

As filed with the Securities and Exchange Commission on February 18, 2025

Registration No. 333-

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

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

OPUS GENETICS, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of incorporation
or organization)

11-3516358
(I.R.S. Employer Identification No.)

8 Davis Drive, Suite 220
Durham, NC 27709
(248) 957-9024
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Dr. George Magrath
Chief Executive Officer
Opus Genetics, Inc.
8 Davis Drive, Suite 220
Durham, NC 27709
(248) 957-9024
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:
Asher Rubin
Andrea Reed
Sidley Austin LLP
One South Dearborn
Chicago, IL 60603
(410) 559-2881

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

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

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

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

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

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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

The Registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, 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.

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

SUBJECT TO COMPLETION, DATED FEBRUARY 18, 2025



Up to 19,382,437 Shares of Common Stock

This prospectus relates to the issuance by us of up to 19,382,437 shares of our common stock, par value \$0.0001 per share ("Common Stock"), in connection with our prior acquisition (the "Acquisition") of former Opus Genetics Inc., a Delaware corporation (the "Acquired Company"), pursuant to that certain Agreement and Plan of Merger (the "Merger Agreement"), dated as of October 22, 2024 (the "Closing Date"), by and among Ocuphire Pharma, Inc., a Delaware corporation now known as Opus Genetics, Inc. (the "Company"), Orange Merger Sub I, Inc., a Delaware corporation and wholly owned subsidiary of the Company ("Merger Sub I"), Orange Merger Sub II, LLC, a Delaware limited liability company and wholly owned subsidiary of the Company ("Merger Sub II"), and the Acquired Company. The Common Stock issued hereunder consists of an aggregate of (i) 5,237,063 shares of Common Stock issued pursuant to the Merger Agreement as of the Closing Date ("Closing Shares") and (ii) up to 14,145,374 shares of Common Stock that are issuable upon conversion of the 14,145,374 shares of our preferred stock, par value \$0.0001 per share ("Preferred Stock"), designated as Series A Non-Voting Convertible Preferred Stock ("Series A Preferred Stock"), that were issued pursuant to the Merger Agreement as of the Closing Date, such conversion being subject to and contingent upon the affirmative vote of holders of a majority of shares of Common Stock present or represented and entitled to vote at a meeting of stockholders of the Company ("Convertible Shares").

We will not receive any proceeds from the issuance or sale of shares of Common Stock pursuant to this prospectus. We will bear all costs, expenses and fees in connection with the registration of these securities, including with regard to compliance with state securities or "blue sky" laws. The selling securityholders will bear all commissions and discounts, if any, attributable to their sale of shares of Common Stock. See the section titled "*Plan of Distribution*" for additional information on potential methods of sale.

Our Common Stock is listed on the Nasdaq Capital Market ("Nasdaq") under the symbol "IRD". On February 12, 2025, the last reported sales price of our Common Stock was \$1.14 per share.

We are a "smaller reporting company" under federal securities laws and as such, have elected to comply with reduced public company reporting requirements for this prospectus and the documents incorporated by reference herein and may elect to comply with reduced public company reporting requirements in future filings. See "*Prospectus Summary — Implications of Being a Smaller Reporting Company*."

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described in the section titled "[Risk Factors](#)", and under similar headings in any amendments or supplements to this prospectus and the documents incorporated herein by reference.

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

Prospectus dated _____, 2025

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No person is authorized to give any information or to make any representation that is different from, or in addition to, those contained in or incorporated by reference into this prospectus, and, if given or made, such information or representations must not be relied upon as having been authorized. Neither we nor the selling securityholders have authorized anyone to provide you with additional information or information different from that contained in this prospectus filed with the SEC. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The selling securityholders are offering to sell, and seeking offers to buy, our securities only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or any sale of our securities. Our business, financial condition, results of operations and prospects may have changed since that date.

For investors outside of the United States: neither we nor the selling securityholders have done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of our securities and the distribution of this prospectus outside the United States.

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

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the SEC using the “shelf” registration process. Under this shelf registration process, the selling securityholders may, from time to time, sell the securities offered by them described in this prospectus. We will not receive any proceeds from the sale by such selling securityholders of the securities offered by them described in this prospectus. This prospectus also relates to the issuance by us of the shares of Common Stock, including certain shares that are only issuable upon the conversion of issued shares of Series A Preferred Stock. We will not receive any proceeds from the sale of shares of Common Stock pursuant to this prospectus.

Neither we nor the selling securityholders have authorized anyone to provide you with any information or to make any representations other than those contained in or incorporated by reference into this prospectus or any applicable prospectus supplement prepared by or on behalf of us or to which we have referred you. We do not take responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. Neither we nor the selling securityholders will make an offer to sell these securities in any jurisdiction where the offer or sale is not permitted.

We may also provide a prospectus supplement or post-effective amendment to the registration statement to add information to, or update or change information contained in, this prospectus. You should read both this prospectus and any applicable prospectus supplement or post-effective amendment to the registration statement together with the additional information to which we refer you in the section of this prospectus titled “*Where You Can Find More Information*” and “*Incorporation by Reference*.”

You should assume that the information appearing in this prospectus and any applicable prospectus supplement to this prospectus is accurate only as of the date on its respective cover and that any information incorporated by reference is accurate only as of the date of the document incorporated by reference, unless we indicate otherwise. Our business, financial condition, results of operations and prospects may have changed since those dates.

Unless the context indicates otherwise, references in this prospectus to the “Company,” “Opus,” “we,” “us,” “our” and similar terms refer to Opus Genetics, Inc. (formerly known as Ocuphire Pharma, Inc.) and its subsidiaries.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus includes and incorporates by reference “forward-looking statements” within the meaning of the U.S. Private Securities Litigation Reform Act of 1995 and releases issued by the SEC and within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”), and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Any statements contained herein that are not statements of historical facts may be deemed to be forward-looking statements.

In some cases, you can identify forward-looking statements by the following words: “anticipate,” “believe,” “could,” “continue,” “estimate,” “expect,” “intend,” “may,” “ongoing,” “plan,” “potential,” “predict,” “project,” “should,” “will,” “would” or the negative of those terms, and similar expressions that convey uncertainty of future events or outcomes to identify these forward-looking statements. These forward-looking statements reflect our management’s beliefs and views with respect to future events and are subject to risks and uncertainties, many of which are beyond our control, that could cause our actual results to differ materially from those in these forward-looking statements, including, without limitation:

- the success and timing of regulatory submissions and pre-clinical and clinical trials, including enrollment and data readouts;
- regulatory requirements or developments;
- changes to or unanticipated events in connection with clinical trial designs and regulatory pathways;
- delays or difficulties in the enrollment of patients in clinical trials;
- substantial competition, including from generic versions of our product candidates;
- rapid technological change;
- our development of sales and marketing infrastructure;
- future revenue losses and profitability;
- changes in capital resource requirements;
- risks related to our inability to obtain sufficient additional capital to continue to advance our product candidates and preclinical programs;
- domestic and worldwide legislative, regulatory, political and economic developments;
- our dependency on key personnel;
- changes in market opportunities and acceptance;
- reliance on third parties to conduct our clinical trials and supply and manufacture drug supplies;
- future, potential product liability and securities litigation;
- system failures, unplanned events, or cyber incidents;
- risks that our licensing or partnership arrangements may not facilitate the commercialization or market acceptance of our product candidates;
- future fluctuations in the market price of our Common Stock;
- actions by activist stockholders;
- the success and timing of commercialization of any of our product candidates;
- obtaining and maintaining our intellectual property rights; and
- the success of mergers and acquisitions.

We discuss many of these risks in greater detail under Part II, Item 1A, “Risk Factors”, in our Quarterly Report on Form 10-Q for the quarter ended September 30, 2024 and subsequent reports filed with or furnished to the SEC. Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause

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actual results to differ materially from those contained in any forward-looking statements we may make. Given these uncertainties, you should not place undue reliance on any forward-looking statements made by us, which speak only as of the date they were made. We undertake no obligation to publicly update any forward-looking statements after the date of this prospectus supplement, whether as a result of new information, future events or otherwise, except as required by law.

You should read this prospectus, any prospectus supplement, documents we have filed with the SEC that are incorporated by reference herein and therein and any free writing prospectus that we may authorize for use in connection with this offering completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of the forward-looking statements in the foregoing documents by these cautionary statements.

PROSPECTUS SUMMARY

This summary does not contain all of the information that you should consider in making your investment decision. Before investing in our securities, you should carefully read this entire prospectus, including our consolidated financial statements, the related notes thereto and the information set forth in the section titled “Risk Factors” and other information incorporated by reference from our other filings with the SEC. Unless the context otherwise requires, we use the terms “Opus,” “Company,” “we,” “us” and “our” in this prospectus to refer to Opus Genetics, Inc. (formerly known as Ocuphire Pharma, Inc.) and our wholly owned subsidiaries.

Overview

We are a clinical-stage ophthalmic biotechnology company developing gene therapies for the treatment of inherited retinal diseases (IRDs) and other ophthalmologic disorders. The pipeline includes adeno-associated virus (AAV)-based gene therapies that address mutations in genes that cause different forms of bestrophinopathy, Leber congenital amaurosis (LCA) and retinitis pigmentosa. The Company’s most advanced gene therapy program is designed to address mutations in the LCA5 gene, which encodes the lebercilin protein and is currently being evaluated in a Phase 1/2 open-label, dose-escalation trial. The pipeline also includes Phentolamine Ophthalmic Solution 0.75%, a non-selective alpha-1 and alpha-2 adrenergic antagonist to reduce pupil size, and APX3330, a novel small-molecule inhibitor of Ref-1 to slow the progression of non-proliferative diabetic retinopathy. Phentolamine Ophthalmic Solution 0.75% is currently being evaluated in Phase 3 trials for presbyopia and dim (mesopic) light vision disturbances.

The Acquisition

On October 22, 2024, the Company completed the Acquisition of the Acquired Company in accordance with the terms of the Merger Agreement. Pursuant to the Merger Agreement, Merger Sub I merged with and into the Acquired Company, with the Acquired Company surviving as a wholly owned subsidiary of the Company (the “First Merger”). Following the First Merger and as part of the same overall transaction as the First Merger, the Acquired Company then merged with and into Merger Sub II, with Merger Sub II surviving as a wholly owned subsidiary of the Company. The Acquisition is intended to constitute an integrated transaction that qualifies as a “reorganization” within the meaning of Section 368(a) of the Internal Revenue Code of 1986 for U.S. federal income tax purposes. Following the First Merger, the Company changed its name from “Ocuphire Pharma, Inc.” to “Opus Genetics, Inc.”

Under the terms of the Merger Agreement, at the closing of the Acquisition, the Company issued to the securityholders of the Acquired Company 5,237,063 shares of the Company’s Common Stock and 14,145,374 shares of the Company’s Series A Preferred Stock, each share of which is convertible into 1,000 shares of Common Stock, subject to certain conditions, including the approval of such conversion by the Company’s stockholders. We will file a proxy statement with the SEC to solicit such stockholder approval, among other matters, at our 2025 annual meeting of stockholders scheduled to be held on April 30, 2025 (the proposal to obtain such approval, the “Conversion Proposal”).

Certain shares of Common Stock outstanding immediately after the Acquisition are held by stockholders subject to lock-up restrictions, pursuant to which such stockholders have agreed, except in limited circumstances, not to offer, pledge, sell or transfer, or engage in swap or similar transactions with respect to, shares of the Common Stock, including, as applicable, shares received in the Acquisition and issuable upon exercise of certain options, for a period of 180 days following the closing of the Acquisition.

On October 22, 2024, the Company filed a Certificate of Designation of Preferences, Rights and Limitations of the Series A Preferred Stock with the Secretary of State of the State of Delaware (the “Certificate of Designation”) in connection with the Acquisition. The Certificate of Designation provides for the issuance of shares of Series A Preferred Stock. Holders of Series A Preferred Stock are entitled to receive dividends on shares of Series A Preferred Stock (on an as-if-converted-to-Common-Stock basis) equal to and in the same form, and in the same manner, as dividends (other than dividends on shares of the Common Stock payable in the form of Common Stock) actually paid on shares of the Common Stock when, as and if such dividends (other than dividends payable in the form of Common Stock) are paid on shares of the Common Stock. In addition to any dividends payable as described above, commencing on October 15, 2025, holders of Series A Preferred Stock will be entitled to receive when, as and if declared by the board of directors of the Company (the “Board”) or a duly authorized committee of the Board, and the Company will pay, out of funds legally available therefor,

cumulative quarterly cash dividends of \$26.00 per share of Series A Preferred Stock; provided that for the Series A Dividend Payment Date (as defined below) occurring on October 15, 2025, the amount of such quarterly cash dividend shall be \$15.26. Any such dividends will be payable quarterly in arrears on January 15, April 15, July 15 and October 15 of each year, commencing with the first payment on October 15, 2025 (each such date, a “Series A Dividend Payment Date”).

Except as otherwise required by law, the Series A Preferred Stock have no voting rights. However, as long as any shares of Series A Preferred Stock are outstanding, the Company will not, without the affirmative vote of the holders of a majority of the then-outstanding shares of the Series A Preferred Stock: (i) alter or change adversely the powers, preferences or rights given to the Series A Preferred Stock or alter or amend the Certificate of Designation, amend or repeal any provision of, or add any provision to, the Restated Certificate of Incorporation of the Company (the “certificate of incorporation”), or the Amended and Restated Bylaws of the Company (the “bylaws”), or file any articles of amendment, certificate of designations, preferences, limitations and relative rights of any series of Preferred Stock, if such action would adversely alter or change the preferences, rights, privileges or powers of, or restrictions provided for the benefit of the Series A Preferred Stock, regardless of whether any of the foregoing actions will be by means of amendment to the certificate of incorporation or by merger, consolidation or otherwise, (ii) issue further shares of Series A Preferred Stock or increase or decrease (other than by conversion) the number of authorized shares of Series A Preferred Stock, (iii) amend, in any manner that would be reasonably likely to prevent, impede or materially delay the stockholder approval of the Conversion Proposal or the Automatic Conversion (as defined in the Certificate of Designation), or terminate any stockholder support agreements entered into in connection with the Merger Agreement (“Support Agreements”), or agree to any transfer, sale or disposition of such shares subject to the Support Agreements (except for such transfers, sales or dispositions with respect to which the approval of the Company is not required pursuant to the applicable Support Agreement), (iv) amend Sections 4.02, 4.03 or 4.07 of the Merger Agreement in any manner that would be reasonably likely to prevent, impede or materially delay the stockholder approval of the Conversion Proposal or (v) enter into any agreement with respect to any of the foregoing.

For more information on the Series A Preferred Stock, please refer to the Certificate of Designation, which is filed as an exhibit to our Current Report on Form 8-K filed with the SEC on October 22, 2024.

As of immediately following the consummation of the Acquisition, the securityholders of the Acquired Company immediately prior to the Acquisition owned approximately 42% of the Company’s capital stock (including shares issuable with respect to assumed options and assumed restricted stock units and assuming conversion of all shares of Series A Preferred Stock), and the existing securityholders of the Company owned approximately 58% of the Company’s capital stock, in each case determined on a fully-diluted basis.

Corporate Information

Our principal executive offices are located at 8 Davis Drive, Suite 220, Durham, NC 27709. Our telephone number is (248) 957-9024. Our website address is www.opusgtx.com. Additionally, our filings with the SEC are posted on our website at www.opusgtx.com. The information found on or accessible through our website is not part of this or any other report we file with or furnish to the SEC. The public can also obtain copies of these filings by accessing the SEC’s website at <http://www.sec.gov>.

Implications of Being a Smaller Reporting Company

We are a “smaller reporting company” as defined in the Exchange Act. We may take advantage of certain of the scaled disclosures available to smaller reporting companies and will be able to take advantage of these scaled disclosures 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.

THE OFFERING

Issuance of Common Stock

Shares of Common Stock offered by us pursuant to this prospectus

Up to 19,382,437 shares of our Common Stock, consisting of 5,237,063 Closing Shares and 14,145,374 Convertible Shares issuable upon the conversion of the Series A Preferred Stock subject to approval of the Conversion Proposal

Shares of Common Stock outstanding prior to conversion of Series A Preferred Stock

31,568,457 shares (as of December 31, 2024)

Shares of Common Stock outstanding assuming conversion of all Series A Preferred Stock

45,713,831 shares (based on total shares outstanding on December 31, 2024)

Use of proceeds

We will not receive any proceeds from the issuance of Common Stock, including upon conversion of Series A Preferred Stock into shares of Common Stock

Resale of Common Stock

Shares of Common Stock offered by the selling securityholders pursuant to this prospectus

We are registering the resale by the selling securityholders named in this prospectus, or their permitted transferees, of an aggregate of up to 19,382,437 shares of Common Stock, consisting of up to 5,237,063 Closing Shares and up to 14,145,374 Convertible Shares issuable upon the conversion of the Series A Preferred Stock subject to approval of the Conversion Proposal

Use of proceeds

We will not receive any of the proceeds from the resale of Closing Shares or Convertible Shares by the selling securityholders

Risk factors

Before investing in our securities, you should carefully read and consider the information set forth in the section titled “*Risk Factors*”

Nasdaq ticker symbol

Shares of our Common Stock are listed on Nasdaq under the ticker symbol “IRD”

For additional information concerning the offering, see the section titled “*Plan of Distribution*”.

RISK FACTORS

Investing in our Common Stock involves a high degree of risk. You should carefully consider the risks discussed under the section titled “Risk Factors” contained in our Quarterly Report on Form 10-Q for the quarter ended September 30, 2024 and in other filings made with the SEC, together with other information in this prospectus, any prospectus supplement, the information and documents incorporated by reference herein, and in any free writing prospectus that we have authorized for use in connection with this offering. The occurrence of any of these events or developments could materially and adversely affect our business, financial condition, results of operations and prospects. In such an event, the market price of our Common Stock could decline and you may lose all or part of your investment.

USE OF PROCEEDS

We will not receive any proceeds from the sale of securities issued pursuant to this prospectus by any selling securityholders.

SELLING SECURITYHOLDERS

This prospectus relates to the resale by the selling securityholders from time to time of up to 19,382,437 shares of our Common Stock, consisting of up to 5,237,063 Closing Shares and up to 14,145,374 Convertible Shares issuable upon the conversion of Series A Preferred Stock subject to approval of the Conversion Proposal. The selling securityholders may from time to time offer and sell any or all of the Common Stock set forth below pursuant to this prospectus and any accompanying prospectus supplement. As used in this prospectus, the term “selling securityholders” includes the persons listed in the table below, together with any additional selling securityholders listed in a subsequent amendment to this prospectus, and their pledgees, donees, transferees, assignees, successors, designees and others who later come to hold any of the selling securityholders’ interests in Closing Shares or Convertible Shares, other than through a public sale.

Except as set forth in the footnotes below, the following table sets forth, based on written representations from the selling securityholders, certain information as of December 31, 2024 regarding the beneficial ownership of Closing Shares and Convertible Shares by the selling securityholders and Closing Shares and Convertible Shares being offered by the selling securityholders. The number of shares set forth below assumes the conversion of one share of Series A Preferred Stock into 1,000 Convertible Shares pursuant to the Certificate of Designation. The applicable percentage ownership of Common Stock in the “Shares of Common Stock Currently Held” portion of the following table is based on approximately 31,568,457 shares of Common Stock outstanding as of December 31, 2024, which includes all Closing Shares. The applicable percentage ownership of Common Stock in the “Shares of Common Stock Issuable Upon Conversion of Series A Preferred Stock” portion of the following table assumes the conversion of all Series A Preferred Stock and is based on approximately 45,713,831 shares of Common Stock, consisting of 31,568,457 shares of Common Stock outstanding as of December 31, 2024, plus all Convertible Shares. In each case, information with respect to shares of Common Stock owned beneficially after the applicable offering assumes the sale of all of the shares of Common Stock registered hereby. The selling securityholders may offer and sell some, all or none of their shares of Common Stock, provided that Convertible Shares may only be offered after the corresponding shares of Series A Preferred Stock are converted into Convertible Shares pursuant to the terms of the Certificate of Designation, and provided further that the shares of Series A Preferred Stock may not be transferred or exercised prior to stockholder approval of the Conversion Proposal.

We have determined beneficial ownership in accordance with the rules of the SEC. Except as indicated by the footnotes below, we believe, based on the information furnished to us, that the selling securityholders have sole voting and investment power with respect to all shares of Closing Shares and Converted Shares that they beneficially own, subject to applicable community property laws. Except as otherwise described below, based on the information provided to us by the selling securityholders, no selling securityholder is a broker-dealer or an affiliate of a broker dealer.

Except as otherwise disclosed herein, the selling securityholders do not have, and within the past three years have not had, any position, office or other material relationship with us, or any of our predecessors or affiliates.

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Please see the section titled “*Plan of Distribution*” in this prospectus for further information regarding the selling securityholder’s method of distributing these shares.

Name	Shares of Common Stock Currently Held				Shares of Common Stock Issuable Upon Conversion of Series A Preferred Stock			
	Number Beneficially Owned Prior to Offering	Number Registered For Sale Hereby	Number Beneficially Owned After Offering	Percent Owned After Offering	Number Beneficially Owned Prior to Offering	Number Registered For Sale Hereby	Number Beneficially Owned After Offering	Percent Owned After Offering
BIOS FUND III NT, LP ⁽¹⁾	121,807	121,807	0	0%	329,004	329,004	0	0%
BIOS FUND III QP, LP ⁽²⁾	757,078	757,078	0	0%	2,044,875	2,044,875	0	0%
BIOS FUND III, LP ⁽³⁾	116,364	116,364	0	0%	314,301	314,301	0	0%
ASTELLAS US LLC ⁽⁴⁾	540,576	540,576	0	0%	1,460,104	1,460,104	0	0%
MANNING FAMILY FOUNDATION ⁽⁵⁾	699,920	699,920	0	0%	1,890,491	1,890,491	0	0%
MCN OPUS GENETICS SPE 24, LLC ⁽⁶⁾	31,908	31,908	0	0%	86,185	86,185	0	0%
NORTH CAROLINA BIOTECHNOLOGY CENTER ⁽⁷⁾	104,859	104,859	0	0%	283,227	283,227	0	0%
MICHIGAN CAPITAL NETWORK VENTURE FUND IV, LP ⁽⁸⁾	174,173	174,173	0	0%	470,445	470,445	0	0%
PATRICK WALSH ⁽⁹⁾	108,129	108,129	0	0%	292,061	292,061	0	0%
FOUNDATION FIGHTING BLINDNESS RETINAL DEGENERATION FUND ⁽¹⁰⁾	2,564,752	2,564,752	0	0%	6,927,419	6,927,419	0	0%
WS INVESTMENT COMPANY, LLC (23A) ⁽¹¹⁾	17,497	17,497	0	0%	47,262	47,262	0	0%

- (1) Interests include (i) 121,807 shares of Closing Shares and (ii) 329,004 shares of Common Stock issuable upon conversion of Series A Preferred Stock. The principal business address for the entity named in this footnote is 1751 River Run, Suite 400, Fort Worth, TX 76107. Aaron Glenn Louis Fletcher is the control person of BIOS Fund III NT, LP.
- (2) Interests include (i) 757,078 shares of Closing Shares and (ii) 2,044,875 shares of Common Stock issuable upon conversion of Series A Preferred Stock. The principal business address for the entity named in this footnote is 1751 River Run, Suite 400, Fort Worth, TX 76107. Aaron Glenn Louis Fletcher is the control person of BIOS Fund III QP, LP.
- (3) Interests include (i) 116,364 shares of Closing Shares and (ii) 314,301 shares of Common Stock issuable upon conversion of Series A Preferred Stock. The principal business address for the entity named in this footnote is 1751 River Run, Suite 400, Fort Worth, TX 76107. Aaron Glenn Louis Fletcher is the control person of BIOS Fund III, LP.
- (4) Interests include (i) 540,576 shares of Closing Shares and (ii) 1,460,104 shares of Common Stock issuable upon conversion of Series A Preferred Stock. The principal business address for the entity named in this footnote is 2375 Waterview Drive, Northbrook, IL 60062.
- (5) Interests include (i) 699,920 shares of Closing Shares and (ii) 1,890,491 shares of Common Stock issuable upon conversion of Series A Preferred Stock. The principal business address for the entity named in this footnote is c/o Tiger Lily Capital, LLC, 200 Garrett Street, Suite O, Charlottesville, VA 22902. Paul B. Manning is the control person of the Manning Family Foundation.
- (6) Interests include (i) 31,908 shares of Closing Shares and (ii) 86,185 shares of Common Stock issuable upon conversion of Series A Preferred Stock. The principal business address for the entity named in this footnote is 37 Ottawa Ave. NW, Suite 200, Grand Rapids, MI 49545. Paul D’Amato is the control person of MCN Opus Genetics SPE 24, LLC.
- (7) Interests include (i) 104,859 shares of Closing Shares and (ii) 283,227 shares of Common Stock issuable upon conversion of Series A Preferred Stock. The principal business address for the entity named in this footnote is 15 T.W. Alexander Dr. P.O. Box 13547, Research Triangle Park, NC, 27709. Dr. Benjamin R. Yerxa is a director of the North Carolina Biotechnology Center.
- (8) Interests include (i) 174,173 shares of Closing Shares and (ii) 470,445 shares of Common Stock issuable upon conversion of Series A Preferred Stock. The principal business address for the entity named in this footnote is 37 Ottawa Ave. NW, Suite 200, Grand Rapids, MI 49545. Paul D’Amato is the control person of Michigan Capital Network Venture Fund IV, LP.
- (9) Interests include (i) 108,129 shares of Closing Shares and (ii) 292,061 shares of Common Stock issuable upon conversion of Series A Preferred Stock. The principal business address for the person named in this footnote is 18 Game Land Rd, Bluffton, SC 29910.
- (10) Interests include (i) 2,564,752 shares of Closing Shares and (ii) 6,927,419 shares of Common Stock issuable upon conversion of Series A Preferred Stock. The principal business address for the person named in this footnote is 223 South West Street, Suite 900, Raleigh, NC 27603. Russell William Kelley is the control person of the Foundation Fighting Blindness Retinal Degeneration Fund. Jean Bennett, M.D., Ph.D., and Adrienne Graves, Ph.D., each of whom serves on our board of directors, also serve on the board of directors of the Foundation Fighting Blindness Retinal Degeneration Fund.
- (11) Interests include (i) 17,497 shares of Closing Shares and (ii) 47,262 shares of Common Stock issuable upon conversion of Series A Preferred Stock. The principal business address for the entity named in this footnote is 650 Page Mill Road, Palo Alto, CA 94304. James D. Hinson is the control person of WS Investment Company, LLC (23A).

PLAN OF DISTRIBUTION

We are registering 19,382,437 shares of Common Stock issued to the selling securityholders to permit the resale of these shares of Common Stock by the holders of these shares of Common Stock from time to time after the date of this prospectus. This amount consists of up to 5,237,063 Closing Shares and up to 14,145,374 Convertible Shares issuable upon the conversion of Series A Preferred Stock subject to approval of the Conversion Proposal. We will not receive any of the proceeds from the sale by the selling securityholders of their shares of Common Stock. We will bear all fees and expenses incident to our obligation to register the shares of Common Stock.

The selling securityholders and any of their pledgees, donees, transferees, assignees or other successors-in-interest may, from time to time, sell, transfer or otherwise dispose of any or all of the shares of Common Stock beneficially owned by the selling securityholder or interests in shares of Common Stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions, subject to any lockup restrictions that such shares of Common Stock may be subject to. If the shares of Common Stock are sold through underwriters or broker-dealers, the selling securityholders will be responsible for underwriting discounts or commissions or agent's commissions. The shares of Common Stock may be sold on any national securities exchange or quotation service on which the securities may be listed or quoted at the time of sale, in the over-the-counter market or in transactions otherwise than on these exchanges or systems or in the over-the-counter market and in one or more transactions at fixed prices, at prevailing market prices at the time of the sale, at varying prices determined at the time of sale, or at negotiated prices. The selling securityholders may use any one or more of the following methods when selling shares:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- through brokers, dealers or underwriters that may act solely as agents;
- 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;
- through the writing or settlement of options or other hedging transactions entered into after the effective date of the registration statement of which this prospectus is a part, whether through an options exchange or otherwise;
- broker-dealers may agree with the selling securityholders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of disposition; and
- any other method permitted pursuant to applicable law.

The selling securityholders may also resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act or Section 4(a)(1) of the Securities Act, if available, rather than under this prospectus, provided that the selling securityholder meets the criteria and conforms to the requirements of those provisions.

Broker-dealers engaged by the selling securityholders may arrange for other broker-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the selling securityholders (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated. The selling securityholders do not expect these commissions and discounts to exceed what is customary in the types of transactions involved.

The selling securityholders may from time to time, subject to any contractual restrictions that they may otherwise be subject to, pledge or grant a security interest in some or all of the shares of Common Stock owned by the selling securityholders and, if the selling securityholders default in the performance of their secured obligations, the pledgees or secured parties may offer and sell shares of Common Stock from time to time under

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this prospectus, or under a supplement or amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending, if necessary, the list of selling securityholders to include the pledgee, transferee or other successors in interest as selling securityholders under this prospectus.

Upon being notified in writing by a selling securityholder that any material arrangement has been entered into with a broker-dealer for the sale of Common Stock through a block trade, special offering, exchange distribution or secondary distribution or a purchase by a broker or dealer, we will file a supplement to this prospectus, if required, pursuant to Rule 424(b) under the Securities Act, disclosing (i) the name of each such selling securityholder and of the participating broker-dealer(s), (ii) the number of shares involved, (iii) the price at which such shares of Common Stock were sold, (iv) the commissions paid or discounts or concessions allowed to such broker-dealer(s), where applicable, (v) that such broker-dealer(s) did not conduct any investigation to verify the information set out or incorporated by reference in this prospectus, and (vi) other facts material to the transaction. In addition, upon being notified in writing by a selling securityholder that a donee or pledge intends to sell more than 500 shares of Common Stock, we will file a supplement to this prospectus if then required in accordance with applicable securities law.

The selling securityholders also may transfer the shares of Common Stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

In connection with the sale of the shares of Common Stock or interests in shares of Common Stock, the selling securityholders may, subject to any contractual restrictions that they may otherwise be subject to, enter into hedging transactions after the effective date of the registration statement of which this prospectus is a part with broker-dealers or other financial institutions, which may in turn engage in short sales of the Common Stock in the course of hedging the positions they assume. The selling securityholders may also, subject to any contractual restrictions that they may otherwise be subject to, sell shares of Common Stock short after the effective date of the registration statement of which this prospectus is a part and deliver these securities to close out their short positions, or loan or pledge the Common Stock to broker-dealers that in turn may sell these securities. The selling securityholders may also, subject to any contractual restrictions that they may otherwise be subject to, enter into option or other transactions after the effective date of the registration statement of which this prospectus is a part with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction). Notwithstanding the foregoing, the selling securityholders have been advised that they may not use shares registered on this registration statement to cover short sales of our Common Stock made prior to the date the registration statement, of which this prospectus forms a part, has been declared effective by the SEC.

The selling securityholders and any broker-dealers or agents that are involved in selling the shares may be deemed to be “underwriters” within the meaning of Section 2(a)(11) 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 shares purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. The maximum commission or discount to be received by any member of the Financial Industry Regulatory Authority (FINRA) or independent broker-dealer will not be greater than 8% of the initial gross proceeds from the sale of any security being sold. If a selling securityholder is deemed to be an “underwriter” within the meaning of Section 2(a)(11) of the Securities Act, it will be subject to the applicable prospectus delivery requirements of the Securities Act and may be subject to certain statutory liabilities of, including but not limited to, Sections 11, 12 and 17 of the Securities Act and Rule 10b-5 under the Exchange Act.

We have advised the selling securityholders that they are required to comply with Regulation M promulgated under the Exchange Act during such time as they may be engaged in a distribution of the shares. The foregoing may affect the marketability of the Common Stock.

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

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We are required to pay all fees and expenses incident to the registration of the shares provided, however, that the selling securityholders will pay all underwriting discounts and selling commissions, if any. We have agreed to indemnify the selling securityholders against certain losses, claims, damages and liabilities, including some liabilities under the Securities Act, in accordance with the Registration Rights Agreement, or the selling securityholders will be entitled to contribution. We may be indemnified by the selling securityholders against civil liabilities, including liabilities under the Securities Act, that may arise from any written information furnished to us by the selling securityholders specifically for use in this prospectus, in accordance with the Registration Rights Agreement, or we may be entitled to contribution.

We have agreed with the selling securityholders to keep the registration statement of which this prospectus constitutes a part effective until the earlier of (a) such time as all of the shares covered by this prospectus have been publicly sold by such selling securityholders, (b) the date that all the shares covered by this prospectus may be sold by non-affiliates without volume or manner-of-sale restrictions pursuant to Rule 144 of the Securities Act or (c) the expiration of two years from the effective date of this prospectus.

To the extent required, this prospectus may be amended and/or supplemented from time to time to describe a specific plan of distribution.

DESCRIPTION OF CAPITAL STOCK

General

As of the date of this prospectus, our certificate of incorporation authorizes us to issue up to 135,000,000 shares of capital stock, all with a par value of \$0.0001 per share, of which 125,000,000 shares are designated as Common Stock and 10,000,000 shares are designated as Preferred Stock.

The following summary describes the material terms of our capital stock. The description of capital stock is qualified by reference to our certificate of incorporation and our bylaws.

Common Stock

As of December 31, 2024, 31,568,457 shares of Common Stock were outstanding. All outstanding shares of Common Stock are duly authorized, validly issued, fully paid, and nonassessable. All authorized but unissued shares of our Common Stock are available for issuance by our board of directors without any further stockholder action, except as required by the listing standards of Nasdaq.

Voting Rights

Holders of our Common Stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders, including the election of directors, and do not have cumulative voting rights. Accordingly, the holders of a majority of the outstanding shares of Common Stock entitled to vote in any election of directors can elect all of the directors standing for election, if they so choose, other than any directors that holders of any Preferred Stock we may issue may be entitled to elect.

Dividend Rights

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.

Liquidation

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 prior rights of any Preferred Stock then outstanding.

Rights and Preferences

Holders of Common Stock have no preemptive or conversion rights or other subscription rights and there are no redemption or sinking fund provisions applicable to the Common Stock. 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.

Preferred Stock

Our board of directors may, without further action by our stockholders, fix the rights, preferences, privileges and restrictions of up to an aggregate of 10,000,000 shares of Preferred Stock in one or more series and authorize their issuance. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms and the number of shares constituting any series or the designation of such series, any or all of which may be greater than the rights of our Common Stock. The issuance of our Preferred Stock could adversely affect the voting power of holders of our Common Stock and the likelihood that such holders will receive dividend payments and payments upon liquidation. In addition, the issuance of Preferred Stock could have the effect of decreasing the market price of our Common Stock and could also have the effect of delaying, deferring or preventing a change of control or other corporate action.

Series A Preferred Stock

On October 22, 2024, the Company filed a Certificate of Designation of Preferences, Rights and Limitations of the Series A Non-Voting Convertible Preferred Stock with the Secretary of State of the State of Delaware (the "Certificate of Designation"), designating 14,146 shares of authorized Preferred Stock of the Company as the Series A Preferred Stock. As of December 31, 2024, 14,145.374 shares of Series A Preferred Stock were outstanding.

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The Series A Preferred Stock ranks on parity with our Common Stock with respect to the payment of dividends and distributions of assets upon liquidation, dissolution or winding up of the Corporation, whether voluntarily or involuntarily. The shares of the Series A Preferred Stock are fully paid and nonassessable and have no preemptive rights.

Holders of Series A Preferred Stock are entitled to receive dividends on shares of Series A Preferred Stock (on an as-if-converted-to-common-stock basis) equal to and in the same form, and in the same manner, as dividends (other than dividends on shares of our Common Stock payable in the form of Common Stock) actually paid on shares of our Common Stock when, as and if such dividends (other than dividends payable in the form of Common Stock) are paid on shares of our Common Stock. In addition to any dividends payable as described above, commencing on October 15, 2025, holders of Series A Preferred Stock will be entitled to receive when, as and if declared by the board of directors or a duly authorized committee of the board of directors, and the Company will pay, out of funds legally available therefor, cumulative quarterly cash dividends of \$26.00 per share of Series A Preferred Stock; provided that for the Series A Dividend Payment Date (as defined below) occurring on October 15, 2025, the amount of such quarterly cash dividend shall be \$15.26. Any such dividends will be payable quarterly in arrears on January 15, April 15, July 15 and October 15 of each year, commencing with the first payment on October 15, 2025 (each such date, a “Series A Dividend Payment Date”).

Holders of Series A Preferred Stock generally do not have voting rights, except with respect to certain protective matters such as amendments to our certificate of incorporation or the Certificate of Designation that alter or change adversely the powers, preferences or rights given to the Series A Preferred Stock.

Following stockholder approval of the conversion of the Series A Preferred Stock into shares of Common Stock, each share of Series A Preferred Stock will be convertible into shares of Common Stock at any time at the option of the holder thereof into 1,000 shares of Common Stock, subject to certain limitations.

Options and Restricted Stock

As of December 31, 2024, (i) 1,420,288 shares of Common Stock remain available for issuance under our 2020 Equity Incentive Plan and the 2021 Inducement Plan, stock options to purchase an aggregate of 2,564,766 shares of Common Stock were outstanding under our 2020 Equity Incentive Plan and stock options to purchase an aggregate of 1,782,800 shares of Common Stock were outstanding under our 2021 Inducement Plan, and (ii) 1,130,430 unvested shares of restricted stock were outstanding.

Warrants

As of December 31, 2024, 7,204,299 warrants to purchase shares of our capital stock were outstanding, with a weighted average exercise price of \$4.82 (subject to adjustment).

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

Our certificate of incorporation and bylaws contain provisions that could make it more difficult to complete an acquisition of us by means of a tender offer, a proxy contest or otherwise or the removal and replacement of our incumbent officers and directors.

Removal of Directors; Board Vacancies; Board Size. Our certificate of incorporation provides for the removal of any of our directors with or without cause and requires a stockholder vote of at least a majority of the voting power of all then outstanding shares of stock. In addition, our certificate of incorporation provides that any vacancy occurring on our board of directors may be filled by a majority of directors then in office, even if less than a quorum, unless the board of directors determines that such vacancy shall be filled by the stockholders. Finally, the authorized number of directors may be changed only by a resolution of the board of directors. This system of removing directors, filling vacancies and fixing the size of the board makes it more difficult for stockholders to replace a majority of the directors.

Special Stockholder Meetings. Our certificate of incorporation and our bylaws provide that a special meeting of stockholders may be called only by a resolution adopted by a majority of our board of directors or by the chairman of the board.

Stockholder Advance Notice Procedure. Our bylaws establish an advance notice procedure for stockholders to make nominations of candidates for election as directors or to bring other business before an annual meeting

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of our stockholders. The bylaws provide that any stockholder wishing to nominate persons for election as directors at, or bring other business before, an annual meeting must deliver to our secretary a written notice of the stockholder's intention to do so. To be timely, the stockholder's notice must be delivered to or mailed and received by us not more than 120 days, and not less than 90 days before the anniversary date of the preceding annual meeting, except that if the annual meeting is set for a date that is not within 30 days before or 60 days after such anniversary date, we must receive the notice not earlier than the close of business on the 120th day prior to the annual meeting and not later than the close of business on the later of (i) the 90th day prior to the annual meeting and (ii) the tenth day following the day on which we first made public announcement of the date of meeting. The notice must include the following information:

- as to director nominations, all information relating to each director nominee that is required by the rules of the SEC to be disclosed in solicitations of proxies, or is otherwise required by Regulation 14A of the Exchange Act;
- as to any other business that the stockholder proposes to bring before the meeting, a brief description of the business to be proposed, the reasons for conducting such business at the meeting and, if any, the stockholder's material interest in the proposed business; and
- the name and address of the stockholder who intends to make the nomination and the class and number of our shares beneficially owned of record.

Undesignated Preferred Stock. The ability to authorize undesignated Preferred Stock makes it possible for our board of directors to issue Preferred Stock with voting or other rights or preferences that could have the effect of delaying, deferring, preventing or otherwise impeding any attempt to change control of us.

Delaware Anti-Takeover Statute. We are subject to Section 203 of the Delaware General Corporation Law, which prohibits persons deemed "interested stockholders" from engaging in a "business combination" with a publicly traded 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, such as discouraging takeover attempts that might result in a premium over the market price of our Common Stock.

Business Combinations with Interested Stockholders. Our certificate of incorporation provides that certain "business combinations" with "interested stockholders" require approval by the holders of at least a majority of the voting power of our then outstanding shares of voting stock not beneficially owned by any interested stockholder or an affiliate or associate thereof. The foregoing restriction does not apply, however, if the transaction is either approved by a majority of our "continuing directors" or certain minimum price and procedural and other requirements are met. Generally, a "business combination" includes a merger, consolidation, liquidation, recapitalization or other similar transaction or a sale, lease, transfer or other disposition of assets or securities having an aggregate fair market value of \$15 million or more. An "interested stockholder" generally means a beneficial owner of 20% or more of our voting stock, certain assignees of such beneficial owners and certain of our affiliates that within the preceding two years were the beneficial owner of 20% or more of our voting stock. A "continuing director" is defined as any member of our board who is not an affiliate or associate or representative of the interested stockholder and was a member of the board prior to the time the interested stockholder became such, and any successor of a continuing director who is unaffiliated with the interested stockholder and is recommended or elected by at least two-thirds of the continuing directors then on the board.

Transfer Agent and Registrar

The transfer agent and registrar for our Common Stock is Equiniti Trust Company, LLC. The transfer agent and registrar's address is 55 Challenger Road, Floor 2, Ridgefield Park, NJ 07660.

Listing on the Nasdaq Capital Market

Our Common Stock is listed on the Nasdaq Capital Market under the symbol "IRD."

LEGAL MATTERS

Unless otherwise indicated in the applicable prospectus supplement, the validity of the securities offered by this prospectus, and any supplement thereto, will be passed upon for us by Sidley Austin LLP.

EXPERTS

The financial statements of Opus Genetics, Inc. (formerly known as Ocuphire Pharma, Inc.) appearing in Opus Genetics, Inc.'s Annual Report (Form 10-K) for the year ended December 31, 2023, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon, included therein, and incorporated herein by reference. The financial statements of the Acquired Company appearing in Opus Genetics, Inc.'s Current Report on Form 8-K/A dated January 7, 2025 have been audited by Ernst & Young LLP, as set forth in their report included therein and incorporated herein by reference. Such financial statements are incorporated herein by reference in reliance upon such reports given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of a registration statement we filed with the SEC. This prospectus does not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information with respect to us and the securities we are offering under this prospectus, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. With respect to the statements contained in this prospectus regarding the contents of any agreement or any other document, in each instance, the statement is qualified in all respects by the complete text of the agreement or document, a copy of which has been filed as an exhibit to the registration statement. Neither we nor any agent, underwriter or dealer has authorized any person to provide you with different information. We are not making an offer of these securities in any state where the offer is not permitted. You should not assume that the information in this prospectus is accurate as of any date other than the date on the front page of this prospectus, regardless of the time of delivery of this prospectus or any sale of the securities offered by this prospectus.

We file reports, proxy statements and other information with the SEC under the Exchange Act. The SEC maintains an Internet website that contains reports, proxy statements and other information about issuers, like us, that file electronically with the SEC. The address of that website is www.sec.gov. We maintain a website at www.opusgtx.com. Information contained in or accessible through our website does not constitute a part of this prospectus.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

SEC rules permit us to incorporate information by reference in this prospectus. This 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 considered to be part of this prospectus, except for information superseded by information contained in this prospectus itself or in any subsequently filed incorporated document. This prospectus incorporates by reference the documents set forth below that we have previously filed with the SEC, other than information in such documents that is deemed to be furnished and not filed:

- Annual Report on Form 10-K for the year ended [December 31, 2023](#);
- Portions of the Definitive Proxy Statement on Schedule 14A filed [April 29, 2024](#), and as revised on [May 30, 2024](#), that are incorporated by reference into Part III of our Annual Report on Form 10-K for the year ended December 31, 2023;
- Quarterly Reports on Form 10-Q for the periods ended [March 31, 2024](#), [June 30, 2024](#) and [September 30, 2024](#);
- Current Reports on Form 8-K and Form 8-K/A filed with the SEC on [February 16, 2024](#), [April 17, 2024](#), [June 13, 2024](#), [October 22, 2024](#) (other than Items 2.02 and 7.01) and [January 7, 2025](#); and
- the description of our Common Stock contained in our Registration Statement on [Form 8-A](#), dated June 7, 2019, including any amendments or reports filed for the purpose of updating such description, including [Exhibit 4.11](#) to the Annual Report on Form 10-K for the year ended [December 31, 2023](#).

All documents that we file (but not those that we furnish) pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act on or after the date of this prospectus and prior to the termination of the offering of any of the securities covered under this prospectus shall be deemed to be incorporated herein by reference into this prospectus and will automatically update and supersede the information in this prospectus and any previously filed documents.

Any statement contained herein or in a document incorporated or deemed to be incorporated by reference in this prospectus shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus, or in any other subsequently filed document which also is or is deemed to be incorporated by reference in this prospectus, modifies or supersedes such earlier statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

You can obtain any of the filings incorporated by reference into this prospectus through us or from the SEC through the SEC's website at <http://www.sec.gov>. Upon request, we will provide, without charge, a copy of any or all of the reports and documents referred to above which have been incorporated by reference into this prospectus. Prospective investors may obtain documents incorporated by reference in this prospectus by requesting them in writing or by telephone from us at our executive offices at:

Opus Genetics, Inc.
8 Davis Drive, Suite 220
Durham, NC 27709
(248) 957-9024

Attn: Dr. George Magrath, Chief Executive Officer

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



PART II**INFORMATION NOT REQUIRED IN PROSPECTUS****Item 14. Other Expenses of Issuance and Distribution.**

The following table sets forth all costs and expenses, other than underwriting discounts and commissions, payable by us in connection with the sale of the securities being registered. All amounts shown are estimates except for the SEC registration fee.

	<u>Amount</u>
SEC Registration Fee	\$ 3,535.22
Legal Fees and Expenses	\$50,000.00
Accounting Fees	\$12,000.00
Total Expenses	<u>\$65,535.22</u>

Discounts, concessions, commissions and similar selling expenses attributable to the sale of shares of Common Stock covered by this prospectus will be borne by the selling securityholders. We will pay all expenses (other than discounts, concessions, commissions and similar selling expenses) relating to the registration of the shares with the SEC, as estimated in the table above.

Item 15. Indemnification of Directors and Officers.Delaware General Corporation Law

Section 145(a) of the Delaware General Corporation Law (“DGCL”) provides that a corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys’ fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with such action, suit or proceeding if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe the person’s conduct was unlawful. The termination of any action, suit or proceeding by judgment, order, settlement, conviction or upon a plea of nolo contendere or its equivalent, shall not, of itself, create a presumption that the person did not act in good faith and in a manner which the person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had reasonable cause to believe that the person’s conduct was unlawful.

Section 145(b) of the DGCL states that a corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against expenses (including attorneys’ fees) actually and reasonably incurred by the person in connection with the defense or settlement of such action or suit if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation and except that no indemnification shall be made in respect of any claim, issue or matter as to which the person shall have been adjudged to be liable to the corporation unless and only to the extent that the Delaware Court of Chancery or the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, the person is fairly and reasonably entitled to indemnity for such expenses as the Delaware Court of Chancery or such other court shall deem proper.

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Section 145(c) of the DGCL provides that to the extent that a present or former director or officer of a corporation has been successful on the merits or otherwise in defense of any action, suit or proceeding referred to in subsections (a) and (b) of Section 145, or in defense of any claim, issue or matter therein, such person shall be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection therewith.

Section 145(d) of the DGCL states that any indemnification under subsections (a) and (b) of Section 145 (unless ordered by a court) shall be made by the corporation only as authorized in the specific case upon a determination that indemnification of the present or former director, officer, employee or agent is proper in the circumstances because the person has met the applicable standard of conduct set forth in subsections (a) and (b) of Section 145. Such determination shall be made with respect to a person who is a director or officer at the time of such determination (i) by a majority vote of the directors who are not parties to such action, suit or proceeding, even though less than a quorum, (ii) by a committee of such directors designated by majority vote of such directors, even though less than a quorum, (iii) if there are no such directors, or if such directors so direct, by independent legal counsel in a written opinion or (iv) by the stockholders.

Section 145(f) of the DGCL states that the indemnification and advancement of expenses provided by, or granted pursuant to, the other subsections of Section 145 shall not be deemed exclusive of any other rights to which those seeking indemnification or advancement of expenses may be entitled under any bylaw, agreement, vote of stockholders or disinterested directors or otherwise, both as to action in such person's official capacity and as to action in another capacity while holding such office.

Section 145(g) of the DGCL provides that a corporation shall have the power to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against any liability asserted against such person and incurred by such person in any such capacity or arising out of such person's status as such, whether or not the corporation would have the power to indemnify such person against such liability under the provisions of Section 145.

Section 145(j) of the DGCL states that the indemnification and advancement of expenses provided by, or granted pursuant to, Section 145 shall, unless otherwise provided when authorized or ratified, continue as to a person who has ceased to be a director, officer, employee or agent and shall inure to the benefit of the heirs, executors and administrators of such a person.

Certificate of Incorporation and Bylaws

We have adopted provisions in our bylaws that provide for indemnification of our officers and directors to the maximum extent permitted under the DGCL. As authorized by the DGCL, our certificate of incorporation limits the liability of our directors for monetary damages. The effect of this provision is to eliminate our rights and that of our stockholders to recover monetary damages against a director for breach of the fiduciary duty of care as a director except in certain limited situations. This provision does not limit or eliminate our rights or that of any stockholder to seek non-monetary relief such as an injunction or rescission in the event of a breach of a director's duty of care. These provisions will not alter the liability of directors under federal securities laws.

Indemnification Agreements

We have entered into indemnification agreements with each of our current directors and officers. These agreements will 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.

Insurance Policy

We have purchased an insurance policy that purports to insure our officers and directors against certain liabilities incurred by them in the discharge of their functions as such officers and directors.

The foregoing summaries are not intended to be exhaustive and are qualified in their entirety by reference to the complete text of the statute, the certificate of incorporation, and the agreements referred to above and are qualified in their entirety by reference thereto.

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Item 16. Exhibits and Financial Statement Schedules.

(a) Exhibits.

The exhibits listed below are filed as part of this registration statement.

Exhibit	Description	Incorporated by Reference			
		Schedule/ Form	File Number	Exhibit	Filing Date
2.1+	Agreement and Plan of Merger, dated as of October 22, 2024, by and among Opus Genetics, Inc. (legacy), Orange Merger Sub I, Inc., Orange Merger Sub II, LLC, and Opus Genetics Inc. (target)	Form 8-K	001-34079	2.1	October 22, 2024
4.1	Restated Certificate of Incorporation of Opus Genetics, Inc., dated as of June 12, 2024	Form 10-Q	001-34079	3.1	August 13, 2024
4.2	Certificate of Amendment to Restated Certificate of Incorporation, effective as of October 23, 2024	Form 8-K	001-34079	3.2	October 22, 2024
4.3	Certificate of Designation of Series A Non-Voting Series A Preferred Stock, dated as of October 22, 2024	Form 8-K	001-34079	3.1	October 22, 2024
4.4	Amended and Restated Bylaws of Opus Genetics, Inc., dated as of October 23, 2024	Form 8-K	001-34079	3.3	October 22, 2024
4.5**	Form of Preferred Stock Certificate				
5.1*	Opinion of Sidley Austin LLP				
23.1*	Consent of Independent Registered Public Accounting Firm				
23.2*	Consent of Sidley Austin LLP (reference is made to Exhibit 5.1)				
24.1*	Power of Attorney (included on signature page)				
107*	Filing Fee Table				

* Filed herewith.

** To be filed by amendment or as an exhibit to a Current Report on Form 8-K and incorporated herein by reference, if applicable.

+ Schedules have been omitted from this filing pursuant to Item 601(b)(2) of Regulation S-K. Opus agrees to furnish supplementally a copy of any omitted schedule to the SEC upon its request; provided, however, that Opus may request confidential treatment pursuant to Rule 24b-2 of the Exchange Act for any schedule so furnished.

Item 17. Undertakings.

- (a) The undersigned registrant hereby undertakes:
- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table 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 (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) of this section 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 SEC by the registrant pursuant to Section 13 or Section 15(d) of the Exchange Act, that are incorporated by reference in the registration statement,

or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

- (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act to any purchaser:
 - (i) Each prospectus filed by a registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
 - (ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5) or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii) or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale

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prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

- (5) That, for the purpose of determining liability of the registrant under the Securities Act to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:
 - (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
 - (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
 - (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
 - (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.
- (6) That, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (b) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the undersigned pursuant to the foregoing provisions, or otherwise, the undersigned 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 the undersigned of expenses incurred or paid by a director, officer or controlling person of the undersigned in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the undersigned 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, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized in the City of Durham, North Carolina on this eighteenth day of February, 2025.

OPUS GENETICS, INC.

By: /s/ Dr. George Magrath

Dr. George Magrath

Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Dr. George Magrath, Nirav Jhaveri, and Amy Rabourn, and each of them, as his or her true and lawful agent, proxy and attorney-in-fact, each acting alone, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to (i) act on, sign, and file with the SEC any and all amendments (including post-effective amendments) to this registration statement together with all schedules and exhibits thereto, (ii) act on, sign and file such certificates, instruments, agreements and other documents as may be necessary or appropriate in connection therewith, (iii) act on and file any supplement to any prospectus included in this registration statement or any such amendment or any subsequent registration statement filed pursuant to Rule 462(b) under the Securities Act, and (iv) take any and all actions which may be necessary or appropriate to be done, as fully for all intents and purposes as he or she might or could do in person, hereby approving, ratifying and confirming all that such agent, proxy and attorney-in-fact or any of his substitutes may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Act, 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/ Dr. George Magrath</u> Dr. George Magrath	Chief Executive Officer and Director <i>(Principal Executive Officer)</i>	February 18, 2025
<u>/s/ Nirav Jhaveri</u> Nirav Jhaveri	Chief Financial Officer <i>(Principal Financial Officer and Principal Accounting Officer)</i>	February 18, 2025
<u>/s/ Sean Ainsworth</u> Sean Ainsworth	Director	February 18, 2025
<u>/s/ Dr. Jean Bennett</u> Dr. Jean Bennett	Director	February 18, 2025
<u>/s/ Susan K. Benton</u> Susan K. Benton	Director	February 18, 2025
<u>/s/ Cam Gallagher</u> Cam Gallagher	Director	February 18, 2025
<u>/s/ Dr. Adrienne Graves</u> Dr. Adrienne Graves	Director	February 18, 2025

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Signature	Title	Date
<div>/s/ James S. Manuso</div> <div>James S. Manuso</div>	Director	February 18, 2025
<div>/s/ Richard J. Rodgers</div> <div>Richard J. Rodgers</div>	Director	February 18, 2025
<div>/s/ Dr. Benjamin R. Yerxa</div> <div>Dr. Benjamin R. Yerxa</div>	President and Director	February 18, 2025

SIDLEY

SIDLEY AUSTIN LLP
2850 QUARRY LAKE DRIVE, SUITE 280
BALTIMORE, MD 21209
+1 410 559 2880
+1 202 736 8711 FAX

February 18, 2025

Opus Genetics, Inc.
8 Davis Drive, Suite 220
Durham, NC 27709

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We refer to the Registration Statement on Form S-3 (the “Registration Statement”), including the prospectus constituting a part thereof (the “Prospectus”), filed on the date hereof by Opus Genetics, Inc., a Delaware corporation formerly known as OcuPhire Pharma, Inc. (the “Company”), with the Securities and Exchange Commission (the “Commission”) under the Securities Act of 1933, as amended (the “Securities Act”), with respect to the issuance and resale from time to time by the selling securityholders identified in the Registration Statement of up to 19,382,437 of shares (the “Shares”) of the Company’s Common Stock, \$0.0001 par value per share (the “Common Stock”), consisting of (i) 5,237,063 shares of Common Stock (the “Issued Shares”) sold by the Company pursuant to an Agreement and Plan of Merger (the “Merger Agreement”), dated as of October 22, 2024 (the “Closing Date”), by and among the Company, Orange Merger Sub I, Inc., a Delaware corporation and wholly owned subsidiary of the Company, Orange Merger Sub II, LLC, a Delaware limited liability company and wholly owned subsidiary of the Company, and Opus Genetics Inc., a Delaware corporation, and (ii) up to 14,145,374 shares of Common Stock (the “Convertible Shares”) that are issuable upon conversion of 14,145,374 shares of the Company’s preferred stock, \$0.0001 par value per share, that were issued on the Closing Date pursuant to the Merger Agreement (the “Preferred Shares”), such conversion being subject to and contingent upon the approval of stockholders of the Company.

This opinion letter is being delivered in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act.

We have examined the Registration Statement, the related prospectus included therein, in substantially the form in which it was transmitted to the Commission for filing under the Securities Act (the “Prospectus”), the Merger Agreement, the Company’s Restated Certificate of Incorporation (the “Certificate of Incorporation”), and the resolutions adopted by the board of directors of the Company relating to the issuance and sale of the Issued Shares and the Preferred Shares. We have also examined originals, or copies of originals certified to our satisfaction, of such agreements, documents, certificates and statements of the Company and other corporate documents and instruments, and have examined such questions of law, as we have considered relevant and necessary as a basis for this opinion letter. We have assumed the authenticity of all documents submitted to us as originals, the genuineness of all signatures, the legal capacity of all persons and the conformity with the original documents of any copies thereof submitted to us for examination. As to facts relevant to the opinions expressed herein, we have relied without independent investigation or verification upon, and assumed the accuracy and completeness of, certificates, letters and oral and written statements and representations of public officials and officers and other representatives of the Company.

Based on and subject to the foregoing and the other limitations, qualifications and assumptions set forth herein, including that the Registration Statement, as finally amended (including any necessary post-effective amendments), shall have become effective under the Securities Act, we are of the opinion that the Issued Shares have been duly authorized and validly issued and are fully paid and non-assessable, and that the Convertible Shares issuable upon conversion of the Preferred Shares have been duly authorized and reserved for issuance, and, when the Preferred Shares have been duly converted into the Convertible Shares in accordance with the terms of the Preferred Shares and when the Company’s books reflect the issuance of such Convertible Shares to the holders of the Preferred Shares, the Convertible Shares will be validly issued, fully paid and non-assessable.

For the purposes of this opinion letter, we have assumed that, at the time of the issuance, sale and delivery of Shares: (i) the authorization thereof by the Company will not have been modified or rescinded, and there will not have occurred any change in law affecting the validity thereof; (ii) the Certificate of Incorporation and the Company's Amended and Restated Bylaws, as currently in effect, will not have been modified or amended and will be in full force and effect; and (iii) the Company will have sufficient authorized and unissued shares of Common Stock from which to issue the Convertible Shares.

This opinion letter is limited to the Delaware General Corporation Law. We express no opinion as to the laws, rules or regulations of any other jurisdiction, including, without limitation, the federal laws of the United States of America or any state securities or blue sky laws.

We hereby consent to the filing of this opinion letter as an Exhibit to the Registration Statement and to all references to our Firm included in or made a part of the Registration Statement. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act.

Very truly yours,

/s/ Sidley Austin LLP

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption “Experts” in the Registration Statement (Form S-3) and related Prospectus of Opus Genetics, Inc. for the registration of 19,382,437 shares of its common stock and to the incorporation by reference therein of our report (a) dated March 8, 2024, with respect to the financial statements of Opus Genetics, Inc. (formerly known as Ocuphire Pharma, Inc.) included in its Annual Report (Form 10-K) for the year ended December 31, 2023, and (b) dated January 7, 2025 with respect to the financial statements of Opus Genetics, Inc. for the year ended December 31, 2023 included in its Current Report on Form 8-K/A dated January 7, 2025, both filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Detroit, Michigan
February 18, 2025

Calculation of Filing Fee Tables

Form S-3
(Form Type)Opus Genetics, Inc.
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered and Carry Forward Securities

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered ⁽¹⁾	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial effective date	Filing Fee Previously Paid In Connection with Unsold Securities to be Carried Forward
Newly Registered Securities												
Fees to Be Paid	Equity	Common stock, \$0.0001 par value per share	Rule 457(c)	19,382,437 ⁽²⁾	\$1.13 ⁽³⁾	\$21,902,153.81 ⁽³⁾	0.0001531	\$3,353.22 ⁽³⁾	—	—	—	—
Fees Previously Paid	N/A	—	—	—	—	—	—	—	—	—	—	—
Carry Forward Securities												
Carry Forward Securities	N/A	—	—	—	—	—	—	—	—	—	—	—
Total Offering Amounts					—	\$21,902,153.81	—	\$3,353.22	—	—	—	—
Total Fees Previously Paid					—	—	—	—	—	—	—	—
Total Fee Offsets					—	—	—	—	—	—	—	—
Net Fee Due					—	—	—	\$3,353.22	—	—	—	—

- (1) In the event of a stock split, stock dividend or other similar transaction involving shares of the common stock, par value \$0.0001 per share (“common stock”), of Opus Genetics, Inc. (the “Registrant”), in order to prevent dilution, the number of shares of common stock registered hereby shall be automatically increased to cover the additional shares of common stock in accordance with Rule 416(a) under the Securities Act of 1933, as amended (the “Securities Act”).
- (2) Consists of the resale of (i) 5,237,063 shares of common stock and (ii) 14,145,374 shares of common stock issuable upon the conversion of the Registrant’s Series A Non-Voting Convertible Preferred Stock, par value \$0.0001 per share.
- (3) Estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(c) under the Securities Act. The price per share and aggregate offering price are based on the average of the high and low prices of common stock on February 12, 2025, as reported on the Nasdaq Capital Market.