

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S-1

REGISTRATION STATEMENT

Under

The Securities Act of 1933

ACHIEVE LIFE SCIENCES, INC.

(Exact name of Registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

2835
(Primary Standard Industrial
Classification Code Number)

95-4343413
(I.R.S. Employer
Identification Number)

1001 W. Broadway, Suite 400
Vancouver, British Columbia, V6H 4B1
(604) 736-3678

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

Richard Stewart
Chairman and Chief Executive Officer
Achieve Life Sciences, Inc.
1001 W. Broadway, Suite 400
Vancouver, British Columbia, V6H 4B1
(604) 736-3678

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

Copies to:

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

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, 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 post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

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

| | | | |
|-------------------------|--------------------------|---------------------------|-------------------------------------|
| Large accelerated filer | <input type="checkbox"/> | Accelerated filer | <input type="checkbox"/> |
| Non-accelerated filer | <input 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 to Section 7(a)(2)(B) of the Securities Act.

CALCULATION OF REGISTRATION FEE

| Title of Each Class of Securities to be Registered | Amount to be Registered(1) | Proposed Maximum Offering Price Per Unit | Proposed Maximum Aggregate Offering Price(2) | Amount of Registration Fee |
|---|-----------------------------------|---|---|-----------------------------------|
| Common Stock issuable upon exercise of Warrants | 894,626 Shares | \$1.66 | \$1,485,080 | \$180 |

- (1) Pursuant to Rule 416(a), this registration statement also covers any additional securities that may be offered or issued in connection with any stock split, stock dividend or similar transaction.
- (2) Estimated solely for the purpose of computing the amount of the registration fee pursuant to Rule 457(c) under the Securities Act of 1933, as amended (the "Securities Act"), using the average of the high and low prices of the Registrant's common stock as reported on Nasdaq Capital Market on November 27, 2018, which was approximately \$1.66 per share.

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

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

Subject to Completion, dated November 29, 2018



Achieve Life Sciences, Inc.

894,626 Shares of Common Stock Issuable upon Exercise of Outstanding Warrants

This prospectus relates to the resale, from time to time, by the Selling Stockholders identified in this prospectus under the caption "Selling Stockholders," of up to 894,626 shares of our Common Stock, par value \$0.001 per share (the "Common Stock"), issuable upon exercise of certain outstanding Common Stock purchase warrants issued by us in a private placement in October 2018 (the "Warrants"). We are not selling any shares of Common Stock under this prospectus and will not receive any proceeds from the sale of shares of Common Stock by the Selling Stockholders. We will receive proceeds from cash exercise of the Warrants which, if exercised in cash with respect to all of the 894,626 shares of Common Stock for which the exercise price of the Warrants is \$3.1445 per share, would result in gross proceeds of approximately \$2.8 million to us. The Selling Stockholders will bear all commissions and discounts, if any, attributable to the sale of the shares.

The Selling Stockholders may sell the shares of our Common Stock offered by this prospectus from time to time on terms to be determined at the time of sale through ordinary brokerage transactions or through any other means described in this prospectus under the caption "Plan of Distribution." The shares of Common Stock may be sold at fixed prices, at market prices prevailing at the time of sale, at prices related to prevailing market price or at negotiated prices.

Our Common Stock is listed on The Nasdaq Capital Market under the symbol "ACHV." On November 27, 2018, the last reported closing sale price of our Common Stock on The Nasdaq Capital Market was \$1.66 per share.

Investing in our Common Stock involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading [Risk Factors](#) starting on page 6 of this prospectus, and under similar headings in the documents that are incorporated by reference into this prospectus.

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

The date of this prospectus is November 29, 2018

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You should rely only on the information contained in this prospectus or contained in any free writing prospectus prepared by or on behalf of us. Neither we nor the Selling Stockholders have authorized anyone to provide any information or to make any representations other than those contained in this prospectus or in any free writing prospectuses prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus is an offer to sell only the securities offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus is accurate only as of its date regardless of the time of delivery of this prospectus or of any sale of securities.

You should also read and consider the information in the documents to which we have referred you under the captions “Where You Can Find More Information” and “Information Incorporated by Reference” in this prospectus.

For investors outside the United States, neither we nor the Selling Stockholders 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 U.S. Persons who come into possession of this prospectus and any free writing prospectus related to this offering in jurisdictions outside the U.S. are required to inform themselves about and to observe any restrictions as to this offering and the distribution of this prospectus and any such free writing prospectus applicable to that jurisdiction.

PROSPECTUS SUMMARY

The following summary is qualified in its entirety by, and should be read together with, the more detailed information and financial statements and related notes thereto incorporated by reference into this prospectus. Before you decide to invest in our common stock, you should read the entire prospectus carefully, including the risk factors and the financial statements and related notes incorporated by reference into this prospectus. Unless the context requires otherwise, in this prospectus the terms "Achieve," the "Company," "we," "us" and "our" refer to Achieve Life Sciences, Inc., together with its subsidiaries, taken as a whole. This prospectus includes trademarks, service marks and trade names owned by us or other companies. All trademarks, service marks and trade names included in this prospectus are the property of their respective owners.

Company Overview

We are a clinical-stage pharmaceutical company committed to the global (excluding Central & Eastern Europe plus other territories) development and commercialization of cytisinicline for smoking cessation. Our focus is to address the global smoking health epidemic, which is a leading cause of preventable death and is responsible for approximately seven million deaths annually worldwide.

Cytisinicline is an established 25-day smoking cessation treatment that has been approved and marketed in Central and Eastern Europe by Sopharma AD for over 20 years under the brand name Tabex™. It is estimated that over 20 million people have used cytisinicline to help treat nicotine addiction, including over 2,000 patients in investigator-conducted, Phase 3 clinical trials in Europe and New Zealand. Both trials were published in the New England Journal of Medicine in September 2011 and December 2014, respectively.

Cytisinicline is a naturally occurring, plant-based alkaloid from the seeds of the Laburnum anagyroides plant. Cytisinicline is structurally similar to nicotine and has a well-defined, dual-acting mechanism of action that is both agonistic and antagonistic. It is believed to aid in smoking cessation by interacting with nicotine receptors in the brain by reducing the severity of nicotine withdrawal symptoms through agonistic binding to nicotine receptors and by reducing the reward and satisfaction associated with smoking through antagonistic properties. The cytisinicline dosing schedule reflects that of an anti-addiction medication, with downward dose titration over a period of 25 days.

Cytisinicline Development

In August 2017, we initiated a study evaluating the effect of food on the bioavailability of cytisinicline in normal healthy volunteers. We completed the food effect study and announced the results in November of 2017 demonstrating similar bioavailability of cytisinicline in fed and fasted subjects.

In October 2017, we initiated a study assessing the repeat-dose Pharmacokinetics, or PK, and Pharmacodynamics, or PD, effects of 1.5mg and 3mg cytisinicline in 36 healthy volunteer smokers when administered over the standard 25-day course of treatment. Of the 36 subjects, 24 were to be 18-65 years and 12 were to be greater than 65 years of age. Preliminary results on the 24 smokers (18-65 years) were announced in February 2018. The PK results indicated expected increases in plasma concentration with higher doses of cytisinicline. Smokers in the study were not required to have a designated or predetermined quit date, however, 58% of the subjects in the trial achieved biochemically verified smoking abstinence by day 26. Subjects who did not achieve abstinence had a significant reduction in number of daily cigarettes smoked by day 26. The adverse events observed were mostly mild with transient headaches as the most commonly reported event. No serious adverse events were observed in the study. The study was concluded with a total of 26 subjects in October 2018 with only 2 of the intended 12 subjects enrolled in the greater than age 65 cohort. We expect final study results to be available in the first quarter of 2019.

In December 2017, we initiated a series of drug metabolism, drug-to-drug interaction, and transporter studies of cytisinicline and results from these studies were submitted to the IND in the first quarter of 2018 and announced in June 2018. These studies demonstrated that cytisinicline has no clinically significant interaction with any of the hepatic enzymes commonly responsible for drug metabolism nor clinically significant interaction with drug transporters. This suggests that cytisinicline may be administered with other medications without the need to modify the dose of the co-administered drug.

We have met with the FDA and with other national regulatory authorities in Europe to identify the steps required for the approval of cytisinicline. Our most recent meeting was an end of Phase 2 meeting with the FDA in May of 2018 to review and receive guidance on our Phase 3 clinical program and overall development plans for cytisinicline to support a New Drug Application, or NDA. This recent review included submitted results from non-clinical studies, standard drug-to-drug interaction and reproductive/teratogenicity studies. Detailed plans for chronic toxicology, carcinogenicity studies, and additional human studies regarding renal impairment, QT interval prolongation, longer term exposure and adequate demonstration of safety and efficacy from our planned randomized, placebo-controlled, Phase 3 clinical trials were also discussed.

A new cytisinicline tablet with improved shelf life has been formulated and recently launched commercially by Sopharma in their territories. In May 2018, we initiated a study to evaluate the effect of food on the bioavailability of cytisinicline in volunteer smokers using this new formulation and data results were announced in September 2018. The study concluded bioequivalence when cytisinicline was administered with or without food. Cytisinicline was extensively absorbed after oral administration with maximum cytisinicline concentration levels observed in the blood within less than two hours with or without food. Total excretion levels of cytisinicline also remained equivalent in both the fed and fasted states, and the 3 mg dose of this new formulation of cytisinicline was well tolerated.

In October 2018, we initiated the ORCA-1 trial, a Phase 2b optimization study in approximately 250 smokers in the U.S. ORCA-1 is the first in Achieve's ORCA (Ongoing Research of Cytisinicline for Addiction) Program that aims to evaluate the effectiveness of cytisinicline for smoking cessation and potentially other indications. This Phase 2b trial will evaluate both the 1.5mg and 3mg doses of cytisinicline on a declining titration schedule over 25 days, as well as three times daily dosing. The trial is randomized and blinded to compare the effectiveness of the cytisinicline doses and schedules to respective placebo groups. The primary efficacy endpoint is reduction in the number of cigarettes consumed during treatment with secondary analyses to be conducted on smoking cessation rates, safety, and compliance. ORCA-1 is being conducted at eight centers across the U.S. and results are expected in mid-2019.

Business Organization

We were incorporated in California in October 1991 and subsequently reorganized as a Delaware corporation in March 1995. Our principal executive offices are located at 400 – 1001 W. Broadway, Vancouver, B.C., Canada V6H 4B1, and our telephone number is (604) 736-3678.

In August 2017, our company, then named OncoGenex Pharmaceuticals, Inc., completed its merger, or the Arrangement, with Achieve, as contemplated by the Merger Agreement between the companies. We then changed our name to Achieve Life Sciences, Inc. As a result of the Arrangement, Achieve became our wholly owned subsidiary. Achieve was formed in 2015 as a Delaware corporation and has one direct wholly-owned subsidiary, Extab Corporation, a Delaware corporation, which was formed in 2009. Extab Corporation in turn has one direct wholly-owned subsidiary, Achieve Pharma UK Limited, a United Kingdom company, which was formed in 2009. As used in this prospectus, the term "OncoGenex" refers to our business prior to August 1, 2017.

Description of the Private Placement

On October 1, 2018, we entered into a securities purchase agreement with certain investors, who are some of the Selling Stockholders identified in this prospectus under the caption "Selling Stockholders," pursuant to which we agreed to sell and issue, in a registered direct offering, an aggregate of 1,789,258 shares of our Common Stock at an offering price of \$3.1445 per share. In a concurrent private placement (the "Private Placement"), we agreed to issue to these investors the Warrants exercisable for one share of our Common Stock for each two shares purchased in the registered direct offering, which equals an aggregate of 894,626 shares of Common Stock. The closing of such registered direct offering and the concurrent Private Placement occurred on October 3, 2018, in connection with which we received net proceeds of approximately \$5.0 million after deducting placement agent fees and other expenses payable by us.

The Warrants have an exercise price of \$3.1445 per share of our Common Stock. The Warrants may be exercised from time to time beginning on October 1, 2018 and expire on October 1, 2023.

Subject to limited exceptions, a holder of a Warrant will not have the right to exercise any portion of its Warrants if the holder, together with its affiliates, would beneficially own in excess of 4.99% of the number of shares of our Common Stock outstanding immediately after giving effect to such exercise; provided, however, that upon prior notice to us, the holder may increase or decrease this beneficial ownership limitation, provided further that in no event shall this beneficial ownership limitation exceed 9.99%, and any increase in the beneficial ownership limitation will not be effective until 61 days' prior notice to us.

We are filing the registration statement on Form S-1, of which this prospectus is a part, to fulfill our contractual obligations under a Securities Purchase Agreement entered into in connection with the Private Placement to provide for the resale by the investors in the Private Placement of up to 894,626 shares of Common Stock issuable upon exercise of the Warrants. We agreed to use commercially reasonable efforts to file a registration statement with the SEC within 60 calendar days of October 1, 2018 to provide for the resale of the shares of Common Stock issuable upon the exercise of the Warrants and, subject to certain exceptions, we will be obligated to use our commercially reasonable efforts to keep such registration statement effective until no purchaser owns any Warrants or Warrant Shares issuable upon exercise of the Warrants.

THE OFFERING

| | |
|---|--|
| Securities offered by the Selling Stockholders | 894,626 shares of Common Stock issuable upon exercise of the Warrants. |
| Shares of Common Stock outstanding before this offering | 4,901,095 shares as of September 30, 2018. |
| Shares of Common Stock outstanding after this offering | 5,795,721 shares. |
| Use of proceeds | We will not receive any proceeds from the sale of Common Stock by the Selling Stockholders. See "Use of Proceeds" in this prospectus. |
| Risk Factors | You should carefully read and consider the information set forth under "Risk Factors" in this prospectus and the documents incorporated by reference herein before deciding to invest in our securities. |
| Nasdaq Capital Market symbol | "ACHV". |

The number of shares of Common Stock that will be outstanding after this offering is based on 4,901,095 shares outstanding as of September 30, 2018, and excludes:

- 163,000 shares of our common stock that may be issued upon the conversion of our Series A Convertible Preferred Stock outstanding as of September 30, 2018;
- 665,585 shares of common stock issuable upon the exercise of options outstanding as of September 30, 2018, with a weighted average exercise price of \$15.65 per share;
- 15,156 shares of common stock subject to restricted stock units outstanding as of September 30, 2018;
- 3,173,764 shares of common stock issuable upon the exercise of warrants outstanding as of September 30, 2018, with a weighted average exercise price of \$8.57 per share; and
- 613,350 shares of common stock reserved for future issuance under our equity incentive plans as of September 30, 2018.

RISK FACTORS

Investing in our securities involves a high degree of risk. Before deciding to invest in our securities, you should consider carefully the risks and uncertainties described under Item 1A. "Risk Factors" in our Quarterly Report on Form 10-Q, filed with the SEC on November 7, 2018, which is incorporated by reference in this prospectus, together with all of the other information contained in this prospectus and documents incorporated by reference herein. If any of the matters discussed in the risk factors were to occur, our business, financial condition, results of operations, cash flows or prospects could be materially adversely affected, the market price of our common stock could decline and you could lose all or part of your investment in our securities. Additional risks and uncertainties not presently known or which we consider immaterial as of the date hereof may also have an adverse effect on our business.

CAUTIONARY NOTES REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains or incorporates by reference "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements involve a number of risks and uncertainties. We caution readers that any forward-looking statement is not a guarantee of future performance and that actual results could differ materially from those contained in the forward-looking statement. These statements are based on current expectations of future events. Such statements include, but are not limited to, statements about future financial and operating results, plans, objectives, expectations and intentions, costs and expenses, interest rates, outcome of contingencies, financial condition, results of operations, liquidity, business strategies, cost savings, objectives of management and other statements that are not historical facts. You can find many of these statements by looking for words like "believes," "expects," "anticipates," "estimates," "may," "should," "will," "could," "plan," "intend," or similar expressions in this prospectus or in documents incorporated by reference into this prospectus. We intend that such forward-looking statements be subject to the safe harbors created thereby. Examples of these forward-looking statements include, but are not limited to:

- our ability to continue as a going concern, our anticipated future capital requirements and the terms of any capital financing agreements;
- progress and preliminary and future results of any clinical trials;
- anticipated regulatory filings, requirements and future clinical trials;
- timing and amount of future contractual payments, product revenue and operating expenses; and
- market acceptance of our products and the estimated potential size of these markets.

These forward-looking statements are based on the current beliefs and expectations of our management and are subject to significant risks and uncertainties. If underlying assumptions prove inaccurate or unknown risks or uncertainties materialize, actual results may differ materially from current expectations and projections. Factors that might cause such a difference include the risk factors identified under the caption "Risk Factors" in this prospectus, as well as those identified under Item 1A. "Risk Factors" in our Quarterly Report on Form 10-Q, filed with the SEC on November 7, 2018.

You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this prospectus or, in the case of documents referred to or incorporated by reference, the date of those documents.

All subsequent written or oral forward-looking statements attributable to us or any person acting on our behalf are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. We do not undertake any obligation to release publicly any revisions to these forward-looking statements to reflect events or circumstances after the date of this prospectus or to reflect the occurrence of unanticipated events, except as may be required under applicable United States securities law. If we do update one or more forward-looking statements, no inference should be drawn that we will make additional updates with respect to those or other forward-looking statements.

Information that is based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances that

are assumed in this information. In some cases, we do not expressly refer to the sources from which this data is derived. In that regard, when we refer to one or more sources of this type of data in any paragraph, you should assume that other data of this type appearing in the same paragraph is derived from the same sources, unless otherwise expressly stated or the context otherwise requires.

USE OF PROCEEDS

We will not receive any proceeds from the sale of shares of Common Stock by the Selling Stockholders.

We will receive proceeds from cash exercise of the Warrants which, if exercised in cash with respect to all of the 894,626 shares of Common Stock for which the exercise price of the Warrants is \$3.1445 per share, would result in gross proceeds of approximately \$2.8 million to us.

SECURITY OWNERSHIP OF BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth certain information with respect to the beneficial ownership of our common stock as of November 7, 2018, for:

- (1) each person or group of affiliated persons known by us to be the beneficial owner of more than 5% of our common stock;
- (2) each of our named executive officers;
- (3) each of our directors; and
- (4) all current executive officers and directors as a group.

Applicable percentage ownership is based on 6,721,103 shares of common stock outstanding at November 7, 2018. We have determined beneficial ownership in accordance with SEC rules. The information does not necessarily indicate beneficial ownership for any other purpose. Under these rules, the number of shares of common stock deemed outstanding includes shares issuable upon exercise of options or warrants, or the conversion of convertible notes, held by the respective person or group that may be exercised or converted within 60 days after November 7, 2018. For purposes of calculating each person's or group's percentage ownership, stock options and warrants exercisable, and notes convertible, within 60 days after November 7, 2018 are included for that person or group, but not the stock options of any other person or group.

Unless otherwise indicated and subject to applicable community property laws, to our knowledge, each stockholder named in the following table possesses sole voting and investment power over the shares listed. Unless otherwise noted below, the address of each person listed in the table is c/o Achieve Life Sciences, Inc., 1001 W. Broadway, Suite 400, Vancouver, British Columbia, Canada V6H 4B1.

| Name of Beneficial Owner | Amount and Nature of Beneficial Ownership ⁽¹⁾ | Percent of Class ^(%) (1) |
|---|---|--|
| <i>5% or Greater Stockholders:</i> | | |
| Armistice Capital, LLC ⁽²⁾ | 500,000 | 7.4 |
| <i>Named Executive Officers and Directors:</i> | | |
| Richard Stewart ⁽³⁾ | 231,587 | 3.4 |
| Anthony Clarke ⁽⁴⁾ | 113,012 | 1.6 |
| Scott Cormack ⁽⁵⁾ | 8,954 | * |
| Cindy Jacobs ⁽⁶⁾ | 17,122 | * |
| John Bencich ⁽⁷⁾ | 17,167 | * |
| Martin Mattingly ⁽⁸⁾ | 4,650 | * |
| Stewart Parker ⁽⁹⁾ | 4,629 | * |
| Donald Joseph ⁽¹⁰⁾ | 3,766 | * |
| Jay Moyes ⁽¹¹⁾ | 3,766 | * |
| All current officers and directors as a group (9 persons) ⁽¹²⁾ | 404,653 | 6 |

* Less than 1%

- (1) Beneficial ownership is determined in accordance with the rules of the SEC and generally includes voting or investment power with respect to securities. Shares of common stock subject to options and warrants currently exercisable, or exercisable within 60 days of November 7, 2018, are deemed outstanding for computing the percentage of the person holding such options or warrants but are not deemed outstanding for computing the percentage of any other person.
- (2) Based solely on a Schedule 13G filed by Armistice Capital, LLC on October 11, 2018, representing shares of common stock owned by Armistice Capital, LLC, Armistice Capital Master Fund Ltd., and Steven Boyd, Managing Member of Armistice Capital, LLC and Director of Armistice Capital Master Fund Ltd. (together, the

“reporting persons”). The address for the reporting persons is 510 Madison Avenue, 7th Floor, New York, New York 10022.

- (3) Represents 195,030 shares owned directly, 11,730 options exercisable within 60 days of November 7, 2018, 7,186 owned indirectly through his partner and 17,641 shares owned indirectly through Ricanto Limited as a principal owner.
- (4) Represents 55,045 shares owned directly, 4,396 options exercisable within 60 days of November 7, 2018, 35,930 shares owned indirectly through his spouse, and 17,641 shares owned indirectly through Ricanto Limited as a principal owner.
- (5) Represents 1,481 shares owned directly, 6,505 options exercisable within 60 days of November 7, 2018, and 968 shares owned indirectly through his spouse.
- (6) Represents 1,810 shares owned directly and 15,270 options and 42 RSUs exercisable or vesting within 60 days of November 7, 2018.
- (7) Represents 1,120 shares owned directly and 16,019 options and 28 RSUs exercisable or vesting within 60 days of November 7, 2018.
- (8) Represents 94 shares owned directly and 4,556 options exercisable within 60 days of November 7, 2018.
- (9) Represents 117 shares owned directly and 4,512 options exercisable within 60 days of November 7, 2018.
- (10) Represents 3,766 options exercisable within 60 days of November 7, 2018
- (11) Represents 3,766 options exercisable within 60 days of November 7, 2018.
- (12) Represents for the current officers and directors as a group, 316,422 shares owned directly or indirectly as indicated above, and 70,520 options and 70 RSUs exercisable or vesting within 60 days of November 7, 2018.

DESCRIPTION OF CAPITAL STOCK

The following description summarizes the most important terms of our capital stock and does not purport to be complete and is qualified in its entirety by the provisions of our amended and restated certificate of incorporation and amended and restated bylaws, which documents are incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and the applicable provisions of the Delaware General Corporation Law (the “DGCL”).

Common Stock

Under our restated certificate of incorporation, as of September 30, 2018, we had authority to issue 150,000,000 shares of our common stock, par value \$0.001 per share. As of September 30, 2018, 4,901,095 shares of our common stock were issued and outstanding. All shares of our common stock will, when issued, be duly authorized, fully paid and nonassessable.

Voting Rights. For all matters submitted to a vote of stockholders, each holder of our common stock is entitled to one vote for each share registered in his or her name. Except as may be required by law and in connection with some significant actions, such as mergers, consolidations, or amendments to our certificate of incorporation that affect the rights of stockholders, holders of our common stock vote together as a single class. There is no cumulative voting in the election of our directors, which means that, subject to any rights to elect directors that are granted to the holders of any class or series of preferred stock, a plurality of the votes cast at a meeting of stockholders at which a quorum is present is sufficient to elect a director.

Liquidation. In the event we are liquidated, dissolved or our affairs are wound up, after we pay or make adequate provision for all of our known debts and liabilities, each holder of our common stock will be entitled to share ratably in all assets that remain, subject to any rights that are granted to the holders of any class or series of preferred stock.

Dividends. Subject to preferential dividend rights of any other class or series of stock, the holders of shares of our common stock are entitled to receive dividends, including dividends of our stock, as and when declared by our board of directors, subject to any limitations imposed by law and to the rights of the holders, if any, of our preferred stock. We have never paid cash dividends on our common stock. We do not anticipate paying periodic cash dividends on our common stock for the foreseeable future. Any future determination about the payment of dividends will be made at the discretion of our board of directors and will depend upon our earnings, if any, capital requirements, operating and financial conditions and on such other factors as the board of directors deems relevant.

Other Rights and Restrictions. Subject to the preferential rights of any other class or series of stock, all shares of our common stock have equal dividend, distribution, liquidation and other rights, and have no preference, appraisal or exchange rights, except for any appraisal rights provided by Delaware law. Furthermore, holders of our common stock have no conversion, sinking fund or redemption rights, or preemptive rights to subscribe for any of our securities. Our certificate of incorporation and our bylaws do not restrict the ability of a holder of our common stock to transfer his or her shares of our common stock.

The rights, powers, preferences and privileges of holders of our common stock are subject to, and may be adversely affected by, the rights of holders of shares of any series of preferred stock which we may designate and issue in the future.

Listing. Our common stock is listed on The Nasdaq Capital Market under the symbol “ACHV.”

Transfer Agent and Registrar. The transfer agent for our common stock is American Stock Transfer & Trust Company, LLC.

Preferred Stock

Under our restated certificate of incorporation, we have authority, subject to any limitations prescribed by law and without further stockholder approval, to issue from time to time up to 5,000,000 shares of preferred stock, par value

\$0.001 per share, in one or more series. As of September 30, 2018, 652 shares of preferred stock were issued and outstanding.

Pursuant to our restated certificate of incorporation, we are authorized to issue “blank check” preferred stock, which may be issued from time to time in one or more series upon authorization by our board of directors. Our board of directors, without further approval of the stockholders, is authorized to fix the designation, powers, preferences, relative, participating optional or other special rights, and any qualifications, limitations and restrictions applicable to each series of the preferred stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes could, among other things, adversely affect the voting power or rights of the holders of our common stock and, under certain circumstances, make it more difficult for a third party to gain control of us, discourage bids for our common stock at a premium or otherwise adversely affect the market price of the common stock.

Warrants

On October 1, 2018, we entered into a securities purchase agreement with certain investors, who are some of the Selling Stockholders identified in this prospectus under the caption “Selling Stockholders,” pursuant to which we agreed to sell and issue, in a registered direct offering, an aggregate of 1,789,258 shares of our Common Stock at an offering price of \$3.1445 per share. In a concurrent Private Placement, we agreed to issue to these investors the Warrants exercisable for one share of our Common Stock for each two shares purchased in the registered direct offering, which equals an aggregate of 894,626 shares of Common Stock. The closing of such registered direct offering and the concurrent Private Placement occurred on October 3, 2018, in connection with which we received net proceeds of approximately \$5.0 million after deducting placement agent fees and other expenses payable by us.

The material terms and provisions of the Warrants, pursuant to which the shares of common stock subject to this prospectus may be issued to the Selling Stockholders, are summarized below. This summary of some provisions of the warrants is not complete. For the complete terms of the warrants, you should refer to the form of warrant filed as an exhibit to the Current Report on Form 8-K, filed on October 1, 2018 and incorporated by reference herein.

The Warrants were not registered under the Securities Act, and were offered pursuant to the exemption provided in Section 4(a)(2) under the Securities Act and Rule 506(b) promulgated thereunder.

Each Warrant is exercisable on October 1, 2018, the date of its issuance, at an exercise price of \$3.1445 per share, subject to adjustment, and will remain exercisable for five years from the date of issuance. A holder of Warrants will not have the right to exercise any portion of its warrants if the holder, together with its affiliates, would beneficially own in excess of 4.99% of the number of shares of our common stock outstanding immediately after giving effect to such exercise; provided, however, that upon notice to the Company, the holder may increase or decrease this beneficial ownership limitation, provided further that in no event shall the beneficial ownership limitation exceed 9.99% and any increase in the beneficial ownership limitation will not be effective until 61 days following notice of such increase from the holder to us.

The exercise price and number of the shares of our common stock issuable upon the exercise of the Warrants is subject to adjustment for stock splits, reverse splits, and similar capital transactions, as described in the form of warrant.

Certain Effects of Authorized but Unissued Stock

We have shares of common stock and preferred stock available for future issuance without stockholder approval. We may issue these additional shares for a variety of corporate purposes, including future public or private offerings to raise additional capital or to facilitate corporate acquisitions or for payment as a dividend on our capital stock. The existence of unissued and unreserved preferred stock may enable our board of directors to issue shares of preferred stock with terms that could render more difficult or discourage a third-party attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise, thereby protecting the continuity of our management. In addition, if we issue additional preferred stock, the issuance could adversely affect the voting power

of holders of common stock and the likelihood that holders of common stock will receive dividend payments or payments upon liquidation.

Anti-Takeover Effects of Provisions of Our Charter Documents

Our certificate of incorporation and bylaws include a number of provisions that could deter hostile takeovers or delay or prevent changes in control of our company, including the following:

- only the chairman of the board, the chief executive officer, the president or a majority of our board of directors may call special meetings of stockholders, and the business transacted at special meetings of stockholders is limited to the business stated in the notice of such meetings;
- advance notice procedures for stockholders seeking to bring business before our annual meeting of stockholders or to nominate candidates for election as directors at our annual meeting of stockholders, including certain requirements regarding the form and content of a stockholder's notice;
- our board of directors may designate the terms of and issue new series of preferred stock;
- unless otherwise required by our bylaws, our certificate of incorporation or by law, our board of directors may amend our bylaws without stockholder approval; and
- only our board of directors may fill vacancies on our board of directors.

Anti-Takeover Effects of Provisions of Delaware Law

We are subject to the provisions of Section 203 of the DGCL, or Section 203. Under Section 203, we would generally be prohibited from engaging in any business combination with any interested stockholder for a period of three years following the time that this stockholder became an interested stockholder unless:

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

Under Section 203, a "business combination" includes:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;
- any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder, subject to limited exceptions;
- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; or
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as an entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by such entity or person.

Limitation of Liability and Indemnification

Our certificate of incorporation provides that our directors shall not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duty as a director, except for liability for breach of the director's duty of loyalty to us or our stockholders, for acts or omissions not in good faith or involving intentional misconduct or a knowing violation of law, for payment of dividends or approval of stock purchases or redemptions that are prohibited by the DGCL, or for any transaction from which the director derived an improper personal benefit. The inclusion of this provision in our certificate of incorporation may reduce the likelihood of derivative litigation against directors and may discourage or deter stockholders or management from bringing a lawsuit against directors for breach of their duty of care.

Under the DGCL, our directors have a fiduciary duty to us that is not eliminated by this provision of the restated certificate of incorporation and, in appropriate circumstances, equitable remedies such as injunctive or other forms of non-monetary relief will remain available. This provision also does not affect our directors' responsibilities under any other laws, such as federal securities laws or state or federal environmental laws.

Section 145 of the DGCL empowers a corporation to indemnify its directors and officers against expenses (including attorneys' fees), judgments, fines and amounts paid in settlements actually and reasonably incurred by them in connection with any action, suit or proceeding brought by third parties by reason of the fact that they were or are directors or officers of the corporation, if they acted in good faith, in a manner they 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 that their conduct was unlawful. The DGCL provides further that the indemnification permitted thereunder shall not be deemed exclusive of any other rights to which the directors and officers may be entitled under the corporation's bylaws, any agreement, a vote of stockholders or otherwise. Our restated certificate of incorporation provides that, to the fullest extent permitted by Section 145 of the DGCL, we shall indemnify any person who is or was a director or officer of us, or is or was serving at our request as a director, officer or trustee of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise, against the expenses, liabilities or other matters referred to in or covered by Section 145 of the DGCL. Our amended and restated bylaws provide that we will indemnify any person who was or is a party or threatened to be made a party to any proceeding by reason of the fact that such person is or was a director or officer of us or is or was serving at our request as a director, officer or trustee of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise to the fullest extent permitted by the DGCL.

In addition, our bylaws authorize our board of directors to enter into indemnification contracts with each of our officers and directors. We have entered into indemnification contracts with each of our directors and executive officers. The indemnification contracts provide for the indemnification of directors and officers against all expenses, liability, and loss actually reasonably incurred to the fullest extent permitted by our certificate of incorporation, bylaws, and applicable law.

Section 145 of the DGCL also empowers a corporation to purchase insurance for its officers and directors for such liabilities. We maintain liability insurance for our officers and directors.

SELLING STOCKHOLDERS

This prospectus covers an aggregate of up to 894,626 shares of our Common Stock that may be sold or otherwise disposed of by the Selling Stockholders. Such shares are issuable to the Selling Stockholders upon the exercise of the Warrants we issued to the Selling Stockholders in the Private Placement.

The table below sets forth certain information with respect to each Selling Stockholder, including (i) the name and address of each Selling Stockholder; (ii) the number of shares of our Common Stock beneficially owned by the Selling Stockholder prior to this offering; (iii) the maximum number of shares being offered to the Selling Stockholder pursuant to this prospectus; and (iv) the Selling Stockholder's beneficial ownership after completion of this offering, assuming that all of the shares covered hereby (but no other shares, if any, held by the Selling Stockholders) are sold.

The table is based on information supplied to us by the Selling Stockholders, with beneficial ownership and percentage ownership determined in accordance with the rules and regulations of the SEC, and includes information with respect to voting or investment power with respect to shares of stock. This information does not necessarily indicate beneficial ownership for any other purpose.

The percentage of each Selling Shareholder's ownership is based on 4,901,095 shares of common stock outstanding as of October 1, 2018. In computing the number of shares beneficially owned by a Selling Stockholder and the percentage ownership of that Selling Stockholder, shares of Common Stock underlying the Warrants held by that Selling Stockholder that are exercisable as of October 1, 2018, or exercisable within 60 days after October 1, 2018, are deemed outstanding. Such shares, however, are not deemed outstanding for the purposes of computing the percentage ownership of any other person. The percentage of beneficial ownership after this offering is based on shares outstanding on October 1, 2018 and also includes the shares of our Common Stock registered in this offering.

The registration of the shares of Common Stock issuable to the Selling Stockholders upon exercise of the Warrants does not mean that the Selling Stockholders will sell or otherwise dispose of all or any of those securities. The Selling Stockholders may sell or otherwise dispose of all, a portion or none of such shares from time to time. We do not know the number of shares, if any, that will be offered for sale or other disposition by any of the Selling Stockholders under this prospectus. Furthermore, the Selling Stockholders may have sold, transferred or disposed of the shares of Common Stock covered hereby in transactions exempt from the registration requirements of the Securities Act since the date on which we filed this prospectus.

To our knowledge and except as noted below, none of the Selling Stockholders has, or within the past three years has had, any position, office or other material relationship with us or any of our predecessors or affiliates. None of the Selling Stockholders is a broker-dealer or an affiliate of a broker-dealer, except as noted below.

Certain of the Selling Stockholders invested greater than \$120,000 in our October 2018 public offering. As previously disclosed, on September 14, 2017 we entered into a purchase agreement with Lincoln Park, pursuant to which Lincoln Park is obligated to purchase, at our request, up to \$11.0 million of our common stock over a 30-month period, subject to certain limitations set forth in the purchase agreement.

| Selling Stockholder(1) | Beneficial Ownership Before This Offering | | | Beneficial Ownership After This Offering | |
|--|---|-------------------------------------|-----------------------|--|----------------------------------|
| | Number of Shares Owned | Percentage of Outstanding Shares(2) | Shares Offered Hereby | Number of Shares Owned | Percentage of Outstanding Shares |
| Armistice Capital Master Fund Ltd.(3) | 500,000 | 10.2% | 270,313 | 770,313 | 10.2% |
| Anson Investments Master Fund LP(4) | 0 | 0% | 92,462 | 92,462 | 1.2% |
| Affiliates of Compass Investments(5) | 169,590 | 3.5% | 28,334 | 197,924 | 2.6% |
| CVI Investments Inc.(6) | 0 | 0% | 92,462 | 92,462 | 1.2% |
| Hudson Bay Master Fund Ltd(7) | 0 | 0% | 92,462 | 92,462 | 1.2% |
| Affiliates of Iroquois Capital Management(8) | 162,594 | 3.3% | 92,462 | 255,056 | 3.4% |
| Lincoln Park Capital Fund, LLC(9) | 0 | 0% | 92,462 | 92,462 | 1.2% |
| Investor Company FBO Rosalind Master Fund L.P.(10) | 279,853 | 5.7% | 79,503 | 359,356 | 4.7% |
| Affiliates of Sio Capital Management(11) | 274,070 | 5.5% | 36,664 | 310,734 | 4.1% |
| Affiliates of Walleye Trading(12) | 130,813 | 2.6% | 17,502 | 148,315 | 2.0% |
| Total: | 1,516,920 | 31% | 894,626 | 2,411,546 | 31.8% |

* Represents beneficial ownership of less than one percent (1%) of the outstanding shares of our common stock.

- (1) This table and the information in the notes below are based upon information supplied by the Selling Stockholders and are based on shares of common stock outstanding as of October 1, 2018. Only those shares issuable upon exercise of the Warrants are being registered for resale pursuant to this registration statement, and not any other securities held by the Selling Stockholders.
- (2) All convertible securities of the Company held by the Selling Stockholders are subject to beneficial ownership limitations such that the shares of Preferred Stock or warrants may not be converted or exercised, respectively, if it would result in the holder exceeding the beneficial ownership limitation. The beneficial ownership limitation is either 4.99% or 9.99% for each Selling Stockholder.
- (3) Consists of (i) 500,000 shares of Common Stock; and (ii) rights to purchase, subject to a 4.99% beneficial ownership limitation, 1,107,813 shares of Common Stock issuable upon exercise of warrants, including 270,313 shares issuable upon exercise of the Warrants. The address of Armistice Capital Master Fund, Ltd. is c/o Armistice Capital LLC, 510 Madison Avenue, 7th Floor, New York, NY 10022.
- (4) Consists of (i) 379,462 shares of Common Stock issuable upon the exercise of warrants or stock options exercisable within 60 days of November 14, 2018; and (ii) 92,462 shares of Common Stock issuable upon exercise of the Warrants. Anson Advisors Inc. and Anson Funds Management LP, the Co-Investment Advisers of Anson Investments Master Fund LP ("Anson"), hold voting and dispositive power over the Common Shares held by Anson. Bruce Winson is the managing member of Anson Management GP LLC, which is the general partner of Anson Funds Management LP. Moez Kassam and Amin Nathoo are directors of Anson Advisors Inc. Mr. Winson, Mr. Kassam and Mr. Nathoo each disclaim beneficial ownership of these Common Shares except to the extent of their pecuniary interest therein. The principal business address of Anson is 190 Elgin Ave, George Town, Grand Cayman.
- (5) Consists of (A) (i) 104,899 shares of Common Stock purchased by Compass MAV LLC in connection with our October 2018 offering of Common Stock; (ii) 17,531 shares of Common Stock issuable upon exercise of the Warrants owned by Compass MAV LLC; and (iii) 64,338 shares issuable upon exercise of warrants purchased June 19, 2018 by Compass MAV LLC; and (B) (i) 64,691 shares of Common Stock purchased by Compass Offshore MAV Limited in connection with our October 2018 offering of Common Stock; (ii) 10,803 shares of Common Stock issuable upon exercise of the Warrants owned by Compass Offshore MAV Limited; and (iii) 39,593 shares issuable upon exercise of warrants purchased June 19, 2018 by Compass Offshore MAV Limited. Sio Capital Management LLC is the Investment Manager of Sio Partners LP, Sio Partners Master Fund LP,

Compass MAV LLC, Compass Offshore MAV Ltd, Walleye Trading LLC, and Walleye Opportunities Master Fund Ltd. Sio GP LLC is the General Partner of Sio Partners LP and Sio Partners Master Fund LP. Michael Castor is the Managing Member of Sio Capital Management LLC and Sio GP LLC. Each of Sio Capital Management LLC, Sio GP LLC and Michael Castor disclaims beneficial ownership over the securities held of record by stockholders, except to the extent of its or his pecuniary interest therein. The address of Compass MAV LLC is c/o Sio Capital Management LLC, 535 Fifth Avenue, Suite 910, New York, NY 10017.

- (6) Consists of (i) 92,462 shares of Common Stock issuable upon exercise of the Warrants. CVI Investments Inc. is affiliated with a registered broker-dealer. CVI Investments Inc. represented that it (a) purchased or acquired the securities to be resold in the ordinary course of business, and (b) had no agreements or understandings, directly or indirectly, with any person to distribute the securities at the time of its purchase. Heights Capital Management, Inc., the authorized agent of CVI Investments, Inc. ("CVI") has discretionary authority to vote and dispose of the shares held by CVI and may be deemed to be the beneficial owner of these shares. Martin Kobinger, in his capacity as Investment Manager of Heights Capital Management, Inc., may also be deemed to have investment discretion and voting power over the shares held by CVI. Mr. Kobinger disclaims any such beneficial ownership of the shares. The address of CVI Investments Inc. is c/o Sam Winer, Heights Capital Management, 101 California St., Suite 3250, San Francisco, CA 94111.
- (7) Consists of rights to purchase 292,462 shares of Common Stock, including 92,462 shares of Common Stock issuable upon exercise of the Warrants. Hudson Bay Capital Management LP, the investment manager of Hudson Bay Master Fund Ltd., has voting and investment power over these securities. Sander Gerber is the managing partner of Hudson Bay Capital GP LLC, which is the general partner of Hudson Bay Partners Master Fund LP. Each of Hudson Bay Master Fund Ltd and Sander Gerber disclaims beneficial ownership over these securities. The address of Hudson Bay Master Fund Ltd is c/o Hudson Bay Capital Mgmt., Attn: Yoav Roth, 777 Third Ave., 35th Floor, New York, NY 10017.
- (8) Consists of (A) (i) 93,405 shares of Common Stock owned by Iroquois Capital Investment Group LLC; and (ii) rights to acquire 121,867 shares of Common Stock owned by Iroquois Capital Investment Group LLC, including 53,117 shares of Common Stock issuable upon exercise of the Warrants; and (B) (i) 69,189 shares of Common Stock owned by Iroquois Master Fund Ltd.; and (ii) rights to acquire 95,596 shares of Common Stock owned by Iroquois Master Fund Ltd., including 39,345 shares of Common Stock issuable upon exercise of the Warrants. The address of Iroquois Capital Investment Group LLC is 205 East 42nd Street, 20th Floor, New York, NY 10017.
- (9) Consists of (i) 315,3361 shares of Common Stock issuable upon exercise of warrants owned by Lincoln Park Capital Fund, LLC, including 92,462 shares of Common Stock issuable upon exercise of the Warrants. Joshua Scheinfeld and Jonathan Cope, the principals of Lincoln Park, are deemed to be beneficial owners of all the shares of common stock owned by Lincoln Park, and have shared voting and disposition power over the shares being offered. The address of Lincoln Park is 440 North Wells Street, Suite 410, Chicago, IL 60654.
- (10) Consists of (i) 279,853 shares of Common Stock, including 159,007 shares purchased in connection with our October 2018 offering of Common Stock; and (ii) rights to acquire 142,003 shares of Common Stock issuable upon exercise of warrants, including 79,503 Shares issuable upon exercise of the Warrants. Steven Salamon has voting and dispositive power of securities held by the selling stockholder. The address of Investor Company FBO Rosalind Master Fund L.P. is P.O. Box 309, Ugland House, Grand Cayman, KY1-1104, Cayman Islands.
- (11) Consists of (A) (i) 169,619 shares of Common Stock purchased in connection with our October 2018 offering of Common Stock by Sio Partners, LP; (ii) 22,679 shares of Common Stock issuable upon exercise of the Warrants by Sio Partners, LP; and (iii) 82,781 shares issuable upon exercise of warrants purchased June 19, 2018 by Sio Partners, LP; and (B) (i) 104,451 shares of Common Stock purchased in connection with our October 2018 offering of Common Stock by Sio Partners Master Fund, LP; (ii) 13,985 shares of Common Stock issuable upon exercise of the Warrants by Sio Partners Master Fund, LP; and (iii) 47,851 shares issuable upon exercise of warrants purchased June 19, 2018 by Sio Partners Master Fund, LP. Sio Capital Management LLC is the Investment Manager of Sio Partners LP, Sio Partners Master Fund LP, Compass MAV LLC, Compass Offshore MAV Ltd, Walleye Trading LLC, and Walleye Opportunities Master Fund Ltd. Sio GP LLC is the General Partner of Sio Partners LP and Sio Partners Master Fund LP. Michael Castor is the Managing Member of Sio Capital Management LLC and Sio GP LLC. Each of Sio Capital Management LLC, Sio GP LLC and Michael Castor disclaims beneficial ownership over the securities held of record by stockholders, except to the

extent of its or his pecuniary interest therein. The address of Sio Partners, LP is c/o Sio Capital Management LLC, 535 Fifth Avenue, Suite 910, New York, NY 10017.

- (12) Consists of (A)(i) 50,117 shares of Common Stock purchased in connection with our October 2018 offering of Common Stock by Walleye Opportunities Master Fund Ltd; and (ii) 6,685 shares of Common Stock issuable upon exercise of the Warrants owned by Walleye Opportunities Master Fund Ltd; and (B) (i) 80,696 shares of Common Stock purchased in connection with our October 2018 offering of Common Stock and owned by Walleye Trading LLC, (ii) 10,817 shares of Common Stock issuable upon exercise of the Warrants owned by Walleye Trading LLC; and (iii) 40,437 shares issuable upon exercise of warrants purchased June 19, 2018 by Walleye Trading LLC. Walleye Trading LLC is a registered broker-dealer. Walleye Trading LLC represented that it (a) purchased or acquired the securities to be resold in the ordinary course of business, and (b) had no agreements or understandings, directly or indirectly, with any person to distribute the securities at the time of its purchase. Sio Capital Management LLC is the Investment Manager of Sio Partners LP, Sio Partners Master Fund LP, Compass MAV LLC, Compass Offshore MAV Ltd, Walleye Trading LLC, and Walleye Opportunities Master Fund Ltd. Sio GP LLC is the General Partner of Sio Partners LP and Sio Partners Master Fund LP. Michael Castor is the Managing Member of Sio Capital Management LLC and Sio GP LLC. Each of Sio Capital Management LLC, Sio GP LLC and Michael Castor disclaims beneficial ownership over the securities held of record by stockholders, except to the extent of its or his pecuniary interest therein. The address of Walleye Opportunities Master Fund Ltd is c/o Sio Capital Management LLC, 535 Fifth Avenue, Suite 910, New York, NY 10017.

PLAN OF DISTRIBUTION

Each selling stockholder (each, a "Selling Stockholder" and, together, the "Selling Stockholders") of the securities and any of their pledgees, assignees and successors-in-interest may, from time to time, sell any or all of their securities covered hereby on The Nasdaq Capital Market or any other stock exchange, market or trading facility on which the securities are traded or in private transactions. These sales may be at fixed or negotiated prices. A Selling Stockholder may use any one or more of the following methods when selling securities:

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

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

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

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

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

We are required to pay certain fees and expenses incurred by us incident to the registration of the securities. We have agreed to indemnify the Selling Stockholders against certain losses, claims, damages and liabilities,

including liabilities under the Securities Act. We will not receive any proceeds from the sale of the securities by the Selling Stockholders.

Subject to certain exceptions, we agreed to use our commercially reasonable efforts to keep the registration statement of which this prospectus forms a part effective until no purchaser owns any Warrants or Warrant Shares issuable upon exercise of the Warrants. The resale securities will be sold only through registered or licensed brokers or dealers if required under applicable state securities laws. In addition, in certain states, the resale securities covered hereby may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

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

LEGAL MATTERS

Certain legal matters relating to the issuance of the securities offered by this prospectus will be passed upon for us by Fenwick & West LLP, Seattle, Washington.

EXPERTS

The financial statements incorporated in this Prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2017 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus does not include all of the information contained in the registration statement. You should refer to the registration statement and its exhibits for additional information. Whenever we make reference in this prospectus to any of our contracts, agreements or other documents, the references are not necessarily complete and you should refer to the exhibits filed as part of the registration statement for copies of the actual contract, agreement or other document.

We file annual, quarterly and other periodic reports, proxy statements and other information with the Securities and Exchange Commission. You can read our Securities and Exchange Commission filings, including this registration statement, over the Internet at the Securities and Exchange Commission's website at www.sec.gov.

Our Internet address is www.achievelifesciences.com. There we make available free of charge, on or through the investor relations section of our website, annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file such material with the Securities and Exchange Commission. The information found on our website is not part of this prospectus and investors should not rely on any such information in deciding whether to invest.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

We have elected to incorporate the following documents into this prospectus, together with all exhibits filed therewith or incorporated therein by reference, to the extent not otherwise amended or superseded by the contents of this prospectus:

- our Annual Report on Form 10-K for the year ended December 31, 2017, as filed with the SEC on March 1, 2018;
- our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, as filed with the SEC on May 9, 2018 and amended by our Amendment No. 1 on Form 10-Q/A, filed on May 23, 2018, and for the quarters ended June 30, 2018 and September 30, 2018, as filed with the SEC on August 8, 2018 and November 7, 2018, respectively;
- our Current Reports on Form 8-K filed with the SEC on January 24, 2018, May 23, 2018, June 20, 2018, September 21, 2018, September 28, 2018 and October 1, 2018;
- our Definitive Proxy Statement on Schedule 14A filed with the SEC on April 19, 2018; and
- the description of our common stock contained in our registration statement on Form 8-A filed with the SEC on September 27, 1995 under Section 12 of the Exchange Act, including any amendment or report filed for the purpose of updating such description.

In addition, we incorporate by reference in this prospectus any future filings we make with the SEC under Sections 13(a), 13(c), 14, or 15(d) of the Exchange Act (excluding any information furnished and not filed with the SEC) after the date on which the registration statement that includes this prospectus was initially filed with the SEC (including all such documents we may file with the SEC after the date of the initial registration statement and until all offerings under this prospectus are terminated).

Any statement contained in a document incorporated by reference herein shall be deemed to be modified or superseded for all purposes to the extent that a statement contained in this prospectus or in any other subsequently filed document which is also incorporated or deemed to be incorporated by reference, modifies or supersedes such 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 may request a copy of these filings (other than an exhibit to a filing unless that exhibit is specifically incorporated by reference into that filing) at no cost by writing, telephoning or e-mailing us at the following address, telephone number or e-mail address:

Achieve Life Sciences, Inc.
1001 W. Broadway, Suite 400
Vancouver, BC V6H 4B1
Tel: (604) 736-3678
Attn: Sandra Thomson

Copies of these filings are also available through the "Investors" section of our website at www.achievelifesciences.com.



894,626 Shares of Common Stock

Issuable upon Exercise of Outstanding Warrants

PROSPECTUS

, 2018

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution

The following table sets forth all expenses to be paid by the registrant, other than estimated underwriting discounts and commissions, in connection with this offering. All amounts shown are estimates except for the registration fee, the FINRA filing fee and the Nasdaq Stock Market listing fee.

| | Amount to be Paid |
|-----------------------------------|------------------------------|
| SEC registration fee | \$ 10,070 |
| Legal fees and expenses | 50,000 |
| Accounting fees and expenses | 7,500 |
| Transfer agent and registrar fees | 5,000 |
| Miscellaneous | 57,015 |
| Total | \$ 129,585 |

Item 14. Indemnification of Officers and Directors

Our Second Amended and Restated Certificate of Incorporation, as amended and as may be further amended and in effect from time to time, which we refer to as the certificate of incorporation, provides that our directors shall not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duty as a director, except for liability for breach of the director's duty of loyalty to us or our stockholders, for acts or omissions not in good faith or involving intentional misconduct or a knowing violation of law, for payment of dividends or approval of stock purchases or redemptions that are prohibited by the General Corporation Law of the State of Delaware, as amended, which we refer to as the DGCL, or for any transaction from which the director derived an improper personal benefit. Under the DGCL, our directors have a fiduciary duty to us that is not eliminated by this provision of the restated certificate of incorporation and, in appropriate circumstances, equitable remedies such as injunctive or other forms of non-monetary relief will remain available. This provision also does not affect our directors' responsibilities under any other laws, such as federal securities laws or state or federal environmental laws.

Section 145 of the DGCL empowers a corporation to indemnify its directors and officers against expenses (including attorneys' fees), judgments, fines and amounts paid in settlements actually and reasonably incurred by them in connection with any action, suit or proceeding brought by third parties by reason of the fact that they were or are directors or officers of the corporation, if they acted in good faith, in a manner they 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 that their conduct was unlawful. The DGCL provides further that the indemnification permitted thereunder shall not be deemed exclusive of any other rights to which the directors and officers may be entitled under the corporation's bylaws, any agreement, a vote of stockholders or otherwise. The restated certificate of incorporation provides that, to the fullest extent permitted by Section 145 of the DGCL, we shall indemnify any person who is or was a director or officer of us, or is or was serving at our request as a director, officer or trustee of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise, against the expenses, liabilities or other matters referred to in or covered by Section 145 of the DGCL. Our amended and restated bylaws provide that we will indemnify any person who was or is a party or threatened to be made a party to any proceeding by reason of the fact that such person is or was a director or officer of us or is or was serving at our request as a director, officer or trustee of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise to the fullest extent permitted by the DGCL. In addition, we have entered into agreements with each of our directors and officers under which, among other things, we have agreed to indemnify the director or officer against expenses incurred in any proceeding, including any action by us, in which the director or officer was, is or is threatened to be made a party or a participant by reason of his or her status as a present or former director, officer, employee or agent of us or, at our request, any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise. At present, there is no pending litigation or proceeding involving any director or officer as to which indemnification will be required or permitted, and we are not aware of any threatened litigation or proceeding that may result in a claim for such indemnification.

Section 145 of the DGCL also empowers a corporation to purchase insurance for its officers and directors for such liabilities. We maintain liability insurance for our officers and directors.

See also the undertakings set out in response to Item 17 herein.

Item 15. Recent Sales of Unregistered Securities

On October 1, 2018, we issued the Warrants to purchase an aggregate of 894,626 shares of Common Stock at an exercise price of \$3.1445 per share.

Item 16. Exhibits and Financial Statement Schedules

The following exhibits are filed as part of this registration statement.

| Exhibit Number | Description | Incorporated by Reference | | | | Filed/ Furnished Herewith |
|----------------|---|---------------------------|------------|---------|------------------|---------------------------------|
| | | Form | File No. | Exhibit | Filing Date | |
| 1.1 | Form of Underwriting Agreement. | S-1/A | 333-224840 | 1.1 | June 12, 2018 | |
| 2.1† | Agreement and Plan of Merger and Reorganization, dated as of January 5, 2017, by and among OncoGenex Pharmaceuticals, Inc., Ash Acquisition Sub, Inc., Ash Acquisition Sub 2, Inc. and Achieve Life Science, Inc. | 8-K | 033-80623 | 2.1 | January 5, 2017 | |
| 2.2 | Amendment No. 2 to Agreement and Plan of Merger and Reorganization, dated July 19, 2017, by and among Achieve Life Sciences, Inc., Ash Acquisition Sub, Inc., Ash Acquisition Sub 2, Inc., and Achieve Life Science, Inc. | 8-K | 033-80623 | 10.1 | July 19, 2017 | |
| 3.1 | Second Amended and Restated Certificate of Incorporation filed on May 24, 2013 | 8-K | 033-80623 | 3.1 | May 29, 2013 | |
| 3.2 | Certificate of Amendment to Amended and Restated Certificate of Incorporation filed on May 21, 2015 | 8-K | 033-80623 | 3.1 | May 22, 2015 | |
| 3.3 | Certificate of Amendment (Reverse Stock Split) to Second Amended and Restated Certificate of Incorporation filed on August 1, 2017 | 8-K | 033-80623 | 3.1 | August 2, 2017 | |
| 3.4 | Certificate of Amendment (Name Change) to Second Amended and Restated Certificate of Incorporation filed on August 1, 2017 | 8-K | 033-80623 | 3.2 | August 2, 2017 | |
| 3.5 | Certificate of Amendment (Elimination of Cumulative Voting) to Second Amended and Restated Certificate of Incorporation filed on October 31, 2017 | 8-K | 033-80623 | 3.1 | November 1, 2017 | |

| | | | | | |
|-------|--|---------|------------|------------|--------------------|
| 3.6 | Certificate of Amendment (Reverse Stock Split) to Second Amended and Restated Certificate of Incorporation filed on May 22, 2018 | 8-K | 033-80623 | 3.1 | May 23, 2018 |
| 3.7 | Certificate of Amendment (Increase in Authorized Shares) to Second Amended and Restated Certificate of Incorporation filed on May 22, 2018 | 8-K | 033-80623 | 3.2 | May 23, 2018 |
| 3.8 | Sixth Amended and Restated Bylaws | 8-K | 033-80623 | 3.1 | January 5, 2017 |
| 3.9 | Amendment to Sixth Amended and Restated Bylaws (Virtual Meeting) | 10-Q | 033-80623 | 3.1 | November 7, 2018 |
| 3.10* | Form of Certificate of Designation of Series A Preferred | S-1/A | 333-224840 | 3.9 | June 12, 2018 |
| 4.1 | Specimen Certificate of Common Stock | 10-Q | 000-21243 | 4.1 | November 10, 2008 |
| 4.2 | Form of Series A Warrant | 8-K | 033-80623 | 4.1 | June 27, 2014 |
| 4.3 | Form of Series A-1 Warrant | 8-K | 033-80623 | 4.1 | April 30, 2015 |
| 4.4 | Form of Pre-Funded Series B Warrant | 8-K | 033-80623 | 4.2 | June 27, 2014 |
| 4.5 | Form of Series B Warrant | 8-K | 033-80623 | 4.3 | June 27, 2014 |
| 4.6 | Form of Warrant (LPC) | 8-K | 033-80623 | 4.1 | September 14, 2017 |
| 4.7 | Form of Warrant (2018 Global) (representing Series A Preferred) | S-1/A | 333-224840 | 4.7 | June 12, 2018 |
| 4.8 | Form of Warrant (October 2018 Private Placement) | 8-K | 033-80623 | 4.1 | October 1, 2018 |
| 5.1 | Opinion of Fenwick & West LLP | | | | |
| 10.1 | Sonus Pharmaceuticals, Inc. 2007 Performance Incentive Plan (the "2007 Plan") | DEF 14A | 000-21243 | Appendix A | April 3, 2007 |
| 10.2 | Form of Sonus Pharmaceuticals, Inc. Stock Option Agreement (pertaining to the 2007 Plan) | 10-Q | 000-21243 | 10.1 | November 9, 2007 |
| 10.3 | OncoGenex Technologies Inc. Amended and Restated Stock Option Plan | F-1 | 333-139293 | 10.1 | December 13, 2006 |
| 10.4 | Form of OncoGenex Pharmaceuticals, Inc. 2010 Stock Option Agreement | 8-K | 033-80623 | 10.1 | June 14, 2010 |

X

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|--------|---|---------|------------|------------|--------------------|
| 10.5 | Form of OncoGenex Pharmaceuticals, Inc. 2010 Restricted Stock Unit Agreement | 10-Q | 033-80623 | 10.2 | November 3, 2011 |
| 10.6 | OncoGenex Pharmaceuticals, Inc. 2010 Performance Incentive Plan, as amended and restated | DEF 14A | 033-80623 | Appendix A | April 16, 2015 |
| 10.7a | Achieve Life Sciences 2017 Equity Incentive Plan | DEF 14A | 033-80623 | Appendix A | September 21, 2017 |
| 10.7b | Form of Achieve Life Sciences Stock Option Agreement | 10-K | 033-80623 | 10.7b | March 1, 2018 |
| 10.7c | Form of Achieve Life Sciences Restricted Stock Unit Agreement | 10-K | 033-80623 | 10.7c | March 1, 2018 |
| 10.8 | Achieve Life Sciences 2017 Employee Stock Purchase Plan | DEF 14A | 033-80623 | Appendix B | September 21, 2017 |
| 10.9 | Achieve Life Sciences 2018 Equity Incentive Plan, and forms of award agreements thereunder | 10-Q | 033-80623 | 10.1 | November 7, 2018 |
| 10.10 | Form of Indemnification Agreement for Officers and Directors of the Company | S-1 | 33-96112 | 10.19 | September 25, 1995 |
| 10.11 | Form of Indemnification Agreement between OncoGenex Technologies Inc. and Cindy Jacobs | F-1 | 333-139293 | 10.7 | December 13, 2006 |
| 10.12 | Employment Agreement between the Company and Cindy Jacobs dated as of November 3, 2009 | 10-Q | 033-80623 | 10.27 | November 5, 2009 |
| 10.13 | Employment Agreement between OncoGenex Pharmaceuticals, Inc. and John Bencich | 10-Q | 033-80623 | 10.1 | November 10, 2016 |
| 10.14# | Exclusive License Agreement, by and between Sopharma Joint Stock Company and Extab Corporation, dated May 26, 2009 | S-4/A | 333-216961 | 10.21 | May 3, 2017 |
| 10.15# | Variation of Contract, by and between Sopharma AD and Extab Corporation, dated May 14, 2015 | S-4/A | 333-216961 | 10.22 | May 3, 2017 |
| 10.16# | Commercial Agreement on Supply of Pharmaceutical Products, by and between Sopharma AD and Extab Corporation, dated February 1, 2010 | S-4/A | 333-216961 | 10.23 | May 3, 2017 |
| 10.17# | Variation of Contract, by and between Sopharma AD and Extab Corporation, dated May 14, 2015 | S-4/A | 333-216961 | 10.24 | May 3, 2017 |
| 10.18# | Technical and Quality Agreement, by and between Sopharma AD and Extab Corporation, dated May 14, 2015 | S-4/A | 333-216961 | 10.25 | May 3, 2017 |

| | | | | | | |
|---------|--|--------|------------|----------------|--------------------|---|
| 10.19# | License of Technology, by and between University of Bristol and Achieve Life Science, Inc., dated July 13, 2016 | S-4/A | 333-216961 | 10.27 | May 3, 2017 | |
| 10.20 | Office Lease by and between Grosvenor International (Atlantic Freeholds) Limited and OncoGenex Pharmaceuticals, Inc., dated February 11, 2015 | 8-K | 033-80623 | 10.1 | February 12, 2015 | |
| 10.21 | Lease by and between 520 Pike Street, Inc. and Achieve Life Sciences, Inc., dated December 11, 2018 | 10-K | 033-80623 | 10.20 | March 1, 2018 | |
| 10.22 | Purchase Agreement, by and between Achieve Life Sciences, Inc. and Lincoln Park Capital Fund, LLC, dated as of September 14, 2017 | 8-K | 033-80623 | 10.1 | September 14, 2017 | |
| 10.23## | Amended and Restated Supply Agreement, dated July 28, 2017, by and between Achieve Life Science, Inc., and Sopharma AD | 10-Q | 033-80623 | 10.1 | November 9, 2017 | |
| 10.24## | Amendment to University of Bristol License Agreement, dated January 22, 2018, by and between Achieve Life Science, Inc., and the University of Bristol | 10-Q/A | 033-80623 | 10.1 | May 23, 2018 | |
| 21.1 | Subsidiaries of the Registrant | 10-K | 033-80623 | 21.1 | March 1, 2018 | |
| 23.1 | Consent of PricewaterhouseCoopers LLP | | | | | X |
| 23.2 | Consent of Fenwick & West LLP (included in Exhibit 5.1) | | | | | X |
| 24.1 | Power of Attorney | S-1 | 333-224840 | Signature Page | May 10, 2018 | |

† Schedules and similar attachments to the Merger Agreement have been omitted pursuant to Item 601(b)(2) of Regulation S-K. The Company will furnish supplementally a copy of any omitted schedule or similar attachment to the SEC upon request.

Confidential portions of this exhibit have been omitted and filed separately with the Commission pursuant to a Confidential Treatment Order granted under Rule 406 promulgated under the Securities Act of 1933, as amended.

Confidential portions of this exhibit have been omitted and filed separately with the Commission pursuant to a Confidential Treatment Order granted under Rule 24b-2 promulgated under the Securities Exchange Act of 1934, as amended.

Item 17. Undertakings

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

The Registrant hereby undertakes:

- (a) 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 Act;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the Registration Statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective Registration Statement; and
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the Registration Statement or any material change to such information in the Registration Statement;
provided, however, that paragraphs (a)(i), (a)(ii) and (a)(iii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or 15(d) of the Exchange Act that are incorporated by reference in the registration statement.
- (b) That, for the purpose of determining any liability under the 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;
- (c) 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;
- (d) That, for the purpose of determining liability under the Act of to any purchaser:
 - (i) Each prospectus filed by the Registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the Registration Statement as of the date the filed prospectus was deemed part of and included in the Registration Statement; and
 - (ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by section 10(a) of the Act shall be deemed to be part of and included in the Registration Statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the Registration Statement relating to the

securities in the Registration Statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the Registration Statement or made in a document incorporated or deemed incorporated by reference into the Registration Statement or prospectus that is part of the Registration Statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the Registration Statement or prospectus that was part of the Registration Statement or made in any such document immediately prior to such effective date;

(e) That, for purposes of determining any liability under the Act, the information omitted from the form of prospectus filed as part of this Registration Statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Act shall be deemed to be part of this Registration Statement as of the time it was declared effective;

(f) That, for the purpose of determining any liability under the Act, each post-effective amendment that contains a form of prospectus 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;

(g) To deliver or cause to be delivered with the prospectus, to each person to whom the prospectus is sent or given, the latest annual report to security holders that is incorporated by reference in the prospectus and furnished pursuant to and meeting the requirements of Rule 14a-3 or Rule 14c-3 under the Securities Exchange Act of 1934; and, where interim financial information required to be presented by Article 3 of Regulation S-X are not set forth in the prospectus, to deliver, or cause to be delivered to each person to whom the prospectus is sent or given, the latest quarterly report that is specifically incorporated by reference in the prospectus to provide such interim financial information; and

(h) That, for purposes of determining any liability under the Act, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the Registration Statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Vancouver, British Columbia, Canada, on November 29, 2018.

ACHIEVE LIFE SCIENCES, INC.

By: /s/ Richard Stewart
Richard Stewart
Chairman and Chief Executive Officer

POWER OF ATTORNEY

Each person whose signature appears below constitutes and appoints Richard Stewart and John Bencich, and each of them severally, as his true and lawful attorney-in-fact and agent, each acting alone with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign this Registration Statement on Form S-1 to be filed in connection with the offering of securities of Achieve Life Sciences, Inc., and any and all amendments (including post-effective amendments) to this registration statement, and any subsequent registration statement filed pursuant to Rule 462 under the Securities Act of 1933, as amended, and to file the same with exhibits thereto, and the other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent, each acting alone, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as they might or could do in person, hereby ratifying and confirming all that said attorney-in-fact or his substitutes, each acting alone, may lawfully do or cause to be done by virtue thereof.

IN WITNESS WHEREOF, each of the undersigned has executed this Power of Attorney as of the date indicated. Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and as of the dates indicated.

| <u>Signature</u> | <u>Title</u> | <u>Date</u> |
|---|--|-------------------|
| <u>/s/ Richard Stewart</u> Richard Stewart | Chief Executive Officer, Chairman and Director (Principal Executive Officer) | November 29, 2018 |
| <u>/s/ John Bencich</u> John Bencich | Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer) | November 29, 2018 |
| <u>/s/ Anthony Clarke</u> Anthony Clarke | Director | November 29, 2018 |
| <u>/s/ Scott Cormack</u> Scott Cormack | Director | November 29, 2018 |
| <u>/s/ Donald Joseph</u> Donald Joseph | Director | November 29, 2018 |
| <u>/s/ Martin Mattingly</u> Martin Mattingly | Director | November 29, 2018 |
| <u>/s/ Jay Moyes</u> Jay Moyes | Director | November 29, 2018 |
| <u>/s/ H. Stewart Parker</u> H. Stewart Parker | Director | November 29, 2018 |



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November 29, 2018

Achieve Life Sciences, Inc.
1001 W. Broadway, Suite 400
Vancouver, BC V6H 4B1

Ladies and Gentlemen:

At your request, we have examined the Registration Statement on Form S-1 filed by Achieve Life Sciences, Inc. (the "**Company**") with the Securities and Exchange Commission (the "**Commission**") on November 29, 2018 (the "**Registration Statement**"), in connection with the registration under the Securities Act of 1933, as amended (the "**Securities Act**"), of an aggregate of 894,626 shares of the Company's common stock, \$0.001 par value per share (the "**Common Stock**"), issuable upon exercise of certain outstanding Common Stock purchase warrants issued by the Company in a private placement on October 1, 2018 (the "**Warrants**"). The Warrants were issued to certain selling stockholders (the "**Selling Stockholders**"), as set forth in the Registration Statement and the prospectus contained within the Registration Statement (the "**Prospectus**").

In connection with our opinion expressed below we have examined originals or copies of the Company's Amended and Restated Certificate of Incorporation, as amended (the "**Certificate**") and the Company's Bylaws (the "**Bylaws**"), the Warrants, certain corporate proceedings of the Company's board of directors (the "**Board**") and stockholders relating to the Registration Statement, the Certificate and Bylaws, and such other agreements, documents, certificates and statements of the Company, its transfer agent and public or government officials, as we have deemed advisable, and have examined such questions of law as we have considered necessary. We have assumed the authenticity of all documents submitted to us as originals, the genuineness of all signatures on documents submitted to us, the conformity to originals of all documents submitted to us as copies, and the absence of any undisclosed termination, waiver or amendment to any document reviewed by us. In giving our opinion, we have also relied upon a good standing certificate issued by the Delaware Secretary of State and representations made to us by the Company, including representations that the Company has available a sufficient number of authorized shares of Common Stock that are not currently outstanding or reserved for issuance under other outstanding securities or equity plans of the Company, to enable the Company to issue and deliver all of the shares of Common Stock issuable upon exercise of the Warrants as of the date of this letter.

We render this opinion only with respect to, and express no opinion herein concerning the application or effect of the laws of any jurisdiction other than, the existing laws of the Delaware General Corporation Law.

Based upon the foregoing, we are of the opinion that, upon exercise of the Warrants, in the manner and for the consideration stated in the Warrants, the Common Stock to be sold by the Selling Stockholder pursuant to the Registration Statement and the Prospectus will be validly issued, nonassessable and, to our knowledge, fully paid.

28530/00500/FW/10430684.2

We consent to the use of this opinion as an exhibit to the Registration Statement and further consent to all references to us, if any, in the Registration Statement, the Prospectus constituting a part thereof and any amendments thereto. We do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission thereunder. This opinion is intended solely for use in connection with sale of the Common Stock to be sold by the Selling Stockholder pursuant to the Registration Statement and is not to be relied upon for any other purpose. In providing this letter, we are opining only as to the specific legal issues expressly set forth above, and no opinion shall be inferred as to any other matter or matters. This opinion is rendered on, and speaks only as of, the date of this letter first written above, and does not address any potential change in facts of law that may occur after the date of this opinion letter. We assume no obligation to advise you of any fact, circumstance, event or change in the law or the facts that may hereafter be brought to our attention, whether or not such occurrence would affect or modify any of the opinions expressed herein.

Very truly yours,

/s/ Fenwick & West LLP

FENWICK & WEST LLP

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CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this registration statement on Form S-1 pertaining to the common stock issuable upon exercise of the unregistered warrants that were issued as part of the October 2018 private placement of Achieve Life Sciences, Inc. of our report dated March 1, 2018 relating to the consolidated financial statements, which appears in Achieve Life Sciences, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2017. We also consent to the reference to us under the heading "Experts" in such registration statement.

/s/ PricewaterhouseCoopers LLP

Chartered Professional Accountants

Vancouver, Canada

November 29, 2018