

PROSPECTUS



18,446,936 Shares of Common Stock

This prospectus relates to the proposed resale or other disposition from time to time of up to 18,446,936 shares of our common stock, par value \$0.001 per share by the selling stockholders identified in this prospectus, including their transferees, pledgees, donees or other successors-in-interest (the "Selling Stockholders"). We are not offering any shares of our common stock for sale under this prospectus. We will not receive any of the proceeds from the sale of common stock by the Selling Stockholders. All expenses of registration incurred in connection with this offering are being borne by us. All selling and other expenses incurred by the Selling Stockholders will be borne by the Selling Stockholders.

The Selling Stockholders may, from time to time, sell, transfer, or otherwise dispose of any or all of their securities on any stock exchange, market, or trading facility on which the securities are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices. See "Plan of Distribution" which begins on page 10.

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

INVESTING IN OUR SECURITIES INVOLVES RISKS. SEE "[RISK FACTORS](#)" BEGINNING ON PAGE 4 OF THIS PROSPECTUS AND IN ANY SIMILAR SECTION CONTAINED IN OR INCORPORATED BY REFERENCE HEREIN CONCERNING FACTORS YOU SHOULD CONSIDER BEFORE INVESTING IN OUR SECURITIES.

Our common stock is listed on The Nasdaq Global Select Market under the symbol "ALXO." On September 6, 2023, the last reported sale price of our common stock on The Nasdaq Global Select Market was \$4.84 per share.

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

The date of this prospectus is September 8, 2023.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the U.S. Securities and Exchange Commission, or the SEC, using a “shelf” registration process. By using a shelf registration statement, the Selling Stockholders may sell securities from time to time and in one or more offerings as described in this prospectus. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. The free writing prospectus may also add, update or change information contained in this prospectus with respect to that offering. If there is any inconsistency between the information in this prospectus and the applicable free writing prospectus, you should rely on the free writing prospectus. Before purchasing any securities, you should carefully read this prospectus and any applicable free writing prospectuses, together with the additional information described under the headings “Where You Can Find More Information” and “Incorporation of Certain Information by Reference.”

Neither we, nor the Selling Stockholders, 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 free writing prospectuses prepared by or on behalf of us or to which we have referred you. We and the Selling Stockholders take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The Selling Stockholders will not make an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus is accurate only as of the date on its respective cover, that the information appearing in any applicable free writing prospectus is accurate only as of the date of that free writing prospectus, or as otherwise specified therein 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. This prospectus incorporates by reference, and any free writing prospectus may contain and incorporate by reference, market data and industry statistics and forecasts that are based on independent industry publications and other publicly available information. Although we believe these sources are reliable, we do not guarantee the accuracy or completeness of this information and we have not independently verified this information. Although we are not aware of any misstatements regarding the market and industry data presented in this prospectus and the documents incorporated herein by reference, these estimates involve risks and uncertainties and are subject to change based on various factors, including those discussed under the heading “Risk Factors” contained or incorporated by reference in this prospectus and any related free writing prospectus and under similar headings in other documents that are incorporated by reference into this prospectus. Accordingly, investors should not place undue reliance on this information.

When we refer to “ALX Oncology Holdings,” “we,” “our,” “us” and the “Company” in this prospectus, we mean ALX Oncology Holdings Inc., unless the context indicates otherwise or unless otherwise specified. When we refer to “you,” we mean the potential purchasers of the applicable series of securities offered by this prospectus.

PROSPECTUS SUMMARY

This summary highlights selected information contained elsewhere in this prospectus and in the documents we incorporate by reference. This summary does not contain all of the information you should consider before making an investment decision. You should read this entire prospectus carefully, especially the risks of investing in our common stock discussed under “Risk Factors” beginning on page 4 of this prospectus, the “Risk Factors” section of our most recent Annual Report on Form 10-K, as may be updated by our subsequent Quarterly Reports on Form 10-Q, along with our consolidated financial statements and notes to those consolidated financial statements and the other information incorporated by reference in this prospectus supplement and the accompanying prospectus and in our filings with the SEC.

Overview

We are a clinical-stage immuno-oncology company focused on helping patients fight cancer by developing a pipeline of product candidates lock the CD47 immune checkpoint pathway. Our lead candidate, evorpacept, is currently in multiple Phase 1 and 2 clinical trials. Cancer cells leverage CD47, a cell surface protein, as a “don’t eat me” signal to evade macrophage phagocytosis or as a “don’t activate T-cell” signal that prevents activation of T-cells by dendritic cells. Our company is developing a next-generation checkpoint inhibitor designed to have a high affinity for CD47 and to avoid the limitations caused by hematologic toxicities inherent in other CD47 blocking approaches. Rationally engineered with an inactive Fc effector function, evorpacept’s clinical data has demonstrated a substantially better safety profile to date than other anti-CD47 molecules in the clinic with an active Fc (i.e., binding the Fc gamma receptor on macrophages). This favorable safety profile allows us to dose higher with minimal overlapping toxicity in the combination treatment setting. CD47 expressed on cancer cells binds to its receptor SIRP α , which is predominantly expressed on two cell types: macrophages and dendritic cells. ALX Oncology intends to focus evorpacept development with the standard-of-care agents, as originally designed, revolving around these two cell types. As of June 30, 2023, we had dosed over 300 subjects with evorpacept across a range of hematologic and solid malignancies in combination with a number of leading anti-cancer agents. Based on our clinical results to date in multiple oncology indications showing encouraging anti-tumor activity and tolerability and our clinical development plans, our strategy is to pursue evorpacept as a potentially critical component for future combination treatments in oncology. Our second program combines our company’s SIRP α antibodies with Tallac Therapeutics’ toll-like receptor 9 agonist antibody conjugate to deliver a potent immune activator to myeloid cells in the tumor to promote innate and adaptive anti-cancer immune responses. Additionally, with our acquisition of ScalmiBio, Inc. (ScalmiBio) in October 2021, we are developing antibody drug conjugate, or ADC, candidates based on our expertise in protein engineering and oncology.

Corporate Information

The Company was formed as a Delaware corporation on April 1, 2020 for the purpose of completing the Company’s initial public offering of its common stock and related transactions in order to carry on the business of ALX Oncology Limited. Subsequently, ALX Oncology Limited became a wholly-owned subsidiary of the Company as a result of the internal reorganization. Our office is located at 323 Allerton Avenue, South San Francisco, California 94080. Our telephone number is 650-466-7125. Our website address is <https://www.alxoncology.com>. Information contained on, or that can be accessed through, our website is not incorporated by reference into this prospectus supplement and should not be considered to be part of this prospectus supplement or the accompanying prospectus. We have included our website address in this prospectus supplement and the accompanying prospectus solely as an inactive textual reference.

We use ALX Oncology and other marks as trademarks in the United States and other countries. Solely for convenience, trademarks and trade names referred to in this prospectus, including logos, artwork and other visual displays, may appear without the ® or TM symbols, but such references are not intended to indicate in any way that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names.

THE OFFERING

Shares of Common Stock Offered by the Selling Stockholders:	Up to 18,446,936 shares
Common Stock Outstanding as of June 30, 2023	40,992,179 shares
Use of Proceeds:	We will not receive any proceeds from the sale of shares of our common stock by the Selling Stockholders in this offering. See the sections titled “Use of Proceeds” and “Selling Stockholders” for additional information.
NASDAQ Global Select Market Symbol:	“ALXO”
Risk Factors:	Investing in our securities involves substantial risks. You should read the “Risk Factors” section of this prospectus and in the documents incorporated by reference in this prospectus for a discussion of factors to consider before deciding to purchase our securities.

RISK FACTORS

Investing in our securities involves a high degree of risk. Before making a decision to invest in our securities, in addition to carefully considering the other information contained in this prospectus, in any accompanying prospectus supplement and incorporated by reference herein or therein, you should carefully consider the risks described under the caption “Risk Factors” contained in the applicable prospectus supplement, and any related free writing prospectus, and the risks discussed under the caption “Risk Factors” contained in our most recent Annual Report on Form 10-K and our most recent Quarterly Report on Form 10-Q, as well as any amendments thereto, which are incorporated by reference into this prospectus in their entirety, together with other information in this prospectus, the documents incorporated by reference, and any free writing prospectus that we may authorize for use in connection with a specific offering. See “Where You Can Find More Information” and “Incorporation of Certain Information by Reference.”

Additional Risks Related to this Offering and Our Common Stock

Sales by the selling stockholders of the shares of our common stock covered by this prospectus could adversely affect the market price of our common stock.

The 18,446,936 shares of common stock registered hereby represent approximately 45.0% of our total outstanding shares of common stock as of June 30, 2023. The resale of all or a substantial number of these shares in the public market by the selling stockholders, or the perception that such sales might occur, could depress the market price of our common stock, which could impair our ability to raise capital through the sale of additional equity or equity-linked securities.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the information incorporated by reference in this prospectus contain forward-looking statements. All statements other than statements of historical facts contained in this prospectus, including statements regarding our future results of operations and financial position, business strategy, product candidates, planned preclinical studies and clinical trials, results of clinical trials, research and development costs, regulatory approvals, timing and likelihood of success, as well as plans and objectives of management for future operations, are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that are in some cases beyond our control and may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

In some cases, you can identify forward-looking statements by terms such as “may,” “will,” “should,” “would,” “expect,” “plan,” “anticipate,” “could,” “intend,” “target,” “project,” “believe,” “estimate,” “predict,” “potential,” or “continue” or the negative of these terms or other similar expressions. Forward-looking statements contained in this prospectus include, but are not limited to, statements about:

- our financial performance;
- the sufficiency of our existing cash to fund our future operating expenses and capital expenditure requirements;
- the accuracy of our estimates regarding expenses, future revenue, capital requirements, and needs for additional financing;
- our plans relating to commercializing our product candidates, if approved, including the geographic areas of focus and our ability to grow a sales team;
- the implementation of our strategic plans for our business and product candidates;
- our ability to obtain and maintain regulatory approval of our product candidates and the timing or likelihood of regulatory filings and approvals, including our expectation to seek special designations, such as orphan drug designation, for our product candidates for various diseases;
- our reliance on third parties to conduct preclinical research activities, and for the manufacture of our product candidates;
- the beneficial characteristics, mechanisms of action, safety profile, efficacy and therapeutic effects of our product candidates;
- the progress and focus of our current and future clinical trials, and the reporting of data from those trials;
- our ability to advance product candidates into and successfully complete clinical trials;
- the ability of our clinical trials, including collaborations and investigator sponsored trials, to demonstrate the safety and efficacy of our product candidates, and other positive results;
- the success of competing therapies that are or may become available;
- developments relating to our competitors and our industry, including competing product candidates and therapies;
- our plans relating to the further development and manufacturing of our product candidates, including additional indications that we may pursue;
- existing regulations and regulatory developments in the United States and other jurisdictions;
- our potential and ability to successfully manufacture and supply our product candidates for clinical trials and for commercial use, if approved;

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- our continued reliance on third parties to conduct clinical trials of our product candidates, and for the manufacture of our product candidates;
- our plans and ability to obtain or protect intellectual property rights, including extensions of existing patent terms where available;
- the scope of protection we are able to establish and maintain for intellectual property rights, including our technology platform and product candidates;
- our ability to retain the continued service of our key personnel and to identify, hire, and then retain additional qualified personnel;
- the impact of the COVID-19 pandemic, rising interest rates, bank failures or instability in the financial services sector, or geopolitical risks on our business;
- our plans for and prospects of our acquisitions and other business development activities, and our ability to successfully capitalize on these opportunities;
- changes in our financial and internal controls; and
- our anticipated use of our existing cash and cash equivalents, short-term and long-term investments, and the funds available from our term loan.

We have based these forward-looking statements largely on our current expectations and projections about our business, the industry in which we operate and financial trends that we believe may affect our business, financial condition, results of operations and prospects, and these forward-looking statements are not guarantees of future performance or development. These forward-looking statements speak only as of the date of this prospectus and are subject to a number of risks, uncertainties and assumptions described in the section titled “Risk Factors” and elsewhere in this prospectus. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein until after we distribute this prospectus, whether as a result of any new information, future events or otherwise.

In addition, statements that “we believe” and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this prospectus, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain, and you are cautioned not to unduly rely upon these statements.

USE OF PROCEEDS

We will not receive any of the proceeds from the sale of shares of our common stock in this offering. The Selling Stockholders will receive all of the proceeds from this offering.

The Selling Stockholders will pay any underwriting discounts and commissions and expenses incurred by the Selling Stockholders for brokerage, accounting, tax or legal services or any other expenses incurred by the Selling Stockholders in disposing of the shares. We will bear all other costs, fees and expenses incurred in effecting the registration of the shares covered by this prospectus, including, without limitation, all registration and filing fees, fees and expenses of our counsel, certain expenses of counsel to the Selling Stockholders and our independent registered public accountants.

SELLING STOCKHOLDERS

On April 1, 2020, we entered into an investors' rights agreement with the Selling Stockholders and certain other stockholders. This prospectus, which is being filed pursuant to our obligations under the investors' rights agreement, covers the sale or other disposition by the Selling Stockholders of up to the total number of shares of common stock held by the selling stockholders. The shares of common stock were originally acquired in various transactions prior to or in conjunction with the Company's initial public offering.

When we refer to the "Selling Stockholder" in this prospectus, we mean the person listed in the table below, as well as its donees, pledgees, assignees, transferees, distributees, successors and others who later hold the resale shares. The Selling Stockholders may sell some, all or none of their shares. We do not know how long the Selling Stockholders will hold the shares before selling them, and we currently have no agreements, arrangements or understandings with the Selling Stockholders regarding the sale or other disposition of any of the shares covered hereby. The shares of our common stock covered hereby may be offered from time to time by the Selling Stockholders. See "Plan of Distribution."

The following table sets forth the name of each Selling Stockholder, the number of shares and percentage of our common stock beneficially owned by the Selling Stockholders as of June 30, 2023, based on 40,992,179 shares of our common stock outstanding, after giving effect to the resales, the number of shares of our common stock that may be offered under this prospectus, and the number and percentage of our common stock beneficially owned by the Selling Stockholders assuming all of the shares of our common stock registered hereunder are sold. Beneficial ownership is determined in accordance with the rules of the SEC and includes voting or investment power with respect to our common stock. Generally, a person "beneficially owns" shares of our common stock if the person has or shares with others the right to vote those shares or to dispose of them, or if the person has the right to acquire voting or disposition rights within 60 days. The number of shares of our common stock in the column "Number of Shares Offered" represents all of the shares of our common stock that a Selling Stockholder may offer and sell from time to time under this prospectus.

The information regarding shares beneficially owned after the offering assumes the sale of all shares offered by the Selling Stockholders. To our knowledge, subject to community property laws where applicable, except as otherwise noted in any footnote to the table, each person named in the table has sole voting and investment power with respect to the shares of common stock set forth opposite such person's name.

Name	Prior to Offering		Number of Shares Offered	After Offering	
	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned		Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned
Entities affiliated with venBio Partners(1)	9,699,925	23.7%	9,699,925	—	—
Entities affiliated with Lightstone Ventures(2)	4,526,963	11.0%	4,526,963	—	—
Entities affiliated with Vivo Capital(3)	4,220,048	10.3%	4,220,048	—	—

- (1) Consist of (i) 5,268,325 shares held of record by venBio Global Strategic Fund II, L.P. (GSF II LP); (ii) 3,969,789 shares held of record by venBio Global Strategic Fund, L.P. (GSF LP); and (iii) 461,811 shares held of record by venBio SPV, LLC. venBio Global Strategic GP II, L.P. (GS GP II LP) is the general partner of GSF II LP and venBio Global Strategic GP II, Ltd. (GS GP II Ltd) is the general partner of GS GP II LP. venBio Global Strategic GP, L.P. (GS GP LP) is the general partner of GSF LP and venBio Global Strategic GP, Ltd. (GS GP Ltd) is the general partner of GS GP LP. As the Directors of GS GP II Ltd and GS GP Ltd and the Managing Directors of venBio SPV, LLC (SPV LLC), Robert Adelman and Corey Goodman, one of our directors, share voting and dispositive power with respect to the shares held of record by GSF II LP, GSF LP and SPV LLC. This amount excludes: (i) 96,406 shares held of record by Dr. Adelman; (ii) 113,287 shares held of record by the Goodman Barinaga Trust for which Dr. Goodman serves as trustee; (iii) 54,083 shares held of record by the Emaldi Corporation for which Dr. Goodman

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serves as a director; and (iv) 51,383 shares issuable upon options held of record by Dr. Goodman that are currently exercisable or exercisable within 60 days of June 30, 2023. The address for these entities is c/o venBio Partners, LLC, 1700 Owens Street, Suite 595, San Francisco, California 94158.

- (2) Consist of (i) 2,097,327 shares held of record by Lightstone Ventures, LP (LV LP); (ii) 2,023,469 shares held of record by Lightstone Ventures II, LP (LV II LP); (iii) 285,955 shares held of record by Lightstone Ventures (A), LP (LV(A) LP); and (iv) 120,212 shares held of record by Lightstone Ventures II (A), LP (LV II(A) LP) and, collectively with LV LP, LV II LP and LV(A) LP, the Lightstone Funds). LSV Associates, LLC (LSV Associates) is the General Partner of LV LP and LV(A) LP, and LSV Associates II, LLC (LSV Associates II) is the General Partner of LV II LP and LV II(A) LP. As the managing directors of LSV Associates and LSV Associates II, Michael A. Carusi, Jean M. George and Henry A. Plain, Jr. share voting and dispositive power with respect to the shares held of record by the Lightstone Funds. The address for these entities is c/o LSV Capital Management, LLC, 2884 Sand Hill Road, Suite 121, Menlo Park, California 94025.
- (3) Consist of (i) 4,034,522 shares held of record by Vivo Capital Fund IX, L.P. (VIVO IX LP) and (ii) 185,526 shares held of record by Vivo Opportunity Fund Holdings, L.P. (VOF). Vivo Capital IX, LLC (VIVO IX LLC) is the General Partner of VIVO IX LP. Vivo Opportunity, LLC is the general partner of VOF. The address for these entities is c/o Vivo Capital, 192 Lytton Avenue, Palo Alto, California 94301.

Certain Relationships and Related Party Transactions with the Selling Stockholders

Dr. Corey Goodman, a member of our board directors and the Executive Chairman of our board of directors, co-founded and has served as a Managing Partner of venBio Partners, or venBio, since March 2010.

Jason Lettmann, our Chief Executive Officer and a member of our board of directors, served as a General Partner of Lightstone Ventures from March 2012 to July 2023.

Dr. Jaume Pons, our President, Chief Scientific Officer, and a member of our board of directors, has served as a Venture Partner at venBio since January 2017. Dr. Pons entered into a consulting agreement with venBio to provide assistance with deal generation, evaluate potential investments and serve on boards of venBio's portfolio companies. In accordance with this agreement as compensation for services provided, venBio paid Dr. Pons approximately \$125,000 per year each year from 2017 to 2022. The consulting agreement remains in effect until terminated by either party with or without prior notice.

Dr. Pons has served as a Scientific Advisor at Lightstone Ventures, or Lightstone, since January 2019.

Jack Nielsen, a member of our board of directors, has served as a Managing Partner at Vivo Capital LLC since March 2021 and previously served as a Managing Director since August 2017.

For a detailed discussion of our directors' compensation and our related party transactions, please see the "Director Compensation" and "Certain Relationships, Related Party and Other Transactions" sections, respectively, in our Definitive Proxy Statement on Schedule 14A, filed with the SEC on April 24, 2023.

PLAN OF DISTRIBUTION

The Selling Stockholders, which as used herein includes donees, pledges, transferees or other successors-in-interest selling shares of common stock previously issued and the shares of common stock issuable upon exercise of interests in shares of common stock received after the date of this prospectus from a Selling Stockholder as a gift, pledge, partnership distribution or other transfer, may, from time to time, sell, transfer or otherwise dispose any or all of the shares of common stock beneficially owned by them and offered hereby.

The sales may be made on one or more exchanges or in the over-the-counter market or otherwise, at prices and at terms then prevailing or at prices related to the then current market price, or in negotiated transactions. The Selling Stockholders may also pledge the shares of common stock to secure debts and other obligations or on foreclosure of a pledge, in options transactions or through convertible securities or agreements to be satisfied by the delivery of shares of common stock, or any other manner permitted pursuant to applicable law.

The Selling Stockholders may effect such transactions by selling the shares of common stock to or through broker-dealers. The shares of common stock may be sold through broker-dealers by one or more of, or a combination of, the following:

- a block trade in which the broker-dealer so engaged will attempt to sell the shares of common stock as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by such broker-dealer for its account;
- ordinary brokerage transactions and transactions in which the broker solicits purchasers; and
- in privately negotiated transactions.

The Selling Stockholders may also sell shares under Rule 144 under the Securities Act of 1933, as amended, if available, rather than under this prospectus.

The Selling Stockholders also may transfer the shares of common stock in other circumstances, in which case the transferees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

The Selling Stockholders and any broker-dealers or agents that are involved in selling the shares may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the shares purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act.

The Selling Stockholders have informed us that, except as set forth below, none of them have any agreement or understanding, directly or indirectly, with any person to distribute the common stock. If any Selling Stockholder notifies us that a material arrangement has been entered into with a broker-dealer for the sale of shares through a block trade, special offering or secondary distribution or a purchase by a broker or dealer, we may be required to file a prospectus supplement pursuant to the applicable rules promulgated under the Securities Act of 1933. Selling Stockholders who are entities rather than natural persons may distribute shares to their partners, members, shareholders or other owners in normal course, who may in turn sell the shares in the manner listed above. The Selling Stockholders may also sell their shares through a combination of any of the above methods of sale.

There can be no assurance that any Selling Stockholder will sell any or all of the shares of common stock registered pursuant to the shelf registration statement, of which this prospectus forms a part.

We are required to pay all fees and expenses incident to the registration of the shares. We have agreed to indemnify the Selling Stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act, or the Selling Stockholders may be entitled to contribution. We may be indemnified by the Selling Stockholders against civil liabilities, including liabilities under the Securities Act that may arise from written information furnished to us by the Selling Stockholders specifically for use in this prospectus.

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We may restrict or suspend offers and sales or other dispositions of the shares under the shelf registration statement, of which this prospectus forms a part, at any time from and after the effective date of the shelf registration statement, subject to certain terms and conditions. In the event of such restriction or suspension, the Selling Stockholders will not be able to offer or sell or otherwise dispose of the shares of common stock under the shelf registration statement.

Once sold under the shelf registration statement, of which this prospectus forms a part, the shares of common stock will be freely tradeable in the hands of persons other than our affiliates.

LEGAL MATTERS

The validity of the common stock offered hereby has been passed upon for us by Wilson Sonsini Goodrich & Rosati, Professional Corporation, Palo Alto, California. Additional legal matters may be passed upon for us or any underwriters, dealers or agents, by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The consolidated financial statements of ALX Oncology Holdings Inc. and subsidiaries as of December 31, 2022 and 2021, and for each of the years in the three-year period ended December 31, 2022, have been incorporated by reference herein and in the registration statement in reliance upon the report of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

Because we are subject to the information and reporting requirements of the Exchange Act, we file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. We also maintain a website at www.alxoncology.com where these materials are available. You may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. Information contained on or accessible through our website is not a part of this prospectus and is not incorporated by reference herein, and the inclusion of our website address in this prospectus is an inactive textual reference only. This prospectus and any prospectus supplement are part of a registration statement that we filed with the SEC and do not contain all of the information in the registration statement. The full registration statement may be obtained from the SEC or us, as provided below. Statements in this prospectus or any prospectus supplement about these documents are summaries and each statement is qualified in all respects by reference to the document to which it refers. You should refer to the actual documents for a more complete description of the relevant matters. You may inspect a copy of the registration statement through the SEC's website, as provided above.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

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

This prospectus and any accompanying prospectus supplement incorporate by reference the documents set forth below that have previously been filed with the SEC:

- our Annual Report on [Form 10-K](#) for the year ended December 31, 2022, filed with the SEC on March 9, 2023;
- our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2023 and June 30, 2023, filed with the SEC on [May 11, 2023](#) and [August 10, 2023](#);
- Our Current Reports on Form 8-K filed with the SEC on [June 20, 2023](#) and [September 6, 2023](#);
- the information specifically incorporated by reference in our Annual Report on Form 10-K for the year ended December 31, 2022, from our [definitive proxy statement](#) relating to our 2023 annual meeting of stockholders, filed with the SEC on April 24, 2023;
- the description of our common stock set forth in our registration statement on [Form 8-A](#), filed with the SEC on July 13, 2020, including any amendments thereto or reports filed for the purposes of updating this description.

Any documents we file with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of the initial registration statement of which this prospectus forms a part and prior to effectiveness of the registration statement, as well as subsequent to the effectiveness of the registration statement and prior to the termination of the offering of our securities to which this prospectus relates, will automatically be deemed to be incorporated by reference into this prospectus and to be part hereof from the date of filing those documents. We are not, however, incorporating by reference any documents or portions thereof that are not deemed "filed" with the SEC, including any information furnished pursuant to Item 2.02 or Item 7.01 of Form 8-K or related exhibits furnished pursuant to Item 9.01 of Form 8-K. Any statements in any such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later filed document modify or replace such earlier statements.

We will provide to each person, including any beneficial owner, to whom a prospectus is delivered, a copy of any or all of the information that is incorporated by reference in the prospectus but not delivered with the prospectus. You can request a copy of these filings, at no cost, by writing or telephoning us at the following address or telephone number:

ALX Oncology Holdings Inc.
Attn: Investor Relations
323 Allerton Avenue
South San Francisco, CA 94080
650-466-7125

The information accessible through any website referred to in this prospectus or any document incorporated herein is not, and should not be deemed to be, a part of this prospectus.



18,446,936 Shares of Common Stock

Offered by the Selling Stockholders

PROSPECTUS

September 8, 2023
