common Stock that we direct it to purchase under the ELOC Purchase Agreement, if any, also may fluctuate, it is possible that we may need to issue and sell more than the number of shares being registered for resale under this prospectus to Arena Global under the ELOC Purchase Agreement in order to receive aggregate gross proceeds equal to Arena Global’s \$50 million Commitment Amount under the ELOC Purchase Agreement.

If it becomes necessary for us to issue and sell to Arena Global under the ELOC Purchase Agreement more shares of our Common Stock than are being registered for resale under this prospectus in order to receive aggregate gross proceeds equal to \$50 million from sales of our Common Stock to Arena Global under the ELOC Purchase Agreement, we must first file with the SEC one or more additional registration statements to register under the Securities Act the resale by Arena Global of any such additional shares of our common stock we wish to sell to Arena Global from time to time under the ELOC Purchase Agreement, and the SEC must declare such additional registration statements effective before we may elect to sell any additional shares of our Common Stock to Arena Global under the Purchase Agreement. The number of shares of our Common Stock ultimately offered for resale by Arena Global is dependent upon the number of shares of our Common Stock, if any, we ultimately sell to Arena Global under the ELOC Purchase Agreement.

Investors who buy shares at different times will likely pay different prices.

Investors who purchase shares in this offering at different times will likely pay different prices, and so may experience different levels of dilution and different outcomes in their investment results. The selling stockholders may sell such shares at different times and at different prices. Investors may experience a decline in the value of the shares they purchase from the selling stockholders in this offering as a result of sales made by us in future transactions to the selling stockholders at prices lower than the prices they paid.

The issuance of Common Stock to the selling stockholders may cause substantial dilution to our existing stockholders, and the sale of such shares acquired by the selling stockholders could cause the price of our Common Stock to decline.

We are registering for resale by the selling stockholders up to 61,389,758 shares of Common Stock, consisting of up to 50,000,000 shares of Common Stock issuable to Arena Global under the equity line, (ii) up to 250,000 shares of Common Stock issued to Arena Global as a commitment fee, (iii) up to 585,000 shares of Common Stock issuable upon exercise of the ELOC Warrant, (iv) up to 10,101,009 shares of Common Stock issuable upon conversion of the First Tranche Debenture, and (v) up to 453,749 shares of Common Stock issuable upon exercise of the First Tranche Warrant. The number of shares of our Common Stock ultimately offered for resale by the selling stockholders under this prospectus is dependent upon the number of shares converted under the First Tranche Debenture, the number of shares issued upon exercise of the Warrants, and the number of shares issued under the ELOC Purchase Agreement. Depending on a variety of factors, including market liquidity of our Common Stock, the issuance of shares to selling stockholders may cause the trading price of our Common Stock to decline.

In particular, the purchase price of our Common Stock to be sold to Arena Global under the ELOC Purchase Agreement is derived from the market price of our common stock on Nasdaq. Shares to be sold to Arena Global pursuant to the ELOC Purchase Agreement will be purchased at a discounted price. We may effect sales at a price equal to 96% of the market price, defined as the VWAP of our Common Stock on the trading day commencing on the date of the Advance Notice (as defined below).

If and when we do issue shares to the selling stockholders, after the selling stockholders have acquired the shares, the selling stockholders may resell all, some, or none of those shares at any time or from time to time in its discretion. Therefore, sales to the selling stockholders by us could result in substantial dilution to the interests of other holders of our Common Stock. Additionally, the sale or issuance of a substantial number of shares of our Common Stock to the selling stockholders, or the anticipation of such sales, could make it more difficult for us to sell securities in the future at a time and at a price that we might otherwise wish to effect such financing.

We expect to require additional capital to fund our operations, and we may be unable to raise capital or additional financing when needed on acceptable terms, or at all.

We expect to seek additional equity or debt financing in the future to fund our operations and execute our business plan. Our business plans may change, general economic, financial or political conditions in our markets may deteriorate or other circumstances may arise, in each case that have a material adverse effect on our cash flows and the anticipated cash needs of our business. Any of these events or circumstances could result in significant additional funding needs, requiring us to raise additional capital. We cannot predict the timing or amount of any such capital requirements at this time. If financing is not available on satisfactory terms, or at all, we may be unable to expand our business at the rate desired and our results of operations may suffer. In addition, any financing through issuances of equity securities would be dilutive to holders of our shares.

Our need for future financing may result in the issuance of additional securities, which will cause investors to experience dilution.

Our cash requirements may vary from those now planned. We expect our expenses to increase as we continue to develop our drug candidates. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. Other than pursuant to the Securities Purchase Agreement and the ELOC Purchase Agreement, each of which have conditions to be met in order to receive funding, there are no other formal agreements by any person for future financing. Our securities may be offered to other investors at a price lower than the price per share offered to current stockholders, or upon terms which may be deemed more favorable than those offered to current stockholders. In addition, the issuance of securities in any future financing may dilute an investor's equity ownership and have the effect of depressing the market price for our securities. Moreover, we may issue derivative securities, including options and/or warrants, from time to time, to procure qualified personnel or for other business reasons. The issuance of any such derivative securities, which is at the discretion of our board of directors, may further dilute the equity ownership of our stockholders.

Our management team will have broad discretion over the use of the proceeds from our sale or issuance of Common Stock to the selling stockholder. You may not agree with how we use the proceeds, and the proceeds may not be invested successfully.

Our management team will have broad discretion as to the use of the proceeds from the sale of our Common Stock to the selling stockholders, and we could use such proceeds for purposes other than those contemplated at the time of commencement of this offering. Accordingly, you will be relying on the judgment of our management team with regard to the use of those proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. It is possible that, pending their use, we may invest those proceeds in a way that does not yield a favorable, or any, return for us. The failure of our management team to use such funds effectively could have a material adverse effect on our business, financial condition, operating results and cash flows.

SPECIAL NOTE REGARDING FORWARD-LOOKING INFORMATION

This prospectus, including documents incorporated by reference herein and therein, and any free writing prospectus that we have authorized for use in connection with this offering, contain forward-looking statements within the meaning of Section 27A of the Securities Act, and Section 21E of the Exchange Act. Forward-looking statements are statements other than historical facts and relate to future events or circumstances or our future performance, and they are based on our current assumptions, expectations and beliefs concerning future developments and their potential effect on our business. The words “believe,” “may,” “will,” “potentially,” “estimate,” “continue,” “anticipate,” “intend,” “could,” “would,” “project,” “plan,” “expect,” “possible,” “likely,” “probable,” and similar expressions that convey uncertainty of future events or outcomes identify forward-looking statements. These statements include, among other things, statements regarding:

- our ability to implement our product development and business strategies, including our ability to continue to pursue development pathways and regulatory strategies for IHL-42X, PSX-001, and IHL-675A and any of our other drug candidates;
- estimates regarding market size and related future growth rates;
- our research and development activities, including clinical testing and manufacturing and the related costs and timing;
- the possibility that we may be required to conduct additional clinical studies or trials for our drug candidates and the consequences resulting from the delay in obtaining necessary regulatory approvals;
- the timing, scope or likelihood of regulatory filings and approvals and our ability to obtain and maintain regulatory approvals for our drug candidates for any indication;
- the pricing, coverage and reimbursement of our drug candidates, if approved and commercialized;
- the rate and degree of market acceptance and clinical utility of our drug candidates;
- our expectations around feedback from and discussions with regulators, regulatory development paths and with respect to Controlled Substances Act designation;
- our ability to maintain effective patent rights and other intellectual property protection for our drug candidates, and to prevent competitors from using technologies we consider important to the successful development and commercialization of our drug candidates;
- our estimates regarding expenses, revenues, financial performance and capital requirements, including the length of time our capital resources will sustain our operations;
- our ability to commercialize drug candidates and to generate revenues;
- our financial condition, including our ability to obtain the funding necessary to advance the development of our drug candidates and our ability to continue as a going concern.
- our ability to comply with the provisions and requirements of our debt arrangements and to pay amounts owed, including any amounts that may be accelerated;
- our ability to retain and attract qualified employees, directors, consultants and advisors;
- our ability to continue to comply with applicable privacy laws and protect confidential information from security breaches;
- how recent and potential future changes in healthcare policy could negatively impact our business and financial condition;
- the extent to which global economic and political developments, including existing regional conflicts, pandemics, natural disasters, and the indirect and/or long-term impact of inflation, will affect our business operations, clinical trials, or financial condition; and
- any statement of assumptions underlying any of the foregoing.

Although forward-looking statements in this prospectus, including the documents incorporated by reference herein and therein, and in any free writing prospectus that we have authorized for use in connection with this offering, reflect the good faith judgment of our management, such statements can only be based on facts and factors currently known by us. Consequently, forward-looking statements are inherently subject to risks and uncertainties and actual results and outcomes may differ materially from the results and outcomes discussed in or anticipated by the forward-looking statements. Factors that could cause or contribute to such differences in results and outcomes include, without limitation, those specifically addressed under the heading “Risk Factors” contained in this prospectus supplement, the accompanying prospectus and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus supplement and the accompanying prospectus, including our most recent Annual Report on Form 10-K and Quarterly Reports on Form 10-Q, as well as any amendments thereto reflected in subsequent filings with the SEC. Readers are urged not to place undue reliance on these forward-looking statements, which speak only as of the date made. We file reports with the SEC, and our electronic filings with the SEC (including our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, and any amendments to these reports) are available free of charge on the SEC’s website at <http://www.sec.gov>.

We undertake no obligation to revise or update any forward-looking statements in order to reflect any event or circumstance that may arise after the date of this prospectus supplement, except as required by law. Readers are urged to carefully review and consider the various disclosures made throughout the entirety of this prospectus supplement, the accompanying prospectus and any related free writing prospectus, and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus, which disclosures are designed to advise interested parties of the risks and factors that may affect our business, financial condition, results of operations and prospects.

DESCRIPTION OF THE TRANSACTIONS

\$50 MILLION EQUITY LINE OF CREDIT

On September 6, 2024, we entered into the ELOC Purchase Agreement with Arena Global, pursuant to which Arena Global has committed to purchase up to \$50,000,000 of our Common Stock at our direction from time to time, subject to the satisfaction of the conditions in the ELOC Purchase Agreement.

Such sales of our Common Stock, if any, will be subject to certain limitations, and may occur from time to time at our sole discretion over the approximately 36-month period commencing on the date of the Purchase Agreement, provided that this registration statement, of which this prospectus forms a part, and any other registration statement the Company may file from time to time, covering the resale by Arena Global of the shares of our Common Stock purchased from us by Arena Global is declared effective by the SEC and remains effective, and the other conditions set forth in the ELOC Purchase Agreement are satisfied.

Arena Global has no right to require any sales by us, but Arena Global is obligated to make purchases at our direction subject to certain conditions. There is no upper limit on the price per share that Arena Global could be obligated to pay for our Common Stock under the ELOC Purchase Agreement.

Actual sales of shares of our Common Stock to Arena Global from time to time will depend on a variety of factors, including, among others, market conditions, the trading price of our Common Stock and determinations by us as to the appropriate sources of funding for us and our operations. The net proceeds that we may receive under the ELOC Purchase Agreement, if any, cannot be determined at this time, since it will depend on the frequency and prices at which we sell shares of our Common Stock to Arena Global, our ability to meet the conditions of the ELOC Purchase Agreement and the other limitations, terms and conditions of the ELOC Purchase Agreement and any impacts of the Ownership Limitation (as defined in the ELOC Purchase Agreement).

The Purchase Agreement contains customary representations, warranties, conditions and indemnification obligations of the parties.

Purchase of Shares under the ELOC Purchase Agreement

Under the ELOC Purchase Agreement, after the satisfaction of certain commencement conditions, we have the right to present the Investor with an advance notice (each, an “Advance Notice”) directing the Investor to purchase any amount up to the Maximum Advance Amount (as described below). The Maximum Advance Amount is calculated as follows (unless otherwise agreed amongst the parties): (a) if the Advance Notice is received by 8:30 a.m., Eastern Time, the lower of: (i) an amount equal to 70% of the average of the Daily Value Traded (as defined in the ELOC Purchase Agreement) of our Common Stock on the ten Trading Days (as defined in the ELOC Purchase Agreement) immediately preceding an Advance Notice, or (ii) \$20,000,000, and (b) if the Advance Notice is received after 8:30 a.m. Eastern Time, but prior to 10:30 a.m., Eastern Time, the lower of (i) an amount equal to 40% of the average of the Daily Value Traded of our Common Stock on the ten Trading Days immediately preceding an Advance Notice, or (ii) \$15,000,000, or (c) if the Advance Notice is received after 10:30 a.m. Eastern Time but prior to 12:30 p.m. Eastern Time, the lower of: (i) an amount equal to 20% of the Daily Value Traded of our Common Stock on the ten Trading Days immediately preceding an Advance Notice, or (ii) \$10,000,000.

During the Commitment Period, the purchase price to be paid by Arena Global for the Common Stock under the ELOC Purchase Agreement will be 96% of the market price, defined as the daily VWAP of our Common Stock on the trading day commencing on the date of the Advance Notice. Separately, the Company may be obligated to pay to JonesTrading Institutional Services LLC a fee equal to 7% of the aggregate gross subscription price paid to the Company by Arena Global.

Consideration

In connection with the ELOC Purchase Agreement we agreed, among other things, to issue to Arena Global as a commitment fee, that number of shares of our Common Stock equal to 250,000 (the “Initial Commitment Fee Shares”) divided by the simple average of the daily VWAP of our Common Stock during the five trading days immediately preceding the effectiveness date of this registration statement, on which the estimated Initial Commitment Fee Shares are registered. As additional consideration for Arena Global’s execution and delivery of the ELOC Purchase Agreement, we issued on October 31, 2024, a five-year warrant exercisable for 585,000 shares of our Common Stock with an exercise price equal to \$1.66 per share.

The ELOC Purchase Agreement also has a provision that provides that the number of Initial Commitment Fee Shares shall be subject to a true-up whereby we shall issue to the Arena Global or its designee(s) that number of additional Common Stock (“True-Up Shares” if any, equal (i) to the number of True-Up Shares issuable in accordance with the pricing formula below minus (ii) the number of Initial Commitment Fee Shares issuable pursuant to the pricing formula above, if and to the extent such number is a positive number. The number of True-Up Shares issuable shall be equal to 250,000 divided by the lower of (a) the simple average of the three (3) lowest daily intraday trade prices over the 25 Trading Days after (and not including) the date of effectiveness of this registration statement and (b) the closing price on the 25th Trading Day after the effectiveness of this registration statement (the “True-Up End Date”). The Company shall issue to the Company any True-Up Shares promptly (but in no event later than one (1) Trading Day) after the True-Up End Date to the extent such True-Up Shares are issuable pursuant to the terms of this the ELOC Purchase Agreement.

The Commitment Shares and the ELOC Warrant Shares are covered by this prospectus.

Description of the ELOC Warrant

As described above, the ELOC Warrant is exercisable for up to 585,000 shares of Common Stock at an exercise price equal to \$1.66 per share, exercisable at any time on or after the issuance date and has a term of five years from the issuance date. The exercise price of the ELOC Warrant is subject to adjustment in the event of an issuance of Common Stock at a price per share lower than the exercise price then in effect, as well as upon customary stock splits, stock dividends, pro rata distributions, combinations or similar events. The ELOC Warrant may be exercised on a cashless basis, if at any time after 180 days following the issuance date, there is not an effective registration statement in place registering the ELOC Warrant Shares for resale.

Conditions to Delivery of Advance Notices

Our ability to deliver Advance Notices to Arena Global under the ELOC Purchase Agreement is subject to the satisfaction of certain conditions, including, among other things, the following:

- the accuracy in all material respects of our representations and warranties included in the ELOC Purchase Agreement;
- the effectiveness of this registration statement that includes this prospectus (and any one or more additional registration statements filed with the SEC that include the Commitment Shares and shares of our Common Stock that may be issued and sold by us to Arena Global under the ELOC Purchase Agreement);
- the Company having obtained all required permits and qualifications for the offer and sale of all shares of our Common Stock issuable pursuant to such Advance Notice;
- no Material Outside Event or Material Adverse Event (each as defined in the ELOC Purchase Agreement) shall have occurred or be continuing;
- us having performed, satisfied and complied in all material respects with all covenants, agreements and conditions required by the ELOC Purchase Agreement to be performed, satisfied or complied with by us;
- the absence of any statute, regulation, order, decree, ruling or injunction by any court or governmental authority of competent jurisdiction which prohibits or directly, materially and adversely affects any of the transactions contemplated by the ELOC Purchase Agreement;
- trading in our Common Stock shall not have been suspended by Nasdaq, we shall not have received any final and non-appealable notice that the listing or quotation of our Common Stock on Nasdaq shall be terminated;
- there shall be a sufficient number of authorized but unissued and otherwise unreserved shares of Common Stock for the issuance of all the Common Stock issuable pursuant to such Advance Notice;
- the representations contained in the applicable Advance Notice shall be true and correct in all material respects;
- the Pricing Period for all prior Advance Notices shall have been completed; and
- the issuance and registration of all of the Commitment Shares and ELOC Warrant Shares and obtained Shareholder Approval (as defined in the ELOC Purchase Agreement) to issue Common Stock in excess of the Exchange Cap (a cap limiting the issuance of shares pursuant to the ELOC Agreement and ELOC Warrant to 19.99% of the Company's issued and outstanding shares on the date of the ELOC Agreement (3,526,802 shares of Common Stock) to the extent such prior stockholder approval would be required for compliance with the rules and regulations of Nasdaq).

We have filed a proxy statement for our annual meeting of stockholders at which we are requesting approval to issue shares pursuant to the ELOC Purchase Agreement in excess of the Exchange Cap, including the Commitment Share and shares issuable upon exercise of the ELOC Warrant, at our annual meeting scheduled for December 11, 2024. However, we cannot predict at this time when or whether approval will be obtained.

Limitations on Sales

The ELOC Purchase Agreement prohibits us from directing the Arena Global to purchase any shares of our Common Stock if those shares, when aggregated with all other shares of our Common Stock then beneficially owned by Arena Global and its affiliates as a result of purchases under the ELOC Purchase Agreement, would result in Arena Global and its affiliates having beneficial ownership of more than 9.99% of our then outstanding shares of Common Stock (the "ELOC Beneficial Ownership Cap").

No Short-Selling or Hedging by Arena Global

Arena Global has agreed that, during the term of the ELOC Purchase Agreement, neither Arena Global nor any of its affiliates will engage in any short sales or hedging transactions with respect to our Common Stock.

Termination of the Purchase Agreement

Unless earlier terminated as provided in the ELOC Purchase Agreement, the Purchase Agreement will terminate automatically on the earliest to occur of:

- the first day of the month next following the 36-month anniversary of the date of the ELOC Purchase Agreement; or
- the date on which Arena Global shall have purchased shares of our Common Stock under the Purchase Agreement for an aggregate gross purchase price equal to the Commitment Amount.

We have the right to terminate the Purchase Agreement at any time, at no cost or penalty, upon five trading days' prior written notice to Arena Global, provided that there are no outstanding Advance Notices, the shares of Common Stock under which have not yet been issued and we have paid all amounts owed to Arena Global under the ELOC Purchase Agreement. We and Arena Global may also terminate the ELOC Purchase Agreement at any time by mutual written consent.

Prohibition of “Dilutive Issuances” During Pending Purchases and Certain Variable Rate Transactions

Pursuant to the ELOC Purchase Agreement, from the date of the ELOC Purchase Agreement until the earlier of (i) the date that Arena Global has purchased \$25 million worth of shares of our Common Stock, (ii) 12 months after effectiveness of this registration statement or (iii) three months after the termination of the ELOC Purchase Agreement, pursuant to its terms, the Company is prohibited from effecting or entering into an agreement to effect any issuance of our Common Stock or common share equivalents involving a Variable Rate Transaction (as defined in the Purchase Agreement), other than in connection with an Exempt Issuance (as defined in the Purchase Agreement) or with the prior written consent of Arena Global.

Dilutive Effect of Performance of the Purchase Agreement on our Stockholders

All Common Stock registered in this offering which have been or may be issued or sold by us to Arena Global under the ELOC Purchase Agreement are expected to be freely tradable. It is anticipated that the Common Stock registered in this offering will be sold over a period starting on the date that the registration statement of which this prospectus is a part is declared effective and ending on the first day of the month immediately following the thirty-six month anniversary of the date of the ELOC Purchase Agreement. The sale by Arena Global of a significant amount of Common Stocks registered in this offering at any given time could cause the market price of our Common Stock to decline and to be highly volatile. Sales of our Common Stock to Arena Global, if any, will depend upon market conditions and other factors to be determined by us. We may ultimately decide to sell to Arena Global all, some or none of the additional shares of Common Stock that may be available for us to sell pursuant to the ELOC Purchase Agreement.

If and when we do sell shares to Arena Global, after Arena Global has acquired the Common Stock, Arena Global may resell all, some or none of the Common Stock at any time or from time to time in its discretion. Therefore, sales to Arena Global by us under the ELOC Purchase Agreement may result in substantial dilution to the interests of other holders of Common Stock. In addition, if we sell a substantial number of Common Stock to Arena Global under the ELOC Purchase Agreement, or if investors expect that we will do so, the actual sales of Common Stock or the mere existence of our arrangement with Arena Global may make it more difficult for us to sell securities in the future at a time and at a price that we might otherwise wish to effect such sales. However, we have the right to control the timing and amount of any additional sales of Common Stock to Arena Global and the ELOC Purchase Agreement may be terminated by us at any time at our discretion without any cost to us.

The following table sets forth the amount of gross proceeds we would receive from Arena Global from our sale of Common Stock to Arena Global (excluding the Commitment Shares and the ELOC Warrant Shares) under the ELOC Purchase Agreement at varying purchase prices without giving effect to the ELOC Beneficial Ownership Cap, for illustrative purposes only. The ELOC Beneficial Ownership Cap may not be increased above 9.99% of our then outstanding common stock. Furthermore, as noted above, we are not obligated to submit any Advance Notices under the ELOC Purchase Agreement.

Assumed Average Purchase Price Per Share (1)	Number of Registered Common Shares to be Issued if Full Purchase, Without Giving Effect to the ELOC Beneficial Ownership Cap (2)	Percentage of Outstanding Common Stock After Giving Effect to the Issuance to Arena Global, Without Giving Effect to the ELOC Beneficial Ownership Cap (3)	Proceeds from the Sale of Common Stock to Arena Global Under the ELOC Purchase Agreement(4)
\$ 1.00	50,000,000	73.92%	\$ 50,000,000
\$ 2.00	25,000,000	58.63%	\$ 50,000,000
\$ 2.0064(5)	24,920,255	58.55%	\$ 50,000,000
\$ 3.00	16,666,667	48.58%	\$ 50,000,000
\$ 4.00	12,500,000	41.47%	\$ 50,000,000
\$ 5.00	10,000,000	36.18%	\$ 50,000,000

- (1) For the avoidance of any doubt, this price reflects the Purchase Price after calculation (i.e. after discounts to the market price of our shares) in accordance with the terms of the ELOC Purchase Agreement.
- (2) Excludes the Commitment Shares and the ELOC Warrant Shares.
- (3) The denominator is based on 17,642,832 shares of our Common Stock outstanding as of November 22, 2024, adjusted to include the issuance of the number of shares of common stock set forth in the adjacent column which we would have issued to Arena Global based on the applicable assumed purchase price per share, and includes 10,101,009 shares of Common Stock assumed to be issued in full upon the conversion of the First Tranche Debenture, 453,749 shares of Common Stock assumed to be issued in full upon the exercise of the Debenture Warrants to purchase common stock.
- (4) The Company will not receive any proceeds from the issuance of the Commitment Shares or the ELOC Warrant Shares to Arena Global.
- (5) Represents the last reported sales price of our Common Stock on November 20, 2024, as reported by Nasdaq, less a 4% discount.

The ELOC Warrant was offered and sold to the investors in reliance upon the exemption from registration provided by Section 4(a)(2) of the Securities Act, which exempts transactions by an issuer not involving any public offering.

The foregoing summary of the financing transaction is qualified in its entirety by reference to the full text of the form of each of the ELOC Purchase Agreement and the ELOC Warrant, which are filed or incorporated by reference as exhibits to the registration statement of which this prospectus forms a part.

ISSUANCE OF SECURED CONVERTIBLE DEBENTURES AND WARRANTS TO PURCHASE COMMON STOCK

On September 6, 2024, we entered into the Securities Purchase Agreement with Arena Opportunities, providing for the issuance of (i) 10% original issue discount secured convertible debentures (the “Debentures”) with an aggregate principal amount of up to \$10,000,000 at an aggregate purchase price of up to \$9,000,000, divided into three separate tranches that are each subject to certain closing conditions, which Debentures are convertible into shares of Common Stock, and (ii) five-year warrants to purchase the number of shares of Common Stock equal to 25% of the total principal amount of the related Debenture purchased on the applicable closing date of each tranche divided by 115% of the closing price of our Common Stock on the trading day immediately preceding that closing date.

Description of the First Tranche Debenture

On October 17, 2024, we consummated the closing of the first tranche, in which we issued and sold the First Tranche Debenture to Arena Opportunities with an aggregate principal amount of \$3,333,333 at an aggregate purchase price of \$3,000,000 and the First Tranche Warrant (as described below). The First Tranche Debenture shall accrue interest on the outstanding principal amount at a rate of five percent per annum paid-in-kind (the “PIK Interest”). The PIK Interest shall be added to the outstanding principal amount of the First Tranche Debenture on a monthly basis as additional principal obligations thereunder for all purposes thereof (including the accrual of interest thereon at the rates applicable to the principal amount generally). The maturity date of the First Tranche Debenture is April 14, 2026. Separately, the Company may be obligated to pay to JonesTrading Institutional Services LLC a fee equal to 7% of the aggregate gross subscription price paid to the Company by Arena Opportunities.

The First Tranche Debenture is convertible, subject to certain beneficial ownership limitations, into the First Tranche Debenture Shares at a price per share equal to \$1.84, provided that if the closing price of our Common Stock is less than the conversion price for five or more trading days during any 20-trading day period following the issue date, the holder is entitled to convert the First Tranche Debenture at a price per share equal to the lower of (i) the then-current conversion price and (ii) 95% of the lowest daily volume weighted average price of our Common Stock during the five trading days prior to the delivery by the holder of the applicable notice of conversion (the “Alternate Conversion Price”), provided that the Alternate Conversion Price is no less than (i) initially, \$1.50, (ii) thereafter, 50% of the closing price of our Common Stock on April 14, 2025, and (iii) thereafter, 50% of the closing price of our Common Stock on October 14, 2025, provided further that no conversion price of the First Tranche Debenture is at a price per share less than \$0.33. The conversion price is subject to adjustment in the event of an issuance of Common Stock at a price per share lower than the conversion price then in effect, as well as upon customary stock splits, stock dividends, pro rata distributions, combinations or similar events.

The First Tranche Debenture is redeemable by us at a redemption price equal to 110% of the sum of the principal amount to be redeemed plus accrued but interest, if any. While the First Tranche Debenture is outstanding, if we or any of our subsidiaries receive cash proceeds from the issuance of equity or indebtedness (other than the issuance of additional secured convertible debentures as contemplated by the Securities Purchase Agreement), in one or more financing transactions, whether publicly offered or privately arranged (including, without limitation, pursuant to the ELOC Purchase Agreement (as defined below), we shall, within one business day of our receipt of such proceeds, inform the holder of such receipt, following which the holder shall have the right in its sole discretion to require us to immediately apply up to 25% of all proceeds received by us to repay the outstanding amounts owed under the First Tranche Debenture.

The First Tranche Debenture contains standard and customary events of default including, but not limited to, failure to make payments when due under the First Tranche Debenture, failure to comply with certain covenants contained in the First Tranche Debenture, or bankruptcy or insolvency of the Company. Upon the occurrence and during the continuance of an event of default under the applicable First Closing Debenture, interest shall accrue on the outstanding principal amount of such First Closing Debenture at the rate of two percent per month, and such default interest shall be due and payable monthly in arrears in cash on the first of each month following the occurrence of any event of default for default interest accrued through the last day of the prior month. In connection with an event of default, Arena Opportunities may require us to redeem the First Tranche Debenture in cash at a price equal to the sum of 150% of the outstanding principal amount of the First Tranche Debenture and 100% of accrued and unpaid interest thereon.

Pursuant to the Securities Purchase Agreement, we and Arena Special Opportunities (Offshore) Master II LP entered into a registration rights agreement (the “Registration Rights Agreement”), pursuant to which we agreed to file this registration statement with the SEC to register the First Tranche Debenture Shares (using the \$0.33 conversion floor price to calculate the number of registrable shares) and the First Tranche Warrant Shares within 20 calendar days after the closing date of the first tranche (the “Filing Deadline”) and to have such registration statement declared effective within 60 days after the Filing Deadline (or in the event of full review by the SEC, within 90 calendar days after the Filing Deadline). This registration statement is being filed in order to satisfy our obligations under the Registration Rights Agreement. In the event the number of shares available under this registration statement is insufficient to cover the securities issuable upon conversion or exercise of the First Tranche Debenture or First Tranche Warrant, we are obligated to file one or more new registration statements until such time as all securities issuable upon conversion or exercise of the First Tranche Debenture or First Tranche Warrant have been included in registration statements that have been declared effective and the prospectus contained therein is available for use by Arena Opportunities.

We may not issue the First Tranche Debenture Shares and/or First Tranche Warrant Shares to the extent such issuances would result in an aggregate number of shares of Common Stock exceeding 4.99% of the total number of shares of Common Stock issued and outstanding following such conversion or exercise, provided however, Arena Opportunities may increase or decrease the beneficial ownership limitation by giving 61 days’ notice to us, but not to any percentage in excess of 9.99%. Without giving effect to the beneficial ownership limitation discussed above, assuming we converted all of the First Tranche Debenture into Common Stock at the floor price, approximately 10,101,009 shares of our Common Stock would be issuable upon conversion. The Securities Purchase Agreement also contains provisions that limit the Company’s ability to issue more than 19.99% of the issued and outstanding shares of Common Stock as of the date of the Securities Purchase Agreement (3,526,802 shares of Common Stock) to the extent that the rules and regulations of Nasdaq require prior stockholder approval for such issuance.

We have filed a proxy statement for our annual meeting of stockholders at which we are requesting approval to issue shares pursuant to the Securities Purchase Agreement, including any issuances of Common Stock upon conversion of the Debentures or upon exercise of Warrants issued pursuant to the Securities Purchase Agreement, in excess of this 19.99% cap, at our annual meeting scheduled for December 11, 2024. However, we cannot predict at this time when or whether approval will be obtained.

The Securities Purchase Agreement also prohibits us from entering into a variable rate transaction other than the ELOC Purchase Agreement described below until such time as no Debentures remain outstanding. In addition, the Securities Purchase Agreement provides that from the (i) First Registration Statement Effectiveness Date (as defined in the Securities Purchase Agreement), (ii) Second Registration Statement Effectiveness Date (as defined in the Securities Purchase Agreement) until 60 days after the Second Registration Statement Effectiveness Date, (iii) Third Registration Statement Effectiveness Date (as defined in the Securities Purchase Agreement) until 60 days after the Third Registration Statement Effectiveness Date, and any Subsequent Registration Statement Effectiveness Date (as defined in the Securities Purchase Agreement) until 60 days after the Subsequent Registration Statement Effectiveness Date, neither the Company nor any subsidiary may issue any Common Stock or Common Stock equivalents, except for certain exempted issuances, such as stock options, employee grants, or shares issuable pursuant to outstanding securities, acquisitions and strategic transactions and the ELOC Purchase Agreement.

Pursuant to the Securities Purchase Agreement, we and certain of our subsidiaries (the “Subsidiaries”) and Arena Opportunities entered into a security agreement effective as of October 14, 2024 (the “Security Agreement”), pursuant to which we (i) pledged the equity interests in the Subsidiaries and (ii) granted to Arena Opportunities a security interest in, among other items, all of our owned assets, whether currently owned or later acquired, and all proceeds therefrom (the “Assets”), as set forth in the Security Agreement. In addition, our Subsidiary, Incannex Healthcare Pty Ltd (IHPL) entered into a patent security agreement (the “Patent Security Agreement”) and a trademark security agreement (the “Trademark Security Agreement”), each effective as of October 14, 2024, pursuant to which IHPL granted to the investors a security interest in its patents, patent applications, and all proceeds therefrom and a security interest in its trademarks, trademark applications, and all proceeds therefrom, respectively. In addition, pursuant to the Security Agreement, the Subsidiaries granted to Arena Opportunities a security interest in its Assets and, pursuant to a Subsidiary Guarantee effective as of October 14, 2024 (the “Subsidiary Guarantee”), jointly and severally agreed to guarantee and act as surety for our obligation to repay the Debentures and other obligations under the other transaction documents.

Description of the First Tranche Warrant

In connection with the issuance of the First Tranche Debenture, we also issued to Arena Opportunities the First Tranche Warrant to purchase up to 453,749 shares of Common Stock at an exercise price of \$1.89 per share. The First Tranche Warrant is exercisable at any time on or after the issuance date and has a term of five years from the issuance date. The exercise price of the First Tranche Warrant is subject to adjustment in the event of an issuance of Common Stock at a price per share lower than the exercise price then in effect, as well as upon customary stock splits, stock dividends, pro rata distributions, combinations or similar events. The First Tranche Warrant may be exercised on a cashless basis, if at any time after 180 days following the closing date of the first tranche, there is not an effective registration statement in place registering the First Tranche Warrant Shares for resale.

The First Tranche Debenture and the First Tranche Warrant were offered and sold to the investors in reliance upon the exemption from registration provided by Section 4(a)(2) of the Securities Act, which exempts transactions by an issuer not involving any public offering.

The foregoing summary of the financing transaction is qualified in its entirety by reference to the full text of the form of each of the Debentures, the Debenture Warrants, the Securities Purchase Agreement, the Security Agreement, the Patent Security Agreement, the Trademark Security Agreement, the Registration Rights Agreement, and the Subsidiary Guarantee, which are filed or incorporated by reference as exhibits to the registration statement of which this prospectus forms a part.

USE OF PROCEEDS

We are filing the registration statement of which this prospectus forms a part to permit the holders of the Shares of our Common Stock described in the section entitled “Selling Stockholders” to resell such Shares. We are not selling any securities under this prospectus, and we will not receive any proceeds from the sale or other disposition of shares of our Common Stock held by the selling stockholders. However, we will receive the proceeds from any exercise of the warrants to purchase Common Stock for cash, we may receive gross proceeds of up to \$50.0 million under the ELOC Purchase Agreement and we have received \$3.0 million of gross proceeds in respect of the closing of the first tranche of the Securities Purchase Agreement. Such proceeds will be used for working capital and general corporate purposes.

The selling stockholders will pay any underwriting discounts and commissions and expenses incurred by the selling stockholders for brokerage, accounting, tax or legal services or any other expenses incurred by the selling stockholders in disposing of these Shares. We will bear all other costs, fees and expenses incurred in effecting the registration of the Shares covered by this prospectus, including, without limitation, all registration and filing fees, Nasdaq listing fees and fees and expenses of our counsel and our accountants .

DIVIDEND POLICY

We have never declared or paid any cash dividends on our capital stock. We intend to retain future earnings, if any, to finance the operation of our business and do not anticipate paying any cash dividends in the foreseeable future. Any future determination related to our dividend policy will be made at the discretion of our board of directors after considering our financial condition, results of operations, capital requirements, business prospects and other factors the board of directors deems relevant, and subject to the restrictions contained in any future financing instruments and Delaware law. In addition, we are also restricted from paying dividends pursuant to our debt arrangements under the Securities Purchase Agreement with Arena Investors, LP, dated as of September 6, 2024, or the Debenture Purchase Agreement.

SELLING STOCKHOLDERS

This prospectus covers the possible resale from time to time by the selling stockholders identified in the table below, including their pledgees, donees, transferees, assigns or other successors in interest, of up to an aggregate of 61,389,758 shares of our Common Stock, which includes: up to 50,000,000 ELOC Shares issuable to Arena Global, (ii) up to 250,000 Commitment Shares issuable to Arena Global, (iii) up to 585,000 shares of Common Stock issuable upon exercise of the ELOC Warrant, (iv) up to 10,101,009 shares of Common Stock issuable upon conversion of the First Tranche Debenture, and (v) up to 453,749 shares of Common Stock issuable upon exercise of the First Tranche Warrant. Other than the transactions described under “Description of the Transactions” on page 7, the selling stockholders have not had any material relationship with us within the past three years.

We are filing the registration statement of which this prospectus forms a part pursuant to the provisions of the Registration Rights Agreement and the ELOC Purchase Agreement, both of which we entered into with the selling stockholders, in which we agreed to provide certain registration rights with respect to resales by them of the shares of our Common Stock that have been or may be issued to them under the Securities Purchase Agreement and the ELOC Purchase Agreement.

The column “Number of Shares of Common Stock Beneficially Owned Prior to Offering” lists the number of shares of our Common Stock beneficially owned by the selling stockholders. The selling stockholders identified in the table below may from time to time offer and sell under this prospectus any or all of the shares of Common Stock described under the column “Maximum Number of Shares of Common Stock To be Sold in this Offering” in the table below. The table below has been prepared based upon information furnished to us by the selling stockholders. The selling stockholders identified below may have sold, transferred or otherwise disposed of some or all of its shares since the date on which the information in the following table is presented in transactions exempt from or not subject to the registration requirements of the Securities Act. Information concerning the selling stockholders may change from time to time and, if necessary, we will amend or supplement this prospectus accordingly and as required.

The following table and footnote disclosure following the table sets forth the name of the selling stockholders and the number of shares of our Common Stock beneficially owned by the selling stockholders before this offering. The number of shares reflected are those beneficially owned, as determined under applicable rules of the SEC, and the information is not necessarily indicative of beneficial ownership for any other purpose. Under applicable SEC rules, beneficial ownership includes any shares of Common Stock as to which a person has sole or shared voting power or investment power and any shares of Common Stock which the person has the right to acquire within 60 days after November 22, 2024 through the exercise of any option, warrant or right or through the conversion of any convertible security. Unless otherwise indicated in the footnotes to the table below and subject to community property laws where applicable, we believe, based on information furnished to us that the each selling stockholder named in this table has sole voting and investment power with respect to the shares indicated as beneficially owned.

We have assumed that all shares of Common Stock reflected in the table as being offered in the offering covered by this prospectus will be sold from time to time in this offering. We cannot provide an estimate as to the number of shares of Common Stock that will be held by the selling stockholders upon termination of the offering covered by this prospectus because the selling stockholders may offer some, all or none of the shares of Common Stock being offered in the offering. Information about the selling stockholders may change over time. Except with respect to the ELOC and Securities Purchase Agreement, we do not have and have not had relationships with the selling stockholders.

Name of Selling Stockholder	Number of Shares of Common Stock Beneficially Owned Prior to the Offering		Maximum Number of Common Stock to be Sold in this Offering(2)	Number of Shares of Common Stock Owned Upon Completion of this Offering	
	Shares	Percent(1)		Shares	Percent(1)(3)
	Arena Business Solutions Global SPC II, Ltd	585,000(4)	3.21%	50,835,000	—
Arena Special Opportunities (Offshore) Master II LP	926,615(5)	4.99%	10,554,758	—	—

- (1) Percentage ownership is based on a denominator equal to the sum of (i) 17,642,832 shares of our Common Stock outstanding as of November 22, 2024 and (ii) the number of shares of Common Stock issued to or issuable upon exercise or conversion of convertible securities beneficially owned by the applicable selling stockholder
- (2) Includes the following shares of Common Stock: (i) 50,000,000 ELOC Shares issuable to Arena Global, (ii) 250,000 Commitment Shares issuable to Arena Global, (iii) 585,000 shares of Common Stock issuable upon exercise of the ELOC Warrant, (iv) 10,101,009 shares of Common Stock issuable upon conversion of the First Tranche Debenture, and (v) 453,749 shares of Common Stock issuable upon exercise of the First Tranche Warrant. Dan Zwirn has voting and dispositive power over the shares owned by each of Arena Global and Arena Investors (the “Arena Entities”). The business address of the Arena Entities is 405 Lexington Ave, 59th Floor, New York, NY 10174. The number of shares set forth in this column does not reflect the application of the Beneficial Ownership Cap or the Exchange Cap
- (3) Assumes that all shares of Common Stock being registered under the registration statement of which this prospectus forms a part are sold in this offering, and that the selling stockholders do not acquire additional shares of our Common Stock after the date of this prospectus and prior to completion of this offering.
- (4) Shares underlying the ELOC Warrant, subject to the beneficial ownership limitations therein.
- (5) Shares underlying the First Tranche Warrant and the First Tranche Debenture, in each case subject to the beneficial ownership limitations therein.

DESCRIPTION OF CAPITAL STOCK

General

The following description summarizes some of the terms of capital stock. Because it is only a summary, it does not contain all the information that may be important to you and is subject to and qualified in its entirety by reference to our amended and restated certificate of incorporation (the "Certificate of Incorporation") and amended and restated bylaws (the "Bylaws"), which are filed as exhibits to this registration statement on Form S-1, of which this prospectus forms a part, and are incorporated by reference herein. We encourage you to read our Certificate of Incorporation and our Bylaws for additional information.

Our authorized capital stock consists of 100,000,000 shares of Common Stock, \$0.0001 par value per share, and 10,000,000 shares of preferred stock, \$0.0001 par value per share.

Common Stock

As of November 22, 2024, there were 17,642,832 shares of our Common Stock issued and outstanding and held of record by 4899 stockholders. Holders of our Common Stock are entitled to one vote for each share held on all matters on which stockholders are generally entitled to vote, including the election of directors, and do not have cumulative voting rights. At any meeting of stockholders at which directors are to be elected, directors shall be elected by a plurality of the votes cast. All corporate actions to be taken by stockholder vote shall be authorized by the affirmative vote of our stockholders having a majority in voting power of the shares present in person or represented by proxy and voting on such matter. Our Certificate of Incorporation and Bylaws also provide that our directors may be removed only for cause and only by the affirmative vote of the holders of at least 66 2/3% of the voting power of the outstanding shares of capital stock outstanding and entitled to vote thereon. In addition, the affirmative vote of the holders of at least 66 2/3% of the voting power of the outstanding shares of capital stock entitled to vote thereon is required to amend, alter, change or repeal, or to adopt any provision contained in the Certificate of Incorporation and add or insert other provisions authorized by the General Corporation Law of the State of Delaware, (the "DGCL"), and to adopt, amend or repeal the Bylaws. Subject to the rights of the holders of any outstanding series of preferred stock, the number of authorized shares of Common Stock or preferred stock may also be increased or decreased, but not below the number of shares thereof then outstanding, by the affirmative vote of at least a majority of the voting power of the capital stock outstanding and entitled to vote thereon irrespective of the provisions of Section 242(b)(2) of the DGCL.

Subject to preferences that may be applicable to any then outstanding preferred stock, holders of Common Stock are entitled to receive ratably those dividends, if any, as may be declared by the board of directors out of legally available funds. In the event of our liquidation, dissolution or winding up, the holders of Common Stock will be entitled to share ratably in the assets legally available for distribution to stockholders after the payment of or provision for all of our debts and other liabilities, subject to the rights of any preferred stock then outstanding. Holders of Common Stock have no preemptive or conversion rights or other subscription rights and there are no redemption or sinking funds provisions applicable to the Common Stock. All outstanding shares of Common Stock are, and the Common Stock to be outstanding upon the closing of this offering will be, duly authorized, validly issued, fully paid and nonassessable. The rights, preferences and privileges of holders of Common Stock are subject to and may be adversely affected by the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future.

Transfer Agent and Registrar

The transfer agent and registrar for our Common Stock is Computershare Trust Company, N.A. The transfer agent and registrar's address is 150 Royall St., Canton, Massachusetts 02021.

Stock Exchange Listing

Our Common Stock is listed for trading on Nasdaq under the symbol "IXHL."

Preferred Stock

As of November 22, 2024, there were no shares of our preferred stock outstanding. Under the terms of our Certificate of Incorporation, our board of directors has the authority, without further action by our stockholders, to issue up to 10,000,000 shares of preferred stock in one or more series, to establish from time to time the number of shares to be included in each such series, to fix the designations, powers, preferences, and relative, participating, optional or other rights, if any, of the shares of each wholly unissued series and any qualifications, limitations or restrictions thereon, and to increase or decrease the number of shares of any such series, but not below the number of shares of such series then outstanding.

Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of Common Stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in our control and may adversely affect the market price of the Common Stock and the voting and other rights of the holders of Common Stock. We have no current plans to issue any shares of preferred stock.

Prior to the issuance of shares of each series, the board of directors is required by the DGCL and our Certificate of Incorporation to adopt resolutions and file a certificate of designation with the Secretary of State of the State of Delaware. The certificate of designation fixes for each class or series the designations, powers, preferences, rights, qualifications, limitations and restrictions, including dividend rights, conversion rights, redemption privileges and liquidation preferences.

All shares of preferred stock offered by this prospectus will, when issued, be fully paid and nonassessable and will not have any preemptive or similar rights. Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of the Common Stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in our control and may adversely affect the market price of the Common Stock and the voting and other rights of the holders of Common Stock.

We will describe in a prospectus supplement relating to the class or series of preferred stock being offered the following terms:

- the title and stated value of the preferred stock;
- the number of shares of the preferred stock offered, the liquidation preference per share and the offering price of the preferred stock;
- the dividend rate(s), period(s) or payment date(s) or method(s) of calculation applicable to the preferred stock;
- whether dividends are cumulative or non-cumulative and, if cumulative, the date from which dividends on the preferred stock will accumulate;
- the procedures for any auction and remarketing, if any, for the preferred stock;
- the provisions for a sinking fund, if any, for the preferred stock;
- the provision for redemption, if applicable, of the preferred stock;
- any listing of the preferred stock on any securities exchange;

- the terms and conditions, if applicable, upon which the preferred stock will be convertible into Common Stock, including the conversion price or manner of calculation and conversion period;
- voting rights, if any, of the preferred stock ;
- a discussion of any material or special U.S. federal income tax considerations applicable to the preferred stock;
- the relative ranking and preferences of the preferred stock as to dividend rights and rights upon the liquidation, dissolution or winding up of our affairs;
- any limitations on issuance of any class or series of preferred stock ranking senior to or on a parity with the class or series of preferred stock as to dividend rights and rights upon liquidation, dissolution or winding up of our affairs; and
- any other specific terms, preferences, rights, limitations or restrictions of the preferred stock.

Unless we specify otherwise in the applicable prospectus supplement, the preferred stock will rank, relating to dividends and upon our liquidation, dissolution or winding up:

- senior to all classes or series of our Common Stock and to all of our equity securities ranking junior to the preferred stock;
- on a parity with all of our equity securities the terms of which specifically provide that the equity securities rank on a parity with the preferred stock; and
- junior to all of our equity securities the terms of which specifically provide that the equity securities rank senior to the preferred stock.

The term equity securities does not include convertible debt securities.

Convertible Debenture

Pursuant to the Securities Purchase Agreement, we agreed to issue 10% original issue discount secured convertible debentures with an aggregate principal amount of up to \$10,000,000 at an aggregate purchase price of up to \$9,000,000, or the Debentures, divided into three separate tranches. On October 14, 2024, we consummated the closing of the first tranche, in which we issued and sold a Debenture to certain purchasers with an aggregate principal amount of \$3,333,333, or the “First Tranche Debenture.” The First Tranche Debenture is convertible, subject to certain beneficial ownership limitations, into shares of common stock at a price per share equal to \$1.84, provided that if the closing price of our common stock is less than the conversion price for five or more trading days during any 20 trading day period following the issue date, the holder is entitled to convert the First Tranche Debenture at a price per share equal to the lower of (i) the then-current conversion price and (ii) 95% of the lowest daily volume weighted average price of our common stock during the five trading days prior to the delivery by the holder of the applicable notice of conversion, or the Alternate Conversion Price, provided that the Alternate Conversion Price is no less than (i) initially, \$1.50, (ii) thereafter, 50% of the closing price of our Common stock on April 14, 2025, and (iii) thereafter, 50% of the closing price of our Common stock on October 14, 2025, provided further that no conversion price of the First Tranche Debenture is at a price per share less than \$0.33.

As of November 22, 2024, approximately 1,811,594 shares of our common stock were issuable upon conversion of the First Tranche Debenture, assuming a conversion price of \$1.84 per share.

The Debentures also contain provisions for the adjustment of the conversion price and the aggregate number of shares issuable upon the conversion of the Debentures in the event of stock dividends, stock splits, subsequent equity sales, reorganizations and reclassifications and consolidations.

Warrants

As of November 22, 2024, 1,978,338 shares of our common stock were issuable upon exercise of outstanding warrants to purchase common stock with a weighted average exercise price of \$20.04 per share.

Each of the outstanding warrants has a net exercise provision under which the holder may, if at any time after 180 days following the closing of the first tranche of the Securities Purchase Agreement or the issuance date of that certain Securities Purchase Agreement, dated September 6, 2024, or the ELOC Purchase Agreement, by and between the Company and Arena Business Solutions Global SPC II, Ltd, or Arena Business, there is no effective registration statement in place registering the shares of common stock issued, the shares issuable upon conversion of the Debentures or the shares issuable upon exercise of the warrants issued in the Securities Purchase Agreement or ELOC Purchase Agreement, in lieu of payment of the exercise price in cash, surrender the warrant and receive a net amount of shares of our common stock based on the volume weighted average price of our common stock at the time of the net exercise of the warrant after deduction of the aggregate exercise price. These warrants also contain provisions for the adjustment of the exercise price and the aggregate number of shares issuable upon the exercise of the warrants in the event of stock dividends, stock splits, subsequent equity sales, reorganizations and reclassifications and consolidations.

Registration Rights

In connection with the Securities Purchase Agreement, we are party to a registration rights agreement, pursuant to which we agreed to file a registration statement, within twenty days after the first closing date, with the SEC to register the shares of our common stock issuable upon (i) the conversion of 10% original issue discount secured convertible debentures and (ii) the exercise of warrants issued pursuant to the Securities Purchase Agreement. We also are party to the ELOC Purchase Agreement with Arena Business, pursuant to which, among other things, we agreed to file a registration statement with the SEC within 30 days of the Purchase Agreement, to register shares of our common stock issuable (i) under the ELOC Purchase Agreement, including the commitment shares thereunder and (ii) upon the exercise of warrants issued pursuant to the ELOC Purchase Agreement. We are filing this registration statement in connection with our obligations pursuant to the ELOC Purchase Agreement and the registration rights agreement entered in connection with the Securities Purchase Agreement.

In connection with the registration rights, we are required to pay all expenses incurred by us related to any registration effected pursuant to the exercise of these registration rights. These expenses may include all registration and filing fees, printing expenses, fees and disbursements of our counsel, reasonable fees and disbursements of a counsel for the selling securityholders, blue sky fees and expenses and the expenses of any special audits incident to the registration.

Anti-Takeover Effects of Delaware Law and Our Certificate of Incorporation and Bylaws

Some provisions of Delaware law, our Certificate of Incorporation and our Bylaws contain provisions that could make the following transactions more difficult: an acquisition of us by means of a tender offer; an acquisition of us by means of a proxy contest or otherwise; or the removal of our incumbent officers and directors. It is possible that these provisions could make it more difficult to accomplish or could deter transactions that stockholders may otherwise consider to be in their best interest or in our best interests, including transactions which provide for payment of a premium over the market price for our shares.

These provisions, summarized below, are intended to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors. We believe that the benefits of the increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging these proposals because negotiation of these proposals could result in an improvement of their terms.

Undesignated Preferred Stock

The ability of our board of directors, without action by the stockholders, to issue up to 10,000,000 shares of undesignated preferred stock with voting or other rights or preferences as designated by our board of directors could impede the success of any attempt to change control of us. These and other provisions may have the effect of deferring hostile takeovers or delaying changes in control or management of our company.

Stockholder Meetings

Our Bylaws provide that a special meeting of stockholders may be called only by our board of directors.

Requirements for Advance Notification of Stockholder Nominations and Proposals

Our Bylaws establish advance notice procedures with respect to stockholder proposals to be brought before a stockholder meeting and the nomination of candidates for election as directors, other than nominations made by or at the direction of the board of directors or a committee of the board of directors.

Elimination of Stockholder Action by Written Consent

Our Certificate of Incorporation and Bylaws eliminate the right of stockholders to act by written consent without a meeting.

Staggered Board

Our board of directors is divided into three classes. The directors in each class will serve for a three-year term, one class being elected each year by our stockholders. This system of electing and removing directors may tend to discourage a third party from making a tender offer or otherwise attempting to obtain control of us, because it generally makes it more difficult for stockholders to replace a majority of the directors.

Removal of Directors

Our Certificate of Incorporation provides that no member of our board of directors may be removed from office by our stockholders except for cause and, in addition to any other vote required by law, upon the approval of at least 66 2/3% of the voting power of all of our outstanding voting stock then entitled to vote in the election of directors.

Stockholders Not Entitled to Cumulative Voting

Our Certificate of Incorporation does not permit stockholders to cumulate their votes in the election of directors. Accordingly, the holders of a majority of the outstanding shares of our Common Stock entitled to vote in any election of directors can elect all of the directors standing for election, if they choose, other than any directors that holders of our preferred stock may be entitled to elect.

Delaware Anti-Takeover Statute

We are subject to Section 203 of the Delaware General Corporation Law, which prohibits persons deemed to be “interested stockholders” from engaging in a “business combination” with a publicly held Delaware corporation for three years following the date these persons become interested stockholders unless the business combination is, or the transaction in which the person became an interested stockholder was, approved in a prescribed manner or another prescribed exception applies. Generally, 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 voting stock. Generally, a “business combination” includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. The existence of this provision may have an anti-takeover effect with respect to transactions not approved in advance by the board of directors.

Choice of Forum

Our Certificate of Incorporation provides that, unless we consent in writing to the selection of an alternative form, (i) the sole and exclusive forum for any complaint asserting any internal corporate claims (as defined below) will be the Court of Chancery of the State of Delaware and (b) the sole and exclusive forum for any complaint asserting a cause of action arising under the Securities Act shall be the federal district courts of the United States of America. The term “internal corporate claims” means claims, including claims in the right of the Corporation that are based upon a violation of a duty by a current or former director, officer, employee or stockholder in such capacity, or as to which the DGCL confers jurisdiction upon the Court of Chancery.

This exclusive forum provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act. To the extent that any such claims may be based upon federal law claims, Section 27 of the Exchange Act creates exclusive federal jurisdiction over all suits brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder. The enforceability of similar choice of forum provisions in other companies’ certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable. Our Certificate of Incorporation and Bylaws also provide that any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock will be deemed to have notice of and to have consented to this choice of forum provision.

Amendment of Charter Provisions

The amendment of any of the above provisions, except for the provision making it possible for our board of directors to issue preferred stock, would require approval by holders of at least 66 2/3% of the voting power of the outstanding shares of capital stock entitled to vote thereon.

The provisions of Delaware law, our Certificate of Incorporation and our Bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our Common Stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in the composition of our board and 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.

PLAN OF DISTRIBUTION

The selling stockholders and any of their pledgees, assignees and successors-in-interest may, from time to time, sell any or all of their securities covered hereby on the Nasdaq Global Market or any other stock exchange, market or trading facility on which the securities are traded or in private transactions. These sales may be at fixed or negotiated prices. The selling stockholders may use any one or more of the following methods when selling securities:

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

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

Broker-dealers engaged by the selling stockholders may arrange for other brokers-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the selling stockholders (or, if any broker-dealer acts as agent for the purchaser of securities, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with FINRA Rule 2440; and in the case of a principal transaction, a markup or markdown in compliance with FINRA IM-2440.

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

The selling stockholders and any broker-dealers or agents that are involved in selling the securities may be deemed “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the securities purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. The selling stockholders have informed us that they do not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the securities.

We are required to pay certain fees and expenses incurred by us incident to the registration of the securities. We have agreed to indemnify the selling stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

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

EXPERTS

The consolidated financial statements incorporated by reference in this prospectus and elsewhere in the registration statement have been so incorporated by reference in reliance upon the report of Grant Thornton Audit Pty Ltd, independent registered public accountants, upon the authority of said firm as experts in accounting and auditing.

The offices of Grant Thornton are located at Level 43, 152 - 158 St Georges Terrace, Perth, WA 6000.

LEGAL MATTERS

The validity of the Common Stock being offered by this prospectus is being passed upon by Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., San Diego, California .

WHERE YOU CAN FIND MORE INFORMATION

We file reports, proxy statements and other information with the SEC. The SEC maintains a website that contains reports, proxy and information statements and other information about issuers, such as us, who file electronically with the SEC. The address of that website is <http://www.sec.gov>.

Our website address is <http://www.incannex.com>. The information on our website, however, is not, and should not be deemed to be, a part of this prospectus.

This prospectus and any prospectus supplement are part of a registration statement that we filed with the SEC and do not contain all of the information in the registration statement. The full registration statement may be obtained from the SEC or us, as provided below. Forms of the indenture and other documents establishing the terms of the offered securities are or may be filed as exhibits to the registration statement or documents incorporated by reference in the registration statement. Statements in this prospectus or any prospectus supplement about these documents are summaries and each statement is qualified in all respects by reference to the document to which it refers. You should refer to the actual documents for a more complete description of the relevant matters. You may inspect a copy of the registration statement through the SEC's website, as provided above.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC's rules allow us to "incorporate by reference" information into this prospectus, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is deemed to be part of this prospectus, and subsequent information that we file with the SEC will automatically update and supersede that information. Any statement contained in this prospectus or a previously filed document incorporated by reference will be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus or a subsequently filed document incorporated by reference modifies or replaces that statement.

We incorporate by reference our documents listed below and any future filings made by us with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, which we refer to as the "Exchange Act" in this prospectus, between the date of this prospectus and the termination of the offering of the securities described in this prospectus. This prospectus and any accompanying prospectus supplement incorporate by reference the documents set forth below that have previously been filed with the SEC:

- our Annual Report on [Form 10-K](#) for the fiscal year ended June 30, 2024, filed on September 30, 2024;
- our Quarterly Report on [Form 10-Q](#) for the fiscal quarter ended September 30, 2024, filed on November 14, 2024;
- our Current Reports on Form 8-K, filed on [July 30, 2024](#), [August 5, 2024](#), [September 10, 2024](#), [September 10, 2024](#), [September 30, 2024](#), [October 15, 2024](#), [October 21, 2024](#), [October 24, 2024](#), and [October 24, 2024](#); and
- the description of our Common Stock contained in [Exhibit 99.1](#) of our Current Report on [Form 8-K](#) filed with the SEC on November 29, 2023, including any amendments or reports filed for the purpose of updating such description .

In addition, all reports and other documents filed by us pursuant to the Exchange Act after the date of the initial registration statement and prior to effectiveness of the registration statement shall be deemed to be incorporated by reference into this prospectus and deemed to be a part of this prospectus from the date of filing of such reports and documents. Notwithstanding the foregoing, we are not incorporating by reference any documents or portions thereof that are not deemed "filed" with the SEC, including any information furnished pursuant to Items 2.02 or 7.01 of Form 8-K or related exhibits furnished pursuant to Item 9.01 of Form 8-K.

You may request a free copy of any of the documents incorporated by reference in this prospectus (other than exhibits, unless they are specifically incorporated by reference in the documents) by writing or telephoning us at the following address:

Incannex Healthcare Inc.
Suite 105, 8 Century Circuit Norwest,
NSW 2153 Australia
Attn: Investor Relations
Tel.: +61 409 840 786

Exhibits to the filings will not be sent, however, unless those exhibits have specifically been incorporated by reference in this prospectus or any accompanying prospectus supplement.

61,389,758 Shares



Common Stock

PROSPECTUS

, 2024

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution

Set forth below is an estimate (except for registration fees, which are actual) of the approximate amount of the types of fees and expenses listed below that were paid or are payable by us in connection with the issuance and distribution of the shares of Common Stock to be registered by this registration statement. None of the expenses listed below are to be borne by any of the selling stockholders named in the prospectus that forms a part of this registration statement.

SEC registration fee	\$	21,429
Legal fees and expenses	\$	65,000
Accounting fees and expenses	\$	8,000
Miscellaneous	\$	2,000
Total expenses	\$	<u>96,429</u>

Item 14. Indemnification of Directors and Officers

Delaware Law

Section 102 of the DGCL permits a corporation to eliminate the personal liability of directors of a corporation to the corporation or its stockholders for monetary damages for a breach of fiduciary duty as a director, except where the director breached his duty of loyalty, failed to act in good faith, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of Delaware corporate law or obtained an improper personal benefit.

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

Amended and Restated Bylaws

Our Bylaws provide that we will indemnify each person who was or is a party or threatened to be made a party to any action, suit or proceeding, whether civil, criminal, administrative or investigative by reason of the fact that he or she is or was, or is or was serving at our request, as a director, officer, employee, agent or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (all such persons being referred to as an "Indemnitee"), or by reason of any action alleged to have been taken or omitted in such capacity, against all expense, liability and loss (including attorneys' fees, judgments, fines, ERISA excise taxes, penalties and amounts paid in settlement) reasonably incurred in connection with such action, suit or proceeding and any appeal therefrom, to the fullest extent allowed under the DGCL. Our Bylaws also provide that we shall advance to any person who was or is a party or is threatened to be made a party to any action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he or she is or was a director or executive officer of the Company, or is or was serving at our request as a director or executive officer of another corporation, partnership, joint venture, trust or other enterprise, prior to the final disposition of the proceeding, promptly following request therefor, all expenses incurred by any director or executive officer in connection with such proceeding. However, if the DGCL requires, an advancement of expenses incurred by a director or executive officer in his or her capacity as a director or executive officer (and not in any other capacity in which service was or is rendered by such indemnitee, including service to an employee benefit plan) shall be made only upon delivery to us of an undertaking by or on behalf of such indemnitee, to repay all amounts so advanced if it shall ultimately be determined by final judicial decision from which there is no further right to appeal that such indemnitee is not entitled to be indemnified for such expenses under our Bylaws or otherwise.

Indemnification Agreements and Insurance Matters

In addition, we have entered into indemnification agreements with each of our current directors and executive officers. These agreements require us to indemnify these individuals to the fullest extent permitted under Delaware law against liabilities that may arise by reason of their service to us and to advance expenses incurred as a result of any proceeding against them as to which they could be indemnified. We also intend to enter into indemnification agreements with our future directors and executive officers.

We also maintain standard policies of insurance under which coverage is provided to our directors and officers against losses arising from claims made by reason of breach of duty or other wrongful act, and to us with respect to payments which may be made by us to such directors and officers pursuant to the above indemnification provisions or otherwise as a matter of law.

The above discussion of our Certificate of Incorporation, our Bylaws, our indemnification agreements with our current directors and executive officers and Sections 102 and 145 of the DGCL is not intended to be exhaustive and is respectively qualified in its entirety by such Certificate of Incorporation and Bylaws, such indemnification agreements and such statutes.

To the extent that our directors, officers and controlling persons are indemnified under the provisions contained in our Certificate of Incorporation, Delaware law or contractual arrangements against liabilities arising under the Securities Act, we have been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Item 15. Recent Sales of Unregistered Securities

On November 28, 2023, the Company acquired all the outstanding ordinary shares of Incannex Australia, pursuant to a scheme of arrangement under Australian law. Until the redomiciliation, Incannex Australia's ordinary shares were listed on the Australian Securities Exchange ("ASX") and American Depositary Shares ("ADSS"), each representing 25 ordinary shares of Incannex Australia, traded on the Nasdaq Global Market.

Following completion of the redomiciliation, Incannex Australia's ordinary shares were delisted from the ASX and Incannex assumed Incannex Australia's listing on the Nasdaq Global Market.

Pursuant to the redomiciliation, holders of Incannex Australia's ordinary shares received one share of Common Stock in Incannex for every 100 ordinary shares held in Incannex Australia and holders of ADSs in Incannex Australia received one share of Common Stock of Incannex for every 4 ADSs held in Incannex Australia.

The shares of common stock and options issued by the Company upon implementation of the redomiciliation were exempt from registration under the Securities Act, pursuant to Section 3(a)(10) thereof.

On September 6, 2024, we entered into the Securities Purchase Agreement with Arena Opportunities, providing for the issuance of (i) the Debentures of an aggregate principal amount of up to \$10,000,000 at an aggregate purchase price of up to \$9,000,000, divided into three separate tranches that are each subject to certain closing conditions, which Debentures are convertible into shares of Common Stock, and (ii) five-year warrants to purchase the number of shares of Common Stock equal to 25% of the total principal amount of the related Debenture purchased on the applicable closing date of each tranche divided by 115% of the closing price of our Common Stock on the trading day immediately preceding that closing date. On October 17, 2024, we consummated the closing of the first tranche, in which we issued and sold the First Tranche Debenture to Arena Opportunities with an aggregate principal amount of \$3,333,333 at an aggregate purchase price of \$3,000,000 and the First Tranche Warrant to purchase up to 453,749 shares of Common Stock at an exercise price of \$1.89 per share. The First Tranche Debenture is convertible, subject to certain beneficial ownership limitations, into shares of common stock at a price per share equal to \$1.84, provided that if the closing price of our common stock is less than the conversion price for five or more trading days during any 20 trading day period following the issue date, the holder is entitled to convert the First Tranche Debenture at a price per share equal to the lower of (i) the then-current conversion price and (ii) 95% of the lowest daily volume weighted average price of our common stock during the five trading days prior to the delivery by the holder of the applicable notice of conversion, or the Alternate Conversion Price, provided that the Alternate Conversion Price is no less than (i) initially, \$1.50, (ii) thereafter, 50% of the closing price of our Common stock on April 14, 2025, and (iii) thereafter, 50% of the closing price of our Common stock on October 14, 2025, provided further that no conversion price of the First Tranche Debenture is at a price per share less than \$0.33

The First Tranche Debenture and the First Tranche Warrant were offered and sold to the investors in reliance upon the exemption from registration provided by Section 4(a)(2) of the Securities Act.

On September 6, 2024, we entered into the ELOC Purchase Agreement with Arena Global, pursuant to which Arena Global has committed to purchase up to \$50,000,000 of our Common Stock at our direction from time to time, subject to the satisfaction of the conditions in the ELOC Purchase Agreement. In connection with the ELOC Purchase Agreement we agreed, among other things, to issue to Arena Global as a commitment fee, the Initial Commitment Fee Shares equal to 250,000”) divided by the simple average of the daily VWAP of our Common Stock during the five trading days immediately preceding the effectiveness date of this registration statement, on which the estimated Initial Commitment Fee Shares are registered. As additional consideration for Arena Global’s execution and delivery of the ELOC Purchase Agreement, we issued on October 31, 2024, a five-year warrant exercisable for 585,000 shares of our Common Stock with an exercise price equal to \$1.66 per share.

The ELOC Warrant was offered and sold to the investors in reliance upon the exemption from registration provided by Section 4(a)(2) of the Securities Act.

Item 16. Exhibits and Financial Statement Schedules.*(a) Exhibits*

Exhibit Number	Description
2.1	Deed of Amendment and Restatement to Scheme Implementation Deed, dated September 13, 2023, between Incannex Healthcare Limited and Incannex Healthcare Inc. (incorporated by reference to Exhibit 2.1 of the Company's Current Report on Form 8-K filed with the SEC on November 29, 2023).
3.1	Amended and Restated Certificate of Incorporation, as filed with the Secretary of State of the State of Delaware on July 31, 2023 (incorporated by reference to Exhibit 3.1 of the Company's Current Report on Form 8-K filed with the SEC on November 29, 2023)
3.2	Amended and Restated Bylaws, dated November 20, 2023 (incorporated by reference to Exhibit 3.2 of the Company's Current Report on Form 8-K filed with the SEC on November 29, 2023).
4.1	Description of Securities (incorporated by reference to Exhibit 99.1 of the Company's Current Report on Form 8-K filed with the SEC on November 29, 2023).
4.2	Form of Warrant Agency Agreement, by and among Incannex Healthcare Inc., Computershare Inc., and its affiliate Computershare Trust Company, N.A., dated December 29, 2023. (incorporated by reference to Exhibit 4.2 of the Company's Annual Report on Form 10-K filed with the SEC on September 30, 2024).
4.3	Debenture (incorporated by reference to Exhibit 4.2 of the Company's Registration Statement on Form S-3 filed with the SEC on November 6, 2024)
4.4	First Tranche Warrant (incorporated by reference to Exhibit 4.3 of the Company's Registration Statement on Form S-3 filed with the SEC on November 6, 2024)
4.5	ELOC Warrant (incorporated by reference to Exhibit 4.4 of the Company's Registration Statement on Form S-3 filed with the SEC on November 6, 2024)
5.1*	Opinion of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.
10.1#	Employment Agreement between Incannex Healthcare Limited and Joel Latham, dated July 1, 2020 (incorporated by reference to Exhibit 4.1 to the Company's Registration Statement on Form 20-F, File No. 001-41106, filed with the SEC on January 25, 2022).
10.2	Share Sale and Purchase Agreement between Incannex Healthcare Limited and the sellers of APIRx Pharmaceutical USA, LLC, dated May 12, 2022. (incorporated by reference to Exhibit 4.11 to the Company's Annual Report on Form 20-F, File No. 001-41106, filed with the SEC on October 28, 2022).
10.3#	Service Agreement between Incannex Healthcare Limited and Lekhram Changoer, dated August 5, 2022 (incorporated by reference to Exhibit 4.12 to the Company's Annual Report on Form 20-F, File No. 001-41106, filed with the SEC on October 31, 2023).
10.4	Form of Indemnification Agreement (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed with the SEC on November 29, 2023).
10.5#	Incannex Healthcare Inc. 2023 Equity Incentive Plan (incorporated by reference to Exhibit 10.2 of the Company's Current Report on Form 8-K filed with the SEC on November 29, 2023).
10.6#	Employment Agreement between Incannex Healthcare Limited and Joseph Swan, dated February 27, 2024 (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed with the SEC on March 5, 2024).
10.7^	Purchase Agreement between Incannex Healthcare Inc. and Arena Business Solutions Global SPC II, Ltd, dated as of September 6, 2024 (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed with the SEC on September 10, 2024)
10.8^	Securities Purchase Agreement between Incannex Healthcare Inc. and Arena Investors, LP, dated as of September 6, 2024 (incorporated by reference to Exhibit 10.2 of the Company's Current Report on Form 8-K filed with the SEC on September 10, 2024).
10.9	2023 Australian Incentive Sub-Plan (incorporated by reference to Exhibit 10.9 of the Company's Annual Report on Form 8-K filed with the SEC on September 30, 2024).
10.10^	First Registration Rights Agreement (incorporated by reference to Exhibit 10.3 of the Company's Registration Statement on Form S-3 filed with the SEC on November 6, 2024).
10.11	Security Agreement (incorporated by reference to Exhibit 10.4 of the Company's Registration Statement on Form S-3 filed with the SEC on November 6, 2024).
10.12^	Patent Security Agreement (incorporated by reference to Exhibit 10.5 of the Company's Registration Statement on Form S-3 filed with the SEC on November 6, 2024).

10.13 [^]	Trademark Security Agreement (incorporated by reference to Exhibit 10.6 of the Company's Registration Statement on Form S-3 filed with the SEC on November 6, 2024)
10.14	Subsidiary Guarantee (incorporated by reference to Exhibit 10.7 of the Company's Registration Statement on Form S-3 filed with the SEC on November 6, 2024)
10.15	Form of Facility Agreement between Incannex Healthcare Pty Ltd, Incannex Pty Ltd, Psychennex Pty Ltd, and FC Credit Pty Ltd, dated October 9, 2024. (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed with the SEC on October 15, 2024).
10.16 ^{#^}	Employment Agreement, effective October 21, 2024, by and between the Company and Luigi M. Barbato, MD. (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed with the SEC on October 24, 2024
16.1	Letter to Securities and Exchange Commission from PKF Brisbane Audit, dated December 14, 2023 (incorporated by reference to Exhibit 16.1 of the Company's Current Report on Form 8-K filed with the SEC on December 15, 2023)
21.1	List of subsidiaries (incorporated by reference to Exhibit 10.9 of the Company's Annual Report on Form 8-K filed with the SEC on September 30, 2024)
23.1*	Consent of Grant Thornton, Independent Registered Public Accountants.
23.2*	Consent of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. (included in its opinion filed as Exhibit 5.1).
24.1*	Power of Attorney (included on signature page of the Registration Statement).
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
107*	Calculation of Filing Fee Table.

* Filed herewith.

[^] Certain schedules to this exhibit have been omitted pursuant to Item 601(a)(5) of Regulation S-K. Copies of the omitted schedules will be furnished to the SEC upon request.

Indicates management contract or compensatory plan.

(b) Financial Statement Schedules

Schedules not listed have been omitted because the information required to be set forth therein is not applicable, not material or is shown in the financial statements or notes thereto.

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 of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20% change in the maximum aggregate offering price set forth in the "Calculation of Filing Fee Tables" or "Calculation of Registration Fee" table, as applicable, in the effective registration statement;

(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 (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 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) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

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

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

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

(ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act 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

(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 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 SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by a Registrant of expenses incurred or paid by a director, officer or controlling person of a 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, that Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

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-1 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in Melbourne, Australia, on November 26, 2024.

INCANNEX HEALTHCARE INC.

By: /s/ Joel Latham
Joel Latham
Chief Executive Officer, President and Director
(principal executive officer)

By: /s/ Joseph Swan
Joseph Swan
Chief Financial Officer
(principal financial and accounting officer)

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

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Joel Latham</u> Joel Latham	Chief Executive Officer, President and Director (principal executive officer)	November 26, 2024
<u>/s/ Joseph Swan</u> Joseph Swan	Chief Financial Officer (principal financial and accounting officer)	November 26, 2024
<u>*</u> Troy Valentine	Director	November 26, 2024
<u>*</u> Peter Widdows	Director	November 26, 2024
<u>*</u> George Anastassov	Director	November 26, 2024
<u>*</u> Robert Clark	Director	November 26, 2024

By: /s/ Joel Latham
Joel Latham
Attorney-in-Fact

* Pursuant to Power of Attorney



3580 Carmel Mountain Road
Suite 300
San Diego, CA 92130
858 314 1500
mintz.com

November 26, 2024

Incannex Healthcare Inc.
Suite 105, 8 Century Circuit, NSW 2153
Norwest Australia

Ladies and Gentlemen:

We have acted as counsel to Incannex Healthcare Inc., a Delaware corporation (the “Company”), in connection with the preparation and filing by the Company of a Registration Statement on Form S-1 (the “Registration Statement”) under the Securities Act of 1933, as amended (the “Securities Act”) with the Securities and Exchange Commission (the “Commission”). The Registration Statement relates to the registration for resale by the selling stockholders named in the Registration Statement (the “Selling Stockholders”) of:

1. up to 50,000,000 shares of common stock (the “ELOC Shares”), \$0.0001 par value per share (the “Common Stock”) issuable to Arena Business Solutions Global SPC II, Ltd (“Arena Global”) pursuant to a Purchase Agreement, dated as of September 6, 2024 (the “ELOC Purchase Agreement”), by and between the Company and Arena Global;

2. up to 250,000 shares of Common Stock (the “Commitment Shares”) issuable to Arena Global as a commitment fee pursuant to the ELOC Purchase Agreement;

3. 585,000 shares of Common Stock (the “ELOC Warrant Shares”) issuable upon exercise of a warrant issued to Arena Global as a commitment fee pursuant to the ELOC Purchase Agreement;

4. up to 10,101,009 shares of Common Stock (the “First Tranche Debenture Shares”) issuable upon conversion of the 10% original issue discount secured convertible debenture (the “First Tranche Debenture”) that was issued to certain of the Selling Stockholders pursuant to that certain Securities Purchase Agreement, dated September 6, 2024 (the “Debenture Purchase Agreement”) by and between the Company and the Selling Stockholders named therein; and

5. 453,749 shares of Common Stock (the “First Tranche Warrant Shares”) issuable upon exercise of a warrant (the “First Tranche Warrant”) issued to certain of the Selling Stockholders pursuant to the Debenture Purchase Agreement.

The ELOC Warrant and the First Tranche Warrant are collectively referred to herein as the “Warrants,” and the ELOC Warrant Shares and the First Tranche Warrant Shares are collectively referred to herein as the “Warrant Shares.”

In connection with this opinion, we have examined the Company’s Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws, each as restated and/or amended to date and currently in effect; such other records of the corporate proceedings of the Company and certificates of the Company’s officers as we have deemed relevant; and the Registration Statement and the exhibits thereto.

In our examination, we have assumed the genuineness of all signatures, the legal capacity of natural persons, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as certified or photostatic copies and the authenticity of the originals of such copies, and the truth and correctness of any representations and warranties contained therein.

BOSTON LOS ANGELES MIAMI NEW YORK SAN DIEGO SAN FRANCISCO TORONTO WASHINGTON
MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C.

Our opinion is expressed only with respect to the General Corporation Law of the State of Delaware. We express no opinion to the extent that any other laws are applicable to the subject matter hereof and express no opinion and provide no assurance as to compliance with any federal or state securities law, rule or regulation.

With respect to the Warrant Shares, we express no opinion to the extent that future issuances of securities of the Company, adjustments to outstanding securities of the Company and/or other matters cause the Warrants to be exercisable for more shares of Common Stock than the number that remain available for issuance. Further, we have assumed the exercise price of the Warrants will not be adjusted to an amount below the par value per share of the Common Stock. With respect to the First Tranche Debenture Shares, we express no opinion to the extent that future issuances of securities of the Company, adjustments to outstanding securities of the Company and/or other matters cause the First Tranche Debenture to be convertible for more shares of Common Stock than the number that remain available for issuance. Further, we have assumed the conversion price of the First Tranche Debenture will not be adjusted to an amount below the par value per share of the Common Stock.

Based upon and subject to the foregoing, it is our opinion that (i) the ELOC Shares, when issued and paid for in accordance with the ELOC Purchase Agreement will be validly issued, fully paid and non-assessable, (ii) the Commitment Shares, when issued will be validly issued, fully paid and non-assessable, (iii) the First Tranche Debenture Shares, when issued against payment therefor in accordance with the terms of the First Tranche Debenture, will be validly issued, fully paid and non-assessable and (iv) the Warrant Shares, when issued against payment therefor in accordance with the terms of the Warrants, will be validly issued, fully paid and non-assessable.

Please note that we are opining only as to the matters expressly set forth herein, and no opinion should be inferred as to any other matters. This opinion is based upon currently existing statutes, rules, regulations and judicial decisions, and we disclaim any obligation to advise you of any change in any of these sources of law or subsequent legal or factual developments which might affect any matters or opinions set forth herein.

We understand that you wish to file this opinion with the Commission as an exhibit to the Registration Statement in accordance with the requirements of Item 601(b)(5) of Regulation S-K promulgated under the Securities Act and to reference the firm's name under the caption "Legal Matters" in the prospectus which forms part of the Registration Statement, and we hereby consent thereto. In giving this consent, we do not admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission promulgated thereunder.

Very truly yours,

/s/ Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our report dated September 30, 2024 with respect to the consolidated financial statements of Incannex Healthcare Inc. (and its subsidiaries) included in the Annual Report on Form 10-K for the year ended June 30, 2024, which are incorporated by reference in this registration statement. We consent to the incorporation by reference of the aforementioned report in this Registration Statement, and to the use of our name as it appears under the caption "Experts".

/s/ GRANT THORNTON AUDIT PTY LTD

Perth, Australia
November 26, 2024

Calculation of Filing Fee Tables

Form S-1
(Form Type)**Incannex Healthcare Inc.**
(Exact Name of Registrant as Specified in its Charter)Table 1: Newly Registered Securities

	Security Type	Security Class Title	Fee Calculation Rule	Amount Registered(1)	Proposed Maximum Offering Price Per Share(2)	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Fees to Be Paid	Equity	Common Stock, par value \$0.0001 per share	457(c)	61,389,758	\$ 2.27995	\$ 139,965,578.7521	0.0001531	\$ 21,428.73
		Total Offering Amounts				\$ 139,965,578.7521		\$ 21,428.73
		Total Fees Previously Paid						21,428.73(3)
		Total Fee Offsets						—
		Net Fee Due						<u>\$ —</u>

- (1) The shares of common stock will be offered for resale by the selling stockholders pursuant to the prospectus contained herein. Pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), this registration statement also covers any additional number of shares of common stock issuable upon stock splits, stock dividends, or other distribution, recapitalization or similar events with respect to the shares of common stock being registered pursuant to this registration statement.
- (2) Estimated solely for purposes of calculating the registration fee pursuant to Rule 457(c) under the Securities Act, based on average of high and low price per share of the common stock as reported on the Nasdaq Capital Market on October 31, 2024.
- (3) Paid in previous filing.