

PROSPECTUS SUPPLEMENT  
(To prospectus dated August 15, 2019)

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We have entered into an at-the-market equity offering sales agreement, dated November 5, 2019, or the Sales Agreement, with Jefferies LLC, or Jefferies, and Stifel, Nicolaus & Company, Incorporated, or Stifel, collectively referred to as the sales agents and each individually as a sales agent, for the offer and sale of up to \$50,000,000 of our common shares, without par value, or the Shares, offered by this prospectus supplement and the accompanying prospectus.

In accordance with the terms of the Sales Agreement, we may offer and sell the Shares from time to time through the sales agents. Sales of the Shares, if any, under this prospectus supplement may be made in sales deemed to be “at the market offerings” as defined in Rule 415(a)(4) under the Securities Act of 1933, as amended, or the Securities Act. Each sales agent will use its commercially reasonable efforts to sell on our behalf all of the Shares requested to be sold by us, consistent with its normal trading and sales practices, on mutually agreed terms between each sales agent and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

Our common shares are listed on the Nasdaq Global Market under the symbol “XENE.” The last reported sale price of our common shares on the Nasdaq Global Market on November 4, 2019 was \$9.02 per share.

Each sales agent will receive from us a commission of up to 3.0% of the gross sales price per Share sold through such sales agent under the Sales Agreement. In connection with the sale of the Shares on our behalf, the sales agents will be deemed to be “underwriters” within the meaning of the Securities Act and the compensation of the sales agents will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to the sales agents with respect to certain liabilities, including liabilities under the Securities Act or the Securities Exchange Act of 1934, as amended, or the Exchange Act.

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**An investment in our common shares involves significant risks. You should carefully consider the Risk Factors beginning on page S-7 of this prospectus supplement and in the documents incorporated herein, including our Annual Report on Form 10-K and our Quarterly Reports on Form 10-Q before investing in our common shares.**

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

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**Jefferies**

**Stifel**

The date of this prospectus supplement is November 5, 2019.

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**Prospectus**

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You should rely only on the information contained in or incorporated by reference into this prospectus supplement and the accompanying base prospectus and any free writing prospectuses prepared by us or on our behalf. We have not authorized any person to provide any information or make any statement that differs from what is contained in this prospectus supplement, the accompanying base prospectus and any free writing prospectuses prepared by us or on our behalf. If any person does make a statement that differs from what is in this prospectus supplement, the accompanying base prospectus or any free writing prospectuses, you should not rely on it. This prospectus supplement is not an offer to sell, nor is it a solicitation of an offer to buy, these securities in any jurisdiction in which the offer or sale is not permitted. You should assume that the information contained in this prospectus supplement, the accompanying base prospectus, any free writing prospectus and the documents incorporated by reference is accurate only as of its respective date, regardless of the time of delivery of this prospectus supplement, the accompanying base prospectus, any free writing prospectus or of any sale of common shares in this offering. Our business, financial condition, results of operations and prospects may have subsequently changed.

## ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying base prospectus are part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or SEC, using a “shelf” registration statement process. Under the shelf registration statement, we may offer and sell any combination of securities described in the accompanying base prospectus in one or more offerings. The accompanying base prospectus provides you with a general description of the securities we may offer. Each time we use the accompanying base prospectus to offer securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add, update or change information contained in the accompanying base prospectus.

This prospectus supplement, the accompanying base prospectus and the documents incorporated by reference herein include important information about us, our common shares and other information you should know before investing. This prospectus supplement describes the specific details regarding this offering, including the price, the amount of common shares being offered and the risks of investing in our common shares. The accompanying base prospectus provides general information about us, some of which may not apply to this offering.

To the extent that any statement that we make in this prospectus supplement is inconsistent with statements made in the accompanying base prospectus, the statements made in this prospectus supplement will be deemed to modify or supersede those made in the accompanying base prospectus. You should read both this prospectus supplement and the accompanying base prospectus together with additional information described under the heading, “Where You Can Find More Information.”

Unless the context requires otherwise, references in this prospectus supplement to “Xenon,” “the Company,” “we,” “us” and “our” refer to Xenon Pharmaceuticals Inc. and its wholly-owned subsidiary. We use the Xenon logo and other marks as trademarks in the United States and other countries. This prospectus supplement, the accompanying prospectus and the other documents incorporated by reference contain references to our trademarks as well as third-party trademarks. Solely for convenience, trademarks and trade names, including logos, artwork and other visual displays, may appear without the ® or TM symbols, but such references are not intended to indicate in any way that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use of third-party trade names or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other entity.

## CAUTIONARY STATEMENT ABOUT FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein include forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and Canadian securities laws. All statements other than statements of historical facts contained in this prospectus supplement, the accompanying prospectus and in the documents incorporated by reference herein, including statements regarding the future financial position, business strategy and plans and objectives of management for future operations, are forward-looking statements. The words “believe,” “may,” “will,” “estimate,” “continue,” “anticipate,” “intend,” “should,” “plan,” “expect,” and similar expressions, as they relate to us, are intended to identify forward-looking statements. We have based these forward-looking statements largely on current expectations and projections about future events and financial trends that we believe may affect our financial condition, results of operations, business strategy and financial needs. These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including, without limitation, those described in “Risk Factors” in this prospectus supplement and in our Annual Report on Form 10-K for the fiscal year ended December 31, 2018 and in our Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2019, including, among other things:

- our ability to identify additional products or product candidates either from our internal research efforts or through acquiring or in-licensing other product candidates or technologies;
- the initiation, timing, cost, progress and success of our research and development programs, pre-clinical studies, and clinical trials;
- our ability to advance product candidates into, and successfully complete, clinical trials;
- our ability to recruit sufficient numbers of patients for our current and future clinical trials for orphan or more common indications;
- our ability to achieve profitability;
- our ability to obtain funding for our operations, including research funding;
- our ability to receive milestones, royalties and sublicensing fees under our collaborations and other strategic arrangements, and the timing of such payments;
- the timing and magnitude of potential milestone payments under our product acquisition and in-licensing agreements;
- the implementation of our business model and strategic plans;
- our ability to develop and commercialize product candidates for orphan and niche indications independently;
- our ability to advance XEN007, XEN496 and potentially other future product candidates directly into Phase 2 or later stage clinical trials;
- our commercialization, marketing and manufacturing capabilities and strategy;
- our ability to identify drug targets;
- our ability to protect our intellectual property and operate our business without infringing upon the intellectual property rights of others;
- our expectations regarding federal, state and foreign regulatory requirements;
- the therapeutic benefits, effectiveness and safety of our product candidates;
- the accuracy of our estimates of the size and characteristics of the markets that may be addressed by our products and product candidates;
- the rate and degree of market acceptance and clinical utility of any future products;

- the timing of, and our and our collaborators' ability to obtain and maintain, regulatory approvals for our product candidates;
- our ability to maintain and establish collaborations;
- our expectations regarding market risk, including interest rate changes and foreign currency fluctuations;
- our belief in the sufficiency of our cash, cash equivalents and marketable securities to meet our needs for at least the next 12 months;
- our ability to engage and retain the employees required to grow our business;
- our future financial performance and projected expenditures;
- developments relating to our competitors and our industry, including the success of competing therapies that are or become available; and
- estimates of our expenses, future revenue, capital requirements and our needs for additional financing.

These risks are not exhaustive. Other sections of this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein include additional factors which could adversely impact our business and financial performance. Moreover, we operate in a very competitive and rapidly changing environment. New risk factors emerge from time to time and it is not possible for us to predict all risk factors, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements.

You should not rely upon forward-looking statements as predictions of future events. We cannot assure you that the events and circumstances reflected in the forward-looking statements will be achieved or occur. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance or achievements. These statements, like all statements in this prospectus supplement, speak only as of their date, and we undertake no obligation to update or revise any forward-looking statements in light of future developments, except as required by law.

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

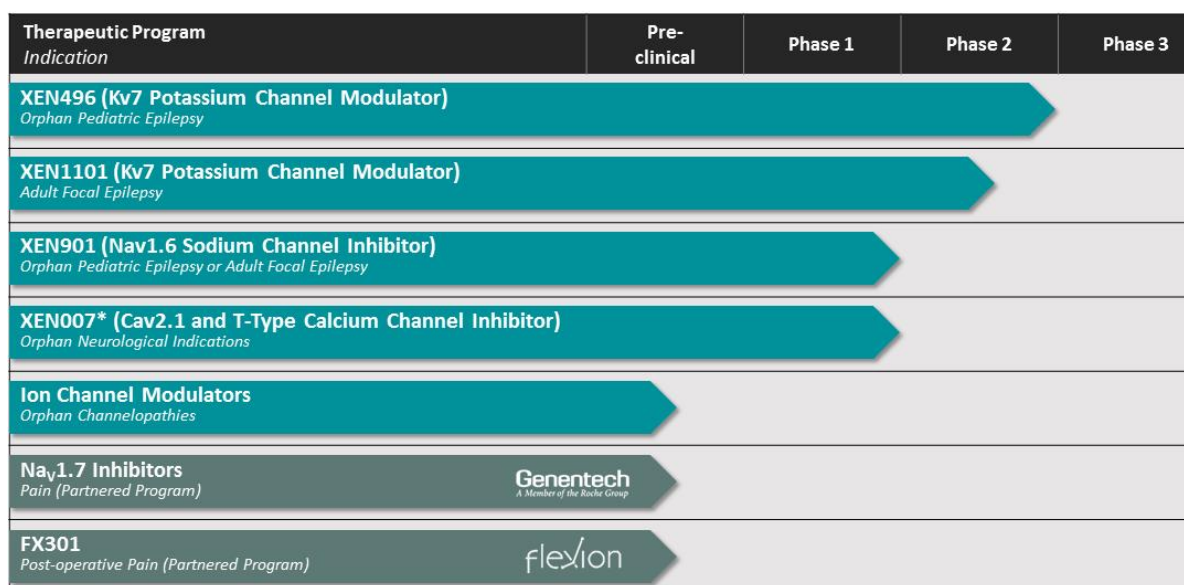
## PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights selected information appearing elsewhere or incorporated by reference in this prospectus supplement and accompanying prospectus and may not contain all of the information that is important to you. This prospectus supplement and the accompanying prospectus include or incorporate by reference information about the Shares we are offering as well as information regarding our business, risks and detailed financial data. You should read this prospectus supplement and the accompanying prospectus in their entirety, including the information incorporated by reference herein.

### Xenon Pharmaceuticals Inc.

We are a clinical stage biopharmaceutical company committed to developing innovative therapeutics to improve the lives of patients with neurological disorders, including rare central nervous system, or CNS, conditions. We are advancing a novel product pipeline of neurology-focused therapies to address areas of high unmet medical need, with a focus on epilepsy.

Our pipeline is summarized in the following figure, which shows our own proprietary product candidates and our partnered programs with Genentech, a member of the Roche Group, and Flexion Therapeutics, Inc.:



\* Xenon has entered into key regulatory & manufacturing agreements related to XEN007; it is anticipated that a Phase 2 (or later stage) clinical trial could be initiated after receiving regulatory feedback.

Our clinical development pipeline includes:

- XEN496 (active ingredient ezogabine) is a Kv7 potassium channel modulator being developed for the treatment of epilepsy. The U.S. Food and Drug Administration, or FDA, has granted orphan drug designation, or ODD, for XEN496 as a treatment of KCNQ2 developmental and epileptic encephalopathy, or KCNQ2-DEE. We have developed XEN496 as a pediatric-specific, granule formulation to be packaged as single-dose sprinkle capsules. A planned pharmacokinetic, or PK, study will test XEN496 in healthy adult volunteers, with all subjects expected to be dosed by year-end. Based on the anticipated timing of data from stability studies ongoing for XEN496 and based on the anticipated timing of the PK study data in adult volunteers, we expect to file an Investigational New Drug, or IND, application in the first quarter of 2020 in order to initiate a Phase 3 clinical trial in KCNQ2-DEE. The FDA has indicated that it is acceptable to study XEN496 in infants and children up to four years old, and that a single, small pivotal trial may be considered adequate in order to demonstrate XEN496's efficacy in KCNQ2-DEE, provided the study shows evidence of a clinically meaningful benefit in patients with the intended indication;

- XEN1101 is a differentiated Kv7 potassium channel modulator being developed for the treatment of epilepsy and potentially other neurological disorders. A Phase 2b double-blind, placebo-controlled, multicenter clinical trial is underway to evaluate the clinical efficacy, safety and tolerability of XEN1101 administered as adjunctive treatment in approximately 300 adult patients with focal epilepsy. The primary endpoint is the median percent change in monthly focal seizure frequency from baseline compared to treatment period of active versus placebo. Patient enrollment for this XEN1101 Phase 2b clinical trial is ongoing in the United States, Canada and Europe. Long term six-and nine-month toxicology studies have now been completed, providing support to the planned 12-month open label extension for patients enrolled in the Phase 2b clinical trial. Depending upon the rate of enrollment, top-line results are anticipated in the second half of 2020;
- XEN901 is a potent, highly selective Nav1.6 sodium channel inhibitor being developed for the treatment of epilepsy. A Phase 1 clinical trial was completed using a powder-in-capsule formulation of XEN901 in healthy adult subjects. We received feedback from the FDA regarding the requirements for advancing XEN901 directly into a pediatric clinical trial to study its efficacy in SCN8A developmental and epileptic encephalopathy, or SCN8A-DEE. We have developed a pediatric-specific, granule formulation of XEN901, and juvenile toxicology studies to support pediatric development activities have recently been completed. All healthy adult volunteers have now been dosed in a PK study testing the novel pediatric formulation of XEN901. Based on the anticipated timing of data from stability studies ongoing for XEN901 and based on the anticipated timing of the PK study data in adult volunteers, we anticipate filing an IND, or IND-equivalent, submission in the first quarter of 2020 in order to start a proposed Phase 2 or 3 clinical trial in SCN8A-DEE patients, and continue to evaluate other potential indications for XEN901, including adult focal epilepsy. We continue to evaluate selective Nav1.6 compounds and Nav1.2/1.6 dual acting compounds for development behind XEN901, and we expect to highlight some of this pre-clinical work at the upcoming American Society of Epilepsy annual meeting in December; and
- XEN007 (active ingredient flunarizine) is a CNS-acting calcium channel modulator that modulates Cav2.1 and T-type calcium channels. Other reported mechanisms include dopamine, histamine and serotonin inhibition. A physician-led, Phase 2 proof-of-concept study has recently been initiated to examine the potential clinical efficacy, safety, and tolerability of XEN007 as an adjunctive treatment in pediatric patients diagnosed with treatment-resistant childhood absence epilepsy. Absence seizures are characterized by an abrupt impairment of awareness with arrest in behavior, staring, eye lid fluttering, and automatisms associated with generalized 3 Hz spike wave discharges, or SWD, on electroencephalogram, or EEG. A child may have one or many (up to 100) absence seizures a day and have problems with attention and learning. XEN007 has demonstrated efficacy in pre-clinical models of absence seizures, and flunarizine has been shown to be well tolerated clinically. XEN007 significantly reduced the number and duration of SWDs on EEG in these models as mono-therapy and, when combined with valproic acid or ethosuximide, significantly reduced the SWD EEGs more than any drug alone. Results from this Phase 2 investigator-led proof-of-concept study are expected in 2020. Depending on the results from the study, CAE may represent a potential orphan indication for future development of XEN007. Available in certain countries outside of the United States, flunarizine has been reported to have clinical benefit in treating migraine and other neurological disorders. The FDA granted a rare pediatric disease designation for XEN007 as a treatment of alternating hemiplegia of childhood, or AHC, and previously granted ODD for XEN007 as a treatment of both AHC and hemiplegic migraine. We have entered into key licensing and manufacturing agreements to support the advanced clinical development of XEN007, with a number of orphan pediatric neurological conditions and development pathways under consideration.

#### **Corporate Information**

We were incorporated in the Province of British Columbia on November 5, 1996 under the predecessor to the Business Corporations Act (British Columbia) under the name “Xenon Bioresearch Inc.” We continued from British Columbia to the federal jurisdiction pursuant to Section 187 of the Canada Business Corporations Act on May 17, 2000 and concurrently changed our name to “Xenon Genetics Inc.” We registered as an extra-provincial company in British Columbia on July 10, 2000 and changed our name to “Xenon Pharmaceuticals Inc.” on August 24, 2004. We had one wholly-owned subsidiary as at December 31, 2018, Xenon Pharmaceuticals USA Inc., which was incorporated in Delaware on December 2, 2016. Our principal executive offices are located at 200 – 3650 Gilmore Way, Burnaby, British Columbia, Canada V5G 4W8, and our telephone number is (604) 484-3300. We are a reporting issuer in British Columbia, Alberta and Ontario, but our shares are not listed on any recognized Canadian stock exchange. Our common shares trade on the Nasdaq Global Market under the symbol “XENE.” Our website address is [www.xenon-pharma.com](http://www.xenon-pharma.com). The information on, or that can be accessed through, our website is not incorporated by reference into this prospectus and should not be considered to be a part of this prospectus.

## THE OFFERING

Common shares offered pursuant to this prospectus supplement	Up to \$50,000,000 of Shares.
Plan of Distribution	“At the market offering” that may be made from time to time, if at all, through the sales agents. See “Plan of Distribution” on page S-45.
Use of Proceeds	We intend to use the net proceeds from the sale of Shares offered by this prospectus, together with other available funds, to progress our clinical development programs and for other general corporate purposes. See “Use of Proceeds” on page S-41.
Nasdaq Global Market symbol	“XENE”
Risk Factors	This investment involves a high degree of risk. See “Risk Factors” beginning on page S-7 of this prospectus supplement, the risk factors beginning on page 21 of our Annual Report on Form 10-K as filed with the SEC on March 6, 2019 and beginning on page 24 of our Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2019, as filed with the SEC on November 5, 2019, as well as the other information included in or incorporated by reference in this prospectus supplement and the accompanying prospectus for a discussion of risks you should consider carefully before making an investment decision



## RISK FACTORS

Any investment in our common shares involves a high degree of risk. In addition to the other information included or incorporated by reference in this prospectus supplement and the accompanying prospectus, you should carefully consider the important factors set forth under the heading "Risk Factors" starting on page 21 of our Annual Report on Form 10-K for the fiscal year ended December 31, 2018 and under the heading "Risk Factors" starting on page 24 of our Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2019, in each case incorporated herein by reference, before investing in our common shares. For further details, see the sections entitled "Where You Can Find More Information" and "Incorporation of Certain Documents by Reference" in this prospectus supplement.

Any of the risk factors set forth below or referred to above could significantly and negatively affect our business, results of operations or financial condition, which may lower the trading price of our common shares. The risks referred to above are not the only ones that may exist. Additional risks not currently known by us or that we deem immaterial may also impair our business operations. You may lose all or a part of your investment.

### Risks Related to Our Financial Condition and Capital Requirements

***We have incurred significant losses since our inception and anticipate that we will continue to incur significant losses for the foreseeable future.***

We do not expect to have sustained profitability for the foreseeable future. We had net losses of \$30.2 million for the nine months ended September 30, 2019 and an accumulated deficit of \$238.3 million as of September 30, 2019, which were driven by expenses incurred in connection with our research and development programs and from general and administrative costs associated with our operations.

We have devoted most of our financial resources to research and development, including our clinical and pre-clinical development activities. To date, we have financed our operations through the sale of equity securities, funding received from our licensees and collaborators, debt financing and, to a lesser extent, government funding. We have not generated any significant revenue from product sales and our product candidates will require substantial additional investment before they may provide us with any revenue.

We expect to incur significant expenses and increasing operating losses for the foreseeable future as we:

- continue our research and pre-clinical and clinical development of our product candidates;
- expand the scope of our clinical studies for our current and prospective product candidates;
- initiate additional pre-clinical, clinical or other studies for our product candidates;
- change or add additional manufacturers or suppliers and manufacture drug supply and drug product for clinical trials and commercialization;
- seek regulatory and marketing approvals for any of our product candidates that successfully complete clinical studies;
- seek to identify and validate additional product candidates;
- acquire or in-license other product candidates and technologies;
- make milestone or other payments under our in-license or other agreements, including, without limitation, payments to Memorial University of Newfoundland, 1st Order Pharmaceuticals, Inc. and other third parties;
- maintain, protect and expand our intellectual property portfolio;
- establish a sales, marketing and distribution infrastructure to commercialize any products for which we may obtain marketing approval;
- create additional infrastructure to support our operations and our product development and planned future commercialization efforts; and
- experience any delays or encounter issues with any of the above.

Our expenses could increase beyond expectations for a variety of reasons, including if we are required by the U.S. Food and Drug Administration, or FDA, the European Medicines Agency, or EMA, Health Canada, or other regulatory agencies, domestic or foreign, to perform clinical and other studies in addition to those that we currently anticipate. Our prior losses, combined with expected future losses, have had and will continue to have an adverse effect on our shareholders' equity.

***We have not generated any significant royalty revenue from product sales and may never become profitable on a U.S. GAAP basis.***

Our ability to generate meaningful revenue and achieve profitability on a U.S. GAAP basis depends on our ability, alone or with strategic collaborators, to successfully complete the development of, and obtain the regulatory approvals necessary to commercialize, our product candidates. Substantially all of our revenue since inception has consisted of upfront and milestone payments associated with our collaboration and license agreements. Revenue from these agreements is dependent on successful development of our product candidates by us or our collaborators. We have not generated any significant royalty revenue from product sales, and do not otherwise anticipate generating revenue from product sales for the foreseeable future, if ever. If any of our product candidates fail in clinical trials or do not gain regulatory approval, or if any of our future products, if any, once approved, fail to achieve market acceptance or adequate market share, we may never become profitable. Our ability to generate future revenue from product sales depends heavily on our success, and the success of our collaborators, in:

- completing research, pre-clinical and clinical development of our product candidates;
- seeking and obtaining regulatory and marketing approvals for product candidates for which we complete clinical studies;
- commercializing products for which we obtain regulatory and marketing approval, either with a collaborator or, if launched independently, by establishing sales, marketing and distribution infrastructure;
- negotiating favorable terms in any collaboration, licensing or other arrangements into which we may enter;
- obtaining market acceptance of products for which we obtain regulatory and marketing approval as therapies;
- addressing any competing technological and market developments;
- establishing and maintaining supply and manufacturing relationships with third parties that can provide adequate (in amount and quality) products and services to support clinical development and the market demand for any approved products in the future;
- developing sustainable, scalable, reproducible, and transferable manufacturing processes for any of our products approved in the future;
- maintaining, protecting, expanding and enforcing our portfolio of intellectual property rights, including patents, trade secrets and know-how;
- implementing additional internal systems and infrastructure, as needed; and
- attracting, hiring and retaining qualified personnel.

The scope of our future revenue will also depend upon the size of any markets in which our product candidates receive approval and the availability of insurance coverage and the availability and amount of reimbursement from third-party payers for future products, if any. If we are unable to achieve sufficient revenue to become profitable and remain so, our financial condition and operating results will be negatively impacted, and the market price of our common shares might be adversely impacted.

***We will likely need to raise additional funding, which may not be available on acceptable terms, if at all. Failure to obtain this necessary capital when needed may force us to delay, limit or terminate our product development efforts or other operations.***

Since our inception, we have dedicated most of our resources to the discovery and development of our pre-clinical and clinical product candidates, and we expect to continue to expend substantial resources doing so for the foreseeable future. These expenditures will include costs associated with research and development, potential milestone payments and royalties to third parties, manufacturing of product candidates and products approved for sale, conducting pre-clinical experiments and clinical trials and obtaining and maintaining regulatory approvals, as well as commercializing any products later approved for sale. During the nine months ended September 30, 2019, we incurred approximately \$27.1 million of costs associated with research and development, exclusive of costs incurred by our collaborators in developing our product candidates.

Our current cash and cash equivalents and marketable securities are not expected to be sufficient to complete clinical development of any of our product candidates and prepare for commercializing any product candidate which receives regulatory approval. Accordingly, we will likely require substantial additional capital to continue our clinical development and potential commercialization activities. Our future capital requirements depend on many factors, including but not limited to:

- the number and characteristics of the future product candidates we pursue either from our internal research efforts or through acquiring or in-licensing other product candidates or technologies;
- the scope, progress, results and costs of independently researching and developing any of our future product candidates, including conducting pre-clinical research and clinical trials;

- whether our existing collaborations generate substantial milestone payments and, ultimately, royalties on future approved products for us;
- the timing of, and the costs involved in, obtaining regulatory approvals for any future product candidates we develop independently;
- the timing and magnitude of potential milestone payments and royalties under our product acquisition and in-license agreements;
- the cost of commercializing any future products we develop independently that are approved for sale;
- the cost of manufacturing our future product candidates and products, if any;
- our ability to maintain existing collaborations and to establish new collaborations, licensing or other arrangements and the financial terms of such agreements;
- the costs involved in preparing, filing, prosecuting, maintaining, defending and enforcing patents, including litigation costs and the outcome of such litigation; and
- the timing, receipt and amount of sales of, or royalties on, our future products, if any.

We are unable to estimate the funds we will actually require to complete research and development of our product candidates or the funds required to commercialize any resulting product in the future.

Based on our research and development plans and our timing expectations related to the progress of our programs, we expect that our existing cash and cash equivalents and marketable securities as of the date of this prospectus supplement will enable us to fund our operating expenses and capital expenditure requirements for at least the next 12 months.

Our operating plan may change as a result of many factors currently unknown to us, and we may need to seek additional funds sooner than planned, through public or private equity or debt financings, government or other third-party funding, marketing and distribution arrangements and other collaborations, strategic alliances and licensing arrangements or a combination of these approaches. Raising funds in the future may present additional challenges and future financing may not be available in sufficient amounts or on terms acceptable to us, if at all.

***We may allocate our limited resources to pursue a particular product candidate or indication and fail to capitalize on other product candidates or indications that may be more profitable or for which there is a greater likelihood of success.***

Because we have limited financial and management resources, we focus on a limited number of research programs and product candidates. As a result, we may forgo or delay pursuit of opportunities with other product candidates or for other indications that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial drugs or profitable market opportunities. Our spend on current and future research and development programs and product candidates for specific indications may not yield any commercially viable drugs. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through collaboration, licensing or other arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights.

***We are party to a loan and security agreement that contains operating and financial covenants that may restrict our business and financing activities and we may be required to repay the outstanding indebtedness in an event of default, which could have a materially adverse effect on our business.***

In August 2018, we entered into an amended and restated loan and security agreement with Silicon Valley Bank providing for a term loan to us with an aggregate principal amount of \$15.5 million. Borrowings under our amended and restated loan and security agreement are secured by substantially all of our assets except intellectual property and subject to certain other exceptions. The loan and security agreement restricts our ability, among other things, to:

- sell, transfer or otherwise dispose of any of our business assets or property, subject to limited exceptions;
- make material changes to our business;
- enter into transactions resulting in significant changes to the voting control of our stock;
- make certain changes to our organizational structure;
- consolidate or merge with other entities or acquire other entities;

- incur additional indebtedness or create encumbrances on our assets;
- pay dividends, other than dividends paid solely in our common shares, or make distributions on and, in certain cases, repurchase our capital stock;
- enter into certain transactions with our affiliates;
- repay subordinated indebtedness; or
- make certain investments.

In addition, we are required under our amended and restated loan agreement and security agreement to comply with various affirmative covenants. The covenants and restrictions and obligations in our amended and restated loan and security agreement, as well as any future financing agreements that we may enter into, may restrict our ability to finance our operations, engage in business activities or expand or fully pursue our business strategies. Our ability to comply with these covenants may be affected by events beyond our control, and we may not be able to meet those covenants. A breach of any of these covenants could result in a default under the amended and restated loan and security agreement, which could cause all of the outstanding indebtedness under the facility to become immediately due and payable.

If we are unable to generate sufficient cash available to repay our debt obligations when they become due and payable, either when they mature, or in the event of a default, we may not be able to obtain additional debt or equity financing on favorable terms, if at all, which may negatively impact our business operations and financial condition.

***Raising additional capital may cause dilution to our existing shareholders, restrict our operations or require us to relinquish rights to our technologies or product candidates.***

The terms of any financing arrangements we enter into may adversely affect the holdings or the rights of our shareholders and the issuance of additional securities, whether equity or debt, by us, or the possibility of such issuance, may cause the market price of our common shares to decline. The sale of additional equity or convertible securities also would dilute all of our shareholders. For example, we have a Sales Agreement in place with Jefferies and Stifel to sell up to \$50.0 million of our common shares, from time to time, through an “at-the-market” equity offering program under which Jefferies and Stifel will act as sales agents. During the year ended December 31, 2018, we raised \$103.2 million, net of commissions paid, but excluding estimated transaction expenses, through a combination of “at-the-market” equity offerings and an underwritten public offering, selling an aggregate of 9,540,000 common shares. We are also party to an amended and restated loan and security agreement with Silicon Valley Bank pursuant to which we have borrowed an aggregate principal amount of \$15.5 million. Our loan pursuant to the amended and restated loan and security agreement is secured by substantially all of our assets except intellectual property and the agreement requires us to comply with various affirmative and negative covenants. The incurrence of additional indebtedness would result in increased fixed payment obligations and, potentially, the imposition of additional restrictive covenants. Such additional covenants could include limitations on our ability to incur additional debt, limitations on our ability to acquire, sell or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. We could also be required to seek funds through arrangements with collaborators or otherwise at an earlier stage than otherwise would be desirable resulting in the loss of rights to some of our product candidates or other unfavorable terms, any of which may have a material adverse effect on our business, operating results and prospects. In addition, any additional fundraising efforts may divert our management from their day-to-day activities, which may adversely affect our ability to develop and commercialize our product candidates.

***Unstable market and economic conditions may have serious adverse consequences on our business and financial condition.***

Global credit and financial markets experienced extreme disruptions at various points over the last decade, characterized by diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates, and uncertainty about economic stability. If another such disruption in credit and financial markets and deterioration of confidence in economic conditions occurs, our business may be adversely affected. If the equity and credit markets were to deteriorate significantly in the future, it may make any necessary equity or debt financing more difficult to complete, more costly, and more dilutive. Failure to secure any necessary financing in a timely manner and on favorable terms could have a material adverse effect on our growth strategy, financial performance and the market price of our common shares could require us to delay or abandon development or commercialization plans. In addition, there is a risk that one or more of our current collaborators, service providers, manufacturers and other partners would not survive or be able to meet their commitments to us under such circumstances, which could directly affect our ability to attain our operating goals on schedule and on budget.

***We are subject to risks associated with currency fluctuations which could impact our results of operations.***

As of September 30, 2019, approximately 6% of our cash and cash equivalents and marketable securities were denominated in Canadian dollars. We incur significant expenses in Canadian dollars in connection with our operations in Canada. We do not currently engage in foreign currency hedging arrangements for our Canadian dollar expenditures, and, consequently, foreign currency fluctuations may adversely affect our earnings; however, in the future, we may engage in exchange rate hedging activities in an effort to mitigate the impact of exchange rate fluctuations. Any hedging technique we implement may fail to be effective. If our hedging activities are not effective, changes in currency exchange rates may have a more significant impact on the market price of our common shares.

#### **Risks Related to Our Business**

***We, or our collaborators, may fail to successfully develop our product candidates.***

Our clinical product candidates, which include XEN1101, XEN901 and XEN007, along with product candidates we expect to enter clinical development, which includes XEN496, and our pre-clinical compounds, are in varying stages of development and will require substantial clinical development, testing and regulatory approval prior to commercialization. It may be several more years before these product candidates or any of our other product candidates receive marketing approval, if ever. If any of our product candidates fail to become approved products, our business, growth prospects, operating results and financial condition may be adversely affected and a decline in the market price of our common shares could result.

***We and our collaborators face substantial competition in the markets for our product candidates, which may result in others discovering, developing or commercializing products before us or doing so more successfully than we or our collaborators do.***

The biotechnology and pharmaceutical industries are characterized by rapidly advancing technologies, intense competition and a strong emphasis on proprietary products. We face potential competition in drug discovery and product development from many different approaches and sources, including major pharmaceutical, specialty pharmaceutical and biotechnology companies, academic institutions, governmental agencies, as well as public and private research institutions. Any product candidates that we or our collaborators successfully develop and commercialize will compete with existing products and any new products that may become available in the future.

The key competitive factors affecting the success of all of our product candidates, if approved, are likely to be their efficacy, safety, convenience and price, the effectiveness and safety of alternative products, the level of generic competition, and the availability of coverage and adequate reimbursement from government and other third-party payers.

Many of the companies against which we are competing or against which we may compete in the future have significantly greater financial resources and expertise in research and development, manufacturing, pre-clinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved products than we, or our collaborators, do. Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller or early stage companies may also prove to be significant competitors, particularly through collaboration arrangements with large and established companies.

Our commercial opportunities could be reduced or eliminated if our competitors develop and commercialize products or therapies that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than any products that we may develop. Our competitors also may obtain FDA, EMA, Health Canada or other regulatory approval for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. In addition, our ability to compete may be affected by decisions made by insurers or other third-party payers.

To the extent that we are unable to compete effectively against one or more of our competitors in these areas, our business will not grow and our financial condition, results of operations and the market price of our common shares may suffer.

If XEN496, XEN1101, XEN901 or XEN007 were approved for the treatment of epilepsy, we anticipate that they could potentially compete with each other and other anti-epileptic drugs, or AEDs. Commonly used AEDs include phenytoin, levetiracetam, brivaracetam, carbamazepine, clobazam, lamotrigine, valproate, oxcarbazepine, topiramate, lacosamide, ethosuximide, perampanel and cannabidiol, among others. The FDA has not yet approved any drug products specifically for the KCNQ2 developmental and epileptic encephalopathy indication (otherwise known as KCNQ2-DEE or EIEE7) or for the SCN8A developmental and epileptic encephalopathy indication (otherwise known as SCN8A-DEE or EIEE13), an early infantile epileptic encephalopathy due to gain-of-function mutations in the SCN8A gene that encodes the Nav1.6 sodium channel. There are other AEDs in development that could potentially compete with XEN496, XEN1101, XEN901 or XEN007, including products in development from UCB, Inc., Zogenix, Inc., Sage Therapeutics, Marinus Pharmaceuticals, Inc., SK Life Science Inc., Knopp Biosciences LLC, Upsher-Smith Laboratories, Inc, Eisai Co., Ltd, Supernus Pharmaceuticals, Inc., Takeda Pharmaceutical Company Ltd, Ovid Therapeutics Inc., GW Pharmaceuticals plc, Biogen Inc., and Praxis Precision Medicines Inc.

Drug discovery and development for various pain applications is intensely competitive. There are a large number of approved products for neuropathic pain, inflammatory pain and other pain indications. These approved products include capsaicin, celecoxib, lidocaine, narcotic analgesics, gabapentin, and pregabalin. We are also aware of development programs at several pharmaceutical and biotechnology companies that are developing Nav1.7 inhibitors or other sodium channel inhibitors for the treatment of pain, including Amgen Inc., AstraZeneca PLC, Biogen Inc., Bristol-Myers Squibb Company, Dainippon Sumitomo Co., Ltd., Eli Lilly and Company, Merck, NeuroQuest Inc., Newron Pharmaceuticals SpA, Vertex Pharmaceuticals Inc., Voyager Therapeutics, Inc. and Chromocell Corporation in collaboration with its partner Astellas Pharma Inc. Moreover, we are aware of various other product candidates in development that target other mechanisms of action to treat various pain indications, including calcium channel inhibitors, nerve growth factor inhibitors, and Nav1.8 inhibitors.

***We have no marketed proprietary products and have not yet advanced a product candidate beyond Phase 2 clinical trials, which makes it difficult to assess our ability to develop our future product candidates and commercialize any resulting products independently.***

As a company, we have no experience in Phase 3 and later stage clinical development or in conducting clinical trials in pediatric indications, and related regulatory requirements or the commercialization of products. We have not yet demonstrated our ability to independently and repeatedly conduct clinical development after Phase 2, successfully conduct an international multi-center clinical trial, conduct a pivotal clinical trial, obtain regulatory approval, manufacture drug product on a commercial scale or arrange for a third party to do so on our behalf, and commercialize therapeutic products. We will need to develop such abilities if we are to execute on our business strategy to develop and independently commercialize product candidates for orphan and niche indications. To execute on our business plan for the development of independent programs, we will need to successfully:

- execute our clinical development and manufacturing plans for later-stage product candidates;
- obtain required regulatory approvals in each jurisdiction in which we will seek to commercialize products;
- build and maintain appropriate sales, distribution and marketing capabilities;
- gain market acceptance for our future products, if any; and
- manage our spending as costs and expenses increase due to clinical trials, regulatory approvals and commercialization activities.

If we are unsuccessful in accomplishing these objectives, we will not be able to develop and commercialize any future product candidates independently and could fail to realize the potential advantages of doing so.

***If we are not successful in discovering, acquiring or in-licensing product candidates in addition to XEN496, XEN1101, XEN901, and XEN007, our ability to expand our business and achieve our strategic objectives may be impaired.***

We have built a product development pipeline by identifying product candidates either from our internal research efforts or through acquiring or in-licensing other product candidates or technologies. To date, our internal discovery efforts have yielded multiple development candidates, including XEN901 and XEN402, which has been acquired by Flexion to use in its product candidate FX301. Both our internal discovery efforts and our assessment of potential acquisition or in-licensing opportunities require substantial technical, financial and human resources, regardless of whether we identify any viable product candidates.

If we are unable to identify additional product candidates suitable for clinical development and commercialization either from our internal research efforts or through acquiring or in-licensing other product candidates or technologies, we may not be able to obtain product revenue in future periods, which likely would result in significant harm to our financial position and adversely impact the market price of our common shares.

***Our approach to drug discovery is unproven, and we do not know whether we will be able to develop any products of commercial value.***

Our approach to drug discovery may not reproducibly or cost-effectively result in the discovery of product candidates and development of commercially viable products that safely and effectively treat human disease.

Our drug discovery efforts may initially show promise in identifying additional potential product candidates yet fail to yield viable product candidates for clinical development or commercialization. Such failure may occur for many reasons, including the following: any product candidate may, on further study, be shown to have serious or unexpected side effects or other characteristics that indicate it is unlikely to be safe or otherwise does not meet applicable regulatory criteria; and any product candidate may not be capable of being produced in commercial quantities at an acceptable cost, or at all.

If our discovery activities fail to identify novel targets for drug discovery, or such targets prove to be unsuitable for treating human disease, or we are unable to develop product candidates with specificity and selectivity for such targets, we will fail to develop viable products. If we fail to develop and commercialize viable products, we will not achieve commercial success.

***If we fail to attract and retain senior management and key personnel, we may be unable to successfully develop our product candidates, perform our obligations under our collaboration agreements, conduct our clinical trials and commercialize our product candidates.***

Our success depends in part on our continued ability to attract, retain and motivate highly qualified management, clinical and scientific personnel.

We could experience difficulties attracting and retaining qualified employees as competition for qualified personnel in the biotechnology and pharmaceutical field is intense. We are highly dependent upon our senior management, particularly Dr. Simon Pimstone, our Chief Executive Officer, and Mr. Ian Mortimer, our President and Chief Financial Officer, as well as other employees. The loss of services of either of these individuals or one or more of our other members of senior management could materially delay or even prevent the successful development of our product candidates.

In addition, we will need to hire additional personnel as we expand our clinical development activities and develop commercial capabilities, including a sales infrastructure to support our independent commercialization efforts. We may not be able to attract and retain personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for individuals with similar skill sets. The inability to recruit or loss of the services of any executive or key employee may impede the progress of our research, development and commercialization objectives.

***Our employees, collaborators and other personnel may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements and insider trading.***

We are exposed to the risk of fraud or other misconduct by our employees, collaborators, vendors, principal investigators, consultants and commercial partners. Misconduct by these parties could include intentional failures to comply with the regulations of the FDA, EMA, Health Canada and other regulators, provide accurate information to the FDA, EMA, Health Canada and other regulators, comply with data privacy and security and healthcare fraud and abuse laws and regulations in the U.S. and abroad, report financial information or data accurately or disclose unauthorized activities to us. In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices. Additionally, laws regarding data privacy and security, including the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009, or HITECH, the General Data Protection Regulation (EU) 2016/679, or GDPR, and the Personal Information Protection and Electronic Documents Act, or PIPEDA, as well as comparable laws in other jurisdictions, may impose obligations with respect to safeguarding the privacy, use, security and transmission of individually identifiable health information such as genetic material or information we have obtained through our direct-to-patient web-based recruitment approach for identifying patients with rare or extreme phenotypes or patients identified for clinical trials.

Various laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Any misconduct could also involve the improper use of information obtained in the course of clinical studies, which could result in regulatory sanctions and cause serious harm to our reputation. We have adopted a code of conduct applicable to all of our employees, officers, directors, agents and representatives, including consultants, but it is not always possible to identify and deter misconduct, and the precautions we take to detect and prevent misconduct may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to comply with these laws and regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of significant fines or other sanctions, exclusion from participation in government healthcare programs, or the curtailment or restructuring of our operations.

***We may encounter difficulties in managing our growth, including headcount, and expanding our operations successfully.***

Our business strategy involves continued development and, where development is successful, commercialization of select product candidates for orphan and niche indications. In order to execute on this strategy, we will need to build out a regulatory, sales, manufacturing, distribution and marketing infrastructure and expand our development capabilities or contract with third parties to provide these capabilities and infrastructure for us. To achieve this, we will need to identify, hire and integrate personnel who have not worked together as a group previously.

As our operations expand, we expect that we will need to manage additional relationships with various strategic collaborators, suppliers and other third parties.

Dr. Simon Pimstone devotes a small amount of his time to clinical work outside of his duties at our company, conducting, generally, one outpatient clinic per week. Future growth will impose significant added responsibilities on members of management, and our management may need to divert a disproportionate amount of its attention away from our day-to-day activities and devote a substantial amount of time to managing these growth activities.

If we are unable to effectively manage our growth, our expenses may increase more than expected, our ability to generate and grow revenue could be reduced, and we may not be able to implement our business strategy. Our future financial performance and our ability to commercialize product candidates and compete effectively will depend, in part, on our ability to effectively manage any future growth.

***Our business and operations could suffer in the event of system failures.***

Computer system, network or telecommunications failures due to events such as damage from malware, unauthorized access, terrorism, war, or natural disasters could interrupt our internal or partner operations. For example, the loss of pre-clinical trial data, data from completed or ongoing clinical trials for our product candidates or other confidential information could result in delays in our regulatory filings and development efforts, significantly increase our costs and result in other adverse impacts to our business. To the extent that any disruption or cybersecurity breach was to result in a loss of or damage to our data, or inappropriate disclosure of confidential or proprietary information, we could incur liability and other remediation costs, and the development of our product candidates could be delayed. While we have implemented security measures and, to date, have not detected a cybersecurity breach of our systems nor experienced a material system failure, our internal computer systems and the external systems and services used by our third-party contract manufacturers, or CMOs, third-party contract research organizations, or CROs, or other contractors, consultants, directors and partners remain potentially vulnerable to damage from these events.

***A variety of risks associated with international operations could materially adversely affect our business.***

If we engage in significant cross-border and international activities, we will be subject to risks related to international operations, including:

- different regulatory requirements for initiating clinical trials and maintaining approval of drugs in foreign countries;
- reduced protection for intellectual property rights in certain countries;
- unexpected changes in tariffs, trade barriers and regulatory requirements;
- economic weakness, including inflation, political instability or open conflict in particular foreign economies and markets;
- differing and multiple payor reimbursement regimes, government payors or patient self-pay systems;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenue, and other obligations of doing business in another country;



- workforce uncertainty in countries where labor unrest is more common than in North America;
- likelihood of potential or actual violations of domestic and international anti-corruption laws, such as the U.S. Foreign Corrupt Practices Act and the U.K. Bribery Act, or of U.S. and international import, export and re-export control and sanctions laws and regulations, which likelihood may increase with an increase of operations in foreign jurisdictions;
- tighter restrictions on privacy and the collection and use of data, including clinical data and genetic material, may apply in jurisdictions outside of North America; and
- business interruptions resulting from geopolitical actions, including war and terrorism, or natural disasters including earthquakes, typhoons, floods and fires.

If any of these issues were to occur, our business could be materially harmed.

***U.S. holders of our common shares may suffer adverse tax consequences if we are characterized as a passive foreign investment company.***

Generally, for any taxable year in which 75% or more of our gross income is passive income, or at least 50% of the average quarterly value of our assets (which may be determined in part by the market value of our common shares, which is subject to change) are held for the production of, or produce, passive income, we would be characterized as a passive foreign investment company, or PFIC, for U.S. federal income tax purposes. Based on the price of our common shares and the composition of our gross income and gross assets, we believe that we may be deemed a PFIC for the taxable years ended December 31, 2018 and 2017, and we could be a PFIC for the calendar year ending December 31, 2019 or in subsequent years. Our status as a PFIC is a fact-intensive determination made on an annual basis, and we cannot provide any assurance regarding our PFIC status for the taxable year ending December 31, 2019 or for future taxable years.

If we are a PFIC for any year, U.S. holders of our common shares may suffer adverse tax consequences. Gains realized by non-corporate U.S. holders on the sale of our common shares would be taxed as ordinary income, rather than as capital gain, and the preferential tax rate applicable to dividends received on our common shares would be lost. Interest charges would also be added to taxes on gains and dividends realized by all U.S. holders. U.S. holders should consult their own tax advisors with respect to their particular circumstances.

A U.S. holder may avoid these adverse tax consequences by timely making a qualified electing fund election. For each year that we would meet the PFIC gross income or asset test, an electing U.S. holder would be required to include in gross income its pro rata share of our net ordinary income and net capital gains, if any. A U.S. holder may make a qualified electing fund election only if we commit to provide U.S. holders with their pro rata share of our net ordinary income and net capital gains. We will provide, upon request, our U.S. holders with the information that is necessary in order for them to make a qualified electing fund election and to report their common shares of ordinary earnings and net capital gains for each year for which we may be a PFIC. U.S. holders should consult their own tax advisors with respect to making this election and the related reporting requirements.

A U.S. holder may also mitigate the adverse tax consequences by timely making a mark-to-market election. Generally, for each year that we meet the PFIC gross income or asset test, an electing U.S. holder would include in gross income the increase in the value of its common shares during each of its taxable years and deduct from gross income the decrease in the value of such shares during each of its taxable years. A mark-to-market election may be made and maintained only if our common shares are regularly traded on a qualified exchange, including The Nasdaq Global Market, or Nasdaq. Whether our common shares are regularly traded on a qualified exchange is an annual determination based on facts that, in part, are beyond our control. Accordingly, a U.S. holder might not be eligible to make a mark-to-market election to mitigate the adverse tax consequences if we are characterized as a PFIC. U.S. holders should consult their own tax advisors with respect to the possibility of making this election. In addition, our PFIC status may deter certain U.S. investors from purchasing our common shares, which could have an adverse impact on the market price of our common shares.

***We may become subject to income tax in jurisdictions in which we are organized or operate, which would reduce our future earnings.***

There is a risk that we may become subject to income tax in jurisdictions outside of Canada and the United States, if under the laws of any such jurisdiction, we are considered to be carrying on a trade or business there or earn income that is considered to be sourced there and we do not qualify for an exemption. In jurisdictions where we do not believe we are subject to tax, we can provide no certainty that tax authorities in those jurisdictions will not subject one or more tax years to examination. Tax examinations are often complex as tax authorities may disagree with the treatment of items reported by us, the result of which could have a material adverse effect on our operating results and financial condition.

***Acquisitions, joint ventures or other strategic transactions could disrupt our business, cause dilution to our shareholders and otherwise harm our business.***

We actively evaluate various strategic transactions on an ongoing basis, including the acquisition of other businesses, products or technologies as well as pursuing strategic alliances, joint ventures, licensing transactions or investments in complementary businesses. Any of these transactions could be material to our financial condition and operating results and expose us to many risks, including:

- disruption in our relationships with collaborators or suppliers as a result of such a transaction;
- unanticipated liabilities related to acquired companies;
- difficulties integrating acquired personnel, technologies and operations into our existing business;
- retention of key employees;
- diversion of management time and focus from operating our business to pursuing strategic transactions and managing any such strategic alliances, joint ventures or acquisition integration challenges;
- dilution to our shareholders if we issue equity in connection with such transactions;
- increases in our expenses and reductions in our cash available for operations and other uses; and
- possible write-offs or impairment charges relating to acquired businesses.

Foreign acquisitions involve unique risks in addition to those mentioned above, including those related to integration of operations across different cultures and languages, currency risks and the particular economic, political and regulatory risks associated with specific countries.

Also, the anticipated benefit of any strategic alliance, joint venture or acquisition may not materialize. Future acquisitions or dispositions could result in potentially dilutive issuances of our equity securities, the incurrence of debt, contingent liabilities or amortization expenses or write-offs of goodwill, any of which could harm our financial condition. We cannot predict the number, timing or size of future joint ventures or acquisitions, or the effect that any such transactions might have on our operating results.

**Risks Related to Development, Clinical Testing and Regulatory Approval of Our Product Candidates**

***The regulatory approval processes of the FDA, EMA, Health Canada and regulators in other jurisdictions are lengthy, time-consuming and inherently unpredictable. If we, or our collaborators, are unable to obtain regulatory approval for our product candidates in a timely manner, or at all, our business will be substantially harmed.***

The regulatory approval process is expensive and the time required to obtain approval from the FDA, EMA, Health Canada or other regulatory authorities in other jurisdictions to sell any product is uncertain and may take years. Whether regulatory approval will be granted is unpredictable and depends upon numerous factors, including the substantial discretion of the regulatory authorities. Approval policies, regulations, or the type and amount of pre-clinical and clinical data necessary to gain approval may change during the course of a product candidate's clinical development and may vary among jurisdictions. Moreover, pre-clinical and clinical data are often susceptible to varying interpretations and analyses, and even if the pre-clinical studies show promising results and clinical trials are successfully completed, we cannot guarantee that the FDA, EMA, Health Canada or other regulatory authorities in other jurisdictions will interpret the results as we do, and more trials, manufacturing-related studies or non-clinical studies could be required before we submit our product candidates for approval. Many companies that have believed their product candidates performed satisfactorily in pre-clinical studies and clinical trials have nonetheless failed to obtain marketing approval of their products. To the extent that the results of our studies and trials are not satisfactory to the FDA, EMA, Health Canada or other regulatory authorities in other jurisdictions for support of a marketing application, approval of our product candidates may be significantly delayed, or we may be required to expend significant additional resources, which may not be available to us, to conduct additional trials in support of potential approval of our product candidates. It is also possible that none of our existing product candidates or any of our future product candidates will ever obtain regulatory approval, even if we expend substantial time and resources seeking such approval.

Our product candidates could fail to receive regulatory approval for many reasons, including the following:

- the FDA, EMA, Health Canada or other regulatory authorities may disagree with the design or implementation of our or our collaborators' clinical trials;
- we or our collaborators may be unable to demonstrate to the satisfaction of the FDA, EMA, Health Canada or other regulatory authorities that a product candidate is safe and effective for its proposed indication;

- the results of clinical trials may not meet the level of statistical significance required by the FDA, EMA, Health Canada or other regulatory authorities for approval;
- we, or our collaborators, may be unable to demonstrate that a product candidate's clinical and other benefits outweigh its safety risks;
- the FDA, EMA, Health Canada or other regulatory authorities may disagree with our or our collaborators' interpretation of data from pre-clinical studies or clinical trials;
- the data collected from clinical trials of our product candidates may not be sufficient to support the submission of a New Drug Application, or NDA, or other submission or to obtain regulatory approval in the U.S. or elsewhere;
- the FDA, EMA, Health Canada or other regulatory authorities may fail to approve the manufacturing processes, controls or facilities of third-party manufacturers with which we or our collaborators contract for clinical and commercial supplies; and
- the approval policies or regulations of the FDA, EMA, Health Canada or other regulatory authorities may significantly change in a manner rendering our or our collaborators' clinical data insufficient for approval.

Even if we, or our collaborators, obtain approval for a particular product, regulatory authorities may grant approval contingent on the performance of costly post-approval clinical trials, or may approve a product with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that product.

In addition, because there may be approved treatments for some of the diseases for which we may seek approval, in order to receive regulatory approval, we may need to demonstrate in clinical trials that the product candidates we develop to treat those diseases are not only safe and effective, but may need to be compared to existing products, which may make it more difficult for our product candidates to receive regulatory approval or adequate reimbursement.

***Clinical drug development involves a lengthy and expensive process with uncertain timelines and uncertain outcomes. If clinical trials are prolonged, delayed or not completed, we, or our collaborators, may be unable to commercialize our product candidates on a timely basis.***

Clinical testing of product candidates is expensive and, depending on the stage of development, can take a substantial period of time to complete. Clinical trial outcomes are inherently uncertain, and failure can occur at any time during the clinical development process.

Clinical trials can be halted or delayed for a variety of reasons, including those related to:

- side effects or adverse events in study participants presenting an unacceptable safety risk;
- inability to reach agreement with prospective CROs and clinical trial sites, or the breach of such agreements;
- failure of third-party contractors, such as CROs, or investigators to comply with regulatory requirements, including GCPs;
- delay or failure in obtaining the necessary approvals from regulators or institutional review boards, or IRBs, in order to commence a clinical trial at a prospective trial site, or their suspension or termination of a clinical trial once commenced;
- a requirement to undertake and complete additional pre-clinical studies to generate data required to support the continued clinical development of a product candidate or submission of an NDA;
- inability to enroll sufficient patients to complete a protocol, particularly in orphan diseases;
- difficulty in having patients complete a trial or return for post-treatment follow-up;
- clinical sites deviating from trial protocol or dropping out of a trial;
- problems with drug product or drug substance storage, stability and distribution;
- our inability to add new or additional clinical trial sites;
- our inability to manufacture, or obtain from third parties, adequate supply of drug substance or drug product sufficient to complete our pre-clinical studies and clinical trials; and
- governmental or regulatory delays and changes in regulatory requirements, policy and guidelines.

The results of any Phase 3 or other pivotal clinical trial may not be adequate to support marketing approval. These clinical trials are lengthy and, with respect to non-orphan indications, usually involve many hundreds to thousands of patients. In addition, if the FDA, EMA, Health Canada or another regulator disagrees with our or our collaborator's choice of the key testing criterion, or primary endpoint, the results for the primary endpoint are not robust or significant relative to the control group of patients not receiving the experimental therapy, or our statistical analysis is inconclusive, such regulator may refuse to approve our product candidate in the region in which it has jurisdiction. The FDA, EMA, Health Canada or other regulators also may require additional clinical trials as a condition for approving any of these product candidates.

We could also encounter delays if a clinical trial is suspended or terminated by us, by our collaborators, by the IRBs of the institutions in which such trial is being conducted, by any Data Safety Monitoring Board for such trial, or by the FDA, EMA, Health Canada or other regulatory authorities. Such authorities may impose such a suspension or termination due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA, EMA, Health Canada or other regulatory authorities resulting in the imposition of a clinical hold, product candidate manufacturing problems, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a drug, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. In addition, delays can occur due to safety concerns arising from trials or other clinical data regarding another company's product candidate in the same compound class as one of ours.

Additionally, changes in applicable regulatory requirements and guidance may occur and we may need to amend clinical trial protocols to reflect these changes or to include additional objectives that could yield important scientific information critical to our overall development strategy. The protocol amendment process often requires review and approval by several review bodies, including regulatory agencies and scientific, regulatory and ethics boards and IRBs. These protocol amendments may not be accepted by the review bodies in the form submitted, or at all, which may impact costs, timing or successful completion of a clinical trial.

If we or our collaborators experience delays in the completion of, or termination of, any clinical trial of one of our product candidates, the commercial prospects of the product candidate will be harmed, could shorten the period during which we may have the exclusive right to commercialize our products under patent protection, and our or our collaborators' ability to commence product sales and generate product revenue from the product will be delayed. In addition, any delays in completing our clinical trials will increase our costs and slow down our product candidate development and approval process. Any of these occurrences may harm our business, financial condition and prospects significantly. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of our product candidates.

XEN496 targets an ultra-orphan indication of KCNQ2-DEE and the FDA has indicated that a single, small pivotal trial may be sufficient to demonstrate effectiveness and safety in KCNQ2-DEE provided that no new or unexpected safety issues arise during drug development. Even though we believe the safety and efficacy profile of ezogabine, the active ingredient in XEN496, in pediatric patients with KCNQ2-DEE generated to date by others appears promising based on published clinical case reports, we do not yet know if the pediatric-specific formulation of XEN496 will have the same or similar safety, pharmacokinetic and/or efficacy profile in pediatric patients with KCNQ2-DEE as the original formulation of ezogabine. If we are unable to replicate the published clinical case reports, due to the new formulation or any other factors, the clinical development of XEN496 may not be successful and the FDA or other regulatory authorities may require additional data in more patients or we may not be able to generate sufficient data for approval in this patient population.

***Our clinical trials may fail to demonstrate adequately the safety and efficacy of our product candidates, which could prevent or delay regulatory approval and commercialization.***

Before obtaining regulatory approvals for the commercial sale of our products, we must demonstrate through lengthy, complex and expensive pre-clinical testing and clinical trials that the product candidate is both safe and effective for use in each target indication. Clinical trials often fail to demonstrate safety and efficacy of the product candidate studied for the target indication. Most product candidates that commence clinical trials are never approved as products.

In the case of some of our product candidates, we are seeking to develop treatments for diseases for which there is relatively limited clinical experience, and our clinical trials may use novel endpoints and measurement methodologies or subjective patient feedback, which adds a layer of complexity to our clinical trials and may delay regulatory approval. In addition, our focus on orphan and niche markets may cause us to select target indications that are in more challenging therapeutic areas. Related to our collaboration with Genentech and our agreement with Flexion, clinical trials for pain are inherently difficult to conduct. The primary measure of pain is based on subjective patient feedback, which can be influenced by factors outside of our control and can vary widely from day to day for a particular patient, from patient to patient, and from site to site within a clinical study. The placebo effect also tends to have a more significant impact in pain trials.

If our product candidates are not shown to be both safe and effective in clinical trials, we will not be able to obtain regulatory approval or commercialize these product candidates and products. In such case, we would need to develop other compounds and conduct associated pre-clinical testing and clinical trials, as well as potentially seek additional financing, all of which would have a material adverse effect on our business, growth prospects, operating results, financial condition and results of operations.

***We may find it difficult to enroll patients in our clinical studies, including for ultra-orphan, orphan or niche indications, which could delay or prevent clinical studies of our product candidates.***

We may not be able to identify, recruit and enroll a sufficient number of patients, or those with required or desired characteristics to achieve diversity in a study, to complete our clinical studies in a timely manner, or at all. Patient enrollment for clinical trials for ultra-orphan, orphan and niche indications and for more prevalent conditions is affected by factors including:

- severity of the disease under investigation;
- design of the study protocol;
- size of the patient population;
- eligibility criteria for the study in question;
- perceived risks and benefits of the product candidate under study;
- proximity and availability of clinical study sites for prospective patients;
- availability of competing therapies and clinical studies;
- efforts to facilitate timely enrollment in clinical studies; and
- patient referral practices of physicians.

The limited patient populations in ultra-orphan, orphan and niche indications, such as KCNQ2-DEE, SCN8A-DEE, other early infantile epileptic encephalopathies, or EIEEs, alternating hemiplegia of childhood, or AHC, and hemiplegic migraine, or HM, present significant recruitment challenges for clinical trials and a full understanding of the size of these populations is still relatively unknown. Many of these patients may not be suitable or available to participate in our clinical trials. This means that we generally will have to run multi-site and potentially multi-national trials, which can be expensive and require close coordination and supervision. If we experience delays in completing our clinical trials, such delays could result in increased costs, delays in advancing our product development, delays in testing the effectiveness of our product candidates or termination of the clinical studies altogether. Even if we are successful in receiving regulatory approval, the limited patient populations in ultra-orphan, orphan and niche indications may impact the successful commercialization of our product candidates and reimbursement rates, which could impact revenue and our ability to achieve profitability.

***The FDA has not yet approved any drug products specifically for the AHC, KCNQ2-DEE and SCN8A-DEE indications, and the clinical endpoints required to obtain approval are not well defined.***

Given the nature of some of the rare diseases we are seeking to treat, we may have to devise novel clinical endpoints to be tested in our studies, which can lead to some subjectivity in interpreting study results and could result in regulatory agencies not agreeing with the validity of our endpoints, or our interpretation of the clinical data, and therefore denying approval. In post-Phase 1 trials, given the illness of the subjects in our studies and the nature of their rare diseases, we may also be required or choose to conduct certain studies on an open-label basis. Additionally, we may elect to review interim clinical data at multiple time points during the studies, which could introduce bias into the study results, or result in statistical penalties being applied to the data, and potentially result in denial of approval.

***If we fail to obtain or maintain orphan drug designation or other regulatory exclusivity for some of our product candidates, our competitive position would be harmed.***

Although we may file new intellectual property to protect XEN496 and XEN007, these product candidates are not currently covered by any patent and we may have to rely solely on orphan drug designation to gain market exclusivity for these product candidates. Currently, this designation provides market exclusivity in the U.S. and the EU for seven years and ten years, respectively, if a product is the first such product approved for such orphan indication. This market exclusivity does not, however, pertain to indications other than those for which the drug was specifically designated in the approval, nor does it prevent other types of drugs from receiving orphan designations or approvals in these same indications. Further, even after an orphan drug is approved, the FDA can subsequently approve a drug with similar chemical structure for the same condition if the FDA concludes that the new drug is clinically superior to the orphan product or a market shortage occurs.

In the EU, orphan exclusivity may be reduced to six years if the drug no longer satisfies the original designation criteria or can be lost altogether if the marketing authorization holder consents to a second orphan drug application or cannot supply enough drug, or when a second applicant demonstrates its drug is “clinically superior” to the original orphan drug. XEN007, a drug we are evaluating for the potential treatment of HM or AHC, has received orphan drug designation from the FDA for each indication. We have also received orphan drug designation from the FDA for XEN496, a drug we are evaluating for the treatment of KCNQ2-DEE. If we seek orphan drug designations for other indications or in other jurisdictions, we may fail to receive such orphan drug designations and, even if we succeed, such orphan drug designations may fail to result in or maintain orphan drug exclusivity upon approval, which would harm our competitive position. Further, not all jurisdictions, such as Canada, have orphan drug designations. Neither orphan drug designation, nor rare pediatric disease, or RPD, designation gives the drug any advantage in the regulatory review or approval process.

***The FDA has granted RPD designation to XEN007 for treatment of AHC; however, we may not be able to realize any value from such designation.***

Our product candidate XEN007 has received RPD designation from the FDA for the treatment of AHC. The FDA defines a "rare pediatric disease" as a disease that affects fewer than 200,000 individuals in the U.S. primarily under the age of 18 years old. Under the FDA's RPD priority review voucher program, upon the approval of a new drug application, NDA, or a biologics license application, BLA, for the treatment of an RPD, the sponsor of such application would be eligible for a priority review voucher that can be used to obtain priority review for a subsequent NDA or BLA. There is no assurance we will receive a RPD priority review voucher or that use of the priority review voucher will result in a faster review or approval for a subsequent marketing application. Further, this program has been subject to criticism, including by the FDA, and it is possible that even if we obtain approval for XEN007 and qualify for such a priority review voucher, the program may no longer be in effect at the time of XEN007 approval. Also, although priority review vouchers may be freely sold or transferred to third parties, there is no guarantee that we will be able to realize any value if we were to sell a priority review voucher to a third party.

***Results of pre-clinical studies may not be predictive of clinical trial results and results of earlier clinical trials may not be predictive of the results of later-stage clinical trials and the results of our clinical trials may not satisfy the requirements of the FDA, EMA, Health Canada or foreign regulatory authorities.***

The results of pre-clinical studies, either generated by us, such as for XEN901 or XEN402, or by our CROs or by other third parties from which we have in-licensed or acquired a product candidate, such as for XEN1101, may not be predictive of results in clinical testing. Moreover, pre-clinical results can often be difficult to compare across different studies for a variety of reasons, including differences in experimental protocols and techniques, personnel, equipment and other factors, which may make the pre-clinical results less reliable and predictive of clinical trial results. In addition, published clinical data or case reports from third parties or early clinical trial data of our product candidates may not be predictive of the results of later-stage clinical trials. Interpretation of results from early, usually smaller, studies that suggest a clinically meaningful response in some patients, requires caution. Results from later stages of clinical trials enrolling more patients may fail to show the desired safety and efficacy results or otherwise fail to be consistent with the results of earlier trials of the same product candidate. Later clinical trial results may not replicate earlier clinical trials for a variety of reasons, including differences in trial design, different trial endpoints (or lack of trial endpoints in exploratory studies), patient population, number of patients, patient selection criteria, trial duration, drug dosage and formulation and lack of statistical power in the earlier studies. These uncertainties are enhanced where the diseases under study lack established clinical endpoints, validated measures of efficacy, as is often the case with orphan diseases for which no drugs have been developed previously and where the product candidates target novel mechanisms. For example, to our knowledge, XEN901 is the first selective Nav1.6 sodium channel inhibitor being developed for the treatment of epilepsy and therefore standard pre-clinical models may not be predictive of clinical efficacy due to its novel molecular mechanism.

Further, our product candidates may not be approved even if they achieve their primary endpoint in our Phase 3 clinical trials. The FDA, EMA, Health Canada or foreign regulatory authorities may disagree with our trial design and our interpretation of data from pre-clinical studies and clinical trials. In addition, any of these regulatory authorities may change its requirements for the approval of a product candidate even after reviewing and providing comments or advice on a protocol for a pivotal clinical trial that, if successful, would potentially form the basis for an application for approval by the FDA, EMA, Health Canada or another regulatory authority. Furthermore, any of these regulatory authorities may also approve our product candidates for a narrower indication than we request or may grant approval contingent on the performance of costly post-marketing clinical trials.

***Changes in methods of product candidate manufacturing or formulation may result in additional costs or delay.***

As product candidates are developed through pre-clinical to late stage clinical trials towards approval and commercialization, it is common that various aspects of the development program, such as manufacturing methods and formulations, are altered along the way in an effort to optimize products, processes and results, to extend patent protection and/or to target different populations. For example, XEN496 is a pediatric-specific formulation of ezogabine and we have also developed a pediatric formulation for XEN901. Any of these changes could cause our product candidates to perform differently and not provide the same drug exposure profile in children and/or cause side effects different to those observed with formulations previously tested in adults. Unexpected changes in the performance of a new formulation may affect the results of planned clinical trials or other future clinical trials conducted with the altered materials. This could delay completion of clinical trials, require the conduct of bridging clinical trials or the repetition of one or more clinical trials, increase clinical trial costs and/or delay or jeopardize approval of our product candidates and/or jeopardize our or our collaborators' ability to commence product sales and generate revenue.

***Even if we obtain and maintain approval for our product candidates from one jurisdiction, we may never obtain approval for our product candidates in other jurisdictions, which would limit our market opportunities and adversely affect our business.***

Sales of our approved products, if any, will be subject to the regulatory requirements governing marketing approval in the countries in which we obtain regulatory approval, and we plan to seek regulatory approval to commercialize our product candidates in North America, the EU and in additional foreign countries. Clinical trials conducted in one country may not be accepted by regulatory authorities in other countries and regulatory approval in one country does not ensure approval in any other country, while a failure or delay in obtaining regulatory approval in one country may have a negative effect on the regulatory approval process in others. For example, approval in the U.S. by the FDA does not ensure approval by regulatory authorities in other countries or jurisdictions, and approval by one foreign regulatory authority does not ensure approval by the FDA, EMA, Health Canada or regulatory authorities in other countries. Approval procedures vary among jurisdictions and can be lengthy and expensive, and involve requirements and administrative review periods different from, and greater than, those in the U.S., including additional pre-clinical studies or clinical trials. Even if our product candidates are approved, regulatory approval for any product may be withdrawn by the regulatory authorities in a particular jurisdiction.

Even if a product is approved, the FDA, EMA, Health Canada, or another applicable regulatory authority, as the case may be, may limit the indications for which the product may be marketed, require extensive warnings on the product labeling or require expensive and time-consuming clinical trials or reporting as conditions of approval. In many countries outside the U.S., a product candidate must be approved for reimbursement before it can be approved for sale in that country. In some cases, the price that we intend to charge for a product is also subject to approval.

Regulatory authorities in countries outside of the U.S. and the EU also have their own requirements for approval of product candidates with which we must comply prior to marketing in those countries. Obtaining foreign regulatory approvals and compliance with such foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of our current and any future products, in certain countries.

If we fail to receive applicable marketing approvals or comply with the regulatory requirements in international markets, our target market will be reduced and our ability to realize the full market potential of our product candidates will be harmed and our business will be adversely affected.

***We work with outside scientists and their institutions in executing our business strategy of developing product candidates. These scientists may have other commitments or conflicts of interest, which could limit our access to their expertise and harm our ability to develop viable product candidates.***

We work with scientific advisors and collaborators at academic institutions and other research institutions. These scientists and collaborators are not our employees; rather, they serve as either independent contractors or the primary investigators under research collaboration agreements that we have with their sponsoring academic or research institution. Such scientists and collaborators may have other commitments that would limit their availability to us. Although our scientific advisors generally agree not to do competing work, if an actual or potential conflict of interest between their work for us and their work for another entity arises, we may lose their services. It is also possible that some of our valuable proprietary knowledge may become publicly known through these scientific advisors if they breach their confidentiality agreements with us, which would cause competitive harm to our business.

## Risks Related to Commercialization

***If, in the future, we are unable to establish our own sales, marketing and distribution capabilities or enter into licensing or collaboration agreements for these purposes, we may not be successful in independently commercializing any future products.***

We do not have a sales or marketing infrastructure and, as a company, have no sales, marketing or distribution experience. Our strategy involves, in part, building our own commercial infrastructure to selectively commercialize future products in niche or orphan indications in certain commercial markets. If we enter into licensing or collaboration agreements, we may seek to retain the right to participate in the future development and commercialization of such products if we believe such involvement would advance our business.

To develop internal sales, distribution and marketing capabilities, we will have to invest significant amounts of financial and management resources, some of which will need to be committed prior to any confirmation that any of our product candidates will be approved. For any future products for which we decide to perform sales, marketing and distribution functions ourselves, we could face a number of additional risks, including:

- the maintenance of existing or the establishment of new supply arrangements with third-party drug product suppliers and manufacturers;
- the maintenance of existing or the establishment of new scaled production arrangements with third-party manufacturers to obtain finished products that are appropriately packaged for sale;
- a continued acceptable safety profile following any marketing approval;
- our inability to recruit and retain adequate numbers of qualified sales and marketing personnel or develop alternative sales channels;
- the inability of our products to secure acceptance from physicians, healthcare providers, patients, third-party payors and the medical community including identifying an adequate number of physicians and patients, especially for ultra-orphan, orphan or niche indications;
- the lack of complementary products to be offered by sales personnel, which may put us at a competitive disadvantage relative to companies with more extensive product lines;
- unforeseen costs and expenses associated with creating and maintaining an independent sales and marketing organization; and
- our ability to compete with other therapies.

Where and when appropriate, we may elect to utilize contract sales forces or distribution partners to assist in the commercialization of our product candidates. If we enter into arrangements with third parties to perform sales, marketing and distribution services for a product, the resulting revenue or the profitability from this revenue to us is likely to be lower than if we had sold, marketed and distributed that product ourselves. In addition, we may not be successful in entering into arrangements with third parties to sell, market, and distribute our product candidates or may be unable to do so on terms that are favorable to us. We likely will have little control over such third parties, and any of these third parties may fail to devote the necessary resources and attention to sell, market, and distribute our current or any future products effectively.

***Even if we receive regulatory approval to commercialize any of the product candidates that we develop independently, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense.***

Any regulatory approvals that we receive for our product candidates we commercialize will be subject to limitations on the approved indicated uses for which the product may be marketed or subject to certain conditions of approval and may contain requirements for potentially costly post-approval trials, including Phase 4 clinical trials, and surveillance to monitor the safety and efficacy of the marketed product.



For any approved product, we will need to ensure continued compliance with extensive regulations and requirements regarding the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion and recordkeeping for the product. These requirements include submissions of safety and other post-approval information and reports, as well as continued compliance with current good manufacturing practices, or cGMP, and current good clinical practices, or cGCP, for any clinical trials that we or our collaborators are required to conduct post-approval. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with third-party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in, among other things:

- restrictions on the marketing or manufacturing of the product, withdrawal of the product from the market or voluntary or mandatory product recalls;
- fines, warning letters or holds on any post-approval clinical trials;
- refusal by the FDA, EMA, Health Canada or another applicable regulatory authority to approve pending applications or supplements to approved applications filed by us or our collaborators, or suspension or revocation of product license approvals;
- product seizure or detention, or refusal to permit the import or export of products; and
- injunctions or the imposition of civil or criminal penalties.

Occurrence of any of the foregoing could have a material and adverse effect on our business and results of operations.

***If the market opportunities for our product candidates are smaller than we believe they are, our revenue may be adversely affected, and our business may suffer. Because the target patient populations for some of our product candidates are small, we must be able to successfully identify patients and acquire a significant market share to achieve profitability and growth.***

Some of our product candidates focus on treatments for rare and ultra-rare diseases. Given the small number of patients who have some of the diseases that we are targeting, our profitability and growth depend on successfully identifying patients with these rare and ultra-rare diseases. Currently, most reported estimates of the prevalence of these diseases are based on studies of small subsets of the population in specific geographic areas, which are then extrapolated to estimate the prevalence of the diseases in the U.S. or elsewhere. Our projections of both the number of people who have these diseases, as well as the subset of people with these diseases who have the potential to benefit from treatment with our product candidates, are based on our internal estimates. These estimates have been derived from a variety of sources, including scientific literature, surveys of clinics, patient foundations, and market research, and may prove to be incorrect. Further, new studies may change the estimated incidence or prevalence of these diseases, and, as a result, the number of patients with these diseases may turn out to be lower than expected. Our effort to identify patients with diseases we seek to treat is in early stages, and we cannot accurately predict the number of patients for whom treatment might be possible. Additionally, the potentially addressable patient population for each of our product candidates may be limited or may not be amenable to treatment with our product candidates, and new patients may become increasingly difficult to identify or gain access to, which would adversely affect our results of operations and our business. Finally, even if we obtain significant market share for our product candidates, because the potential target populations are very small, we may never achieve profitability despite obtaining such significant market share.

***Even if we or our collaborators receive approval to commercialize our products, unfavorable pricing regulations and challenging third-party coverage and reimbursement practices could harm our business.***

Our or any collaborators' ability to commercialize any products successfully will depend, in part, on the extent to which coverage and reimbursement for these products and related treatments will be available from government healthcare programs, private health insurers, managed care plans, and other organizations. Government authorities and third-party payers, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. A primary trend in the U.S. healthcare industry is cost containment. Government authorities and third-party payers have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third-party payers are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. We cannot be sure that coverage and reimbursement will be available for any product that we or any collaborator commercialize and, if reimbursement is available, the level of reimbursement. In addition, coverage and reimbursement may impact the demand for, or the price of, any product candidate for which we or a collaborator obtains marketing approval. If coverage and reimbursement are not available or reimbursement is available only to limited levels, we or our collaborators may not be able to successfully commercialize any product candidate for which marketing approval is obtained.

There may be significant delays in obtaining coverage and reimbursement for newly approved drugs, and coverage may be more limited than the purposes for which the drug is approved by the FDA, EMA, Health Canada or other regulatory authorities. Moreover, eligibility for coverage and reimbursement does not imply that a drug will be paid for in all cases or at a rate that covers our costs, including research, development, manufacture, sale and distribution expenses. Interim reimbursement levels for new drugs, if applicable, may also be insufficient to cover our and any collaborator's costs and may not be made permanent. Reimbursement rates may vary according to the use of the drug and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost drugs and may be incorporated into existing payments for other services. Net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payers and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the U.S. Third-party payers often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement policies. Our or any collaborator's inability to promptly obtain coverage and profitable payment rates from both government-funded and private payers for any approved products that we or our collaborators develop could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize products and our overall financial condition.

Our target patient populations in orphan and niche indications, such as KCNQ2-DEE, SCN8A-DEE and AHC, are relatively small. In order for therapies that are designed to treat smaller patient populations to be commercially viable, the pricing, coverage and reimbursement for such therapies needs to be higher, on a relative basis, to account for the lack of volume. Accordingly, we will need to implement pricing, coverage and reimbursement strategies for any approved product that accounts for the smaller potential market size. If we are unable to establish or sustain coverage and adequate reimbursement for our current and any future products from third party payers or the government, the adoption of those products and sales revenue will be adversely affected, which, in turn, could adversely affect the ability to market or sell those products.

***Recently enacted and future legislation may increase the difficulty and cost for us to commercialize any products that we or our collaborators develop and affect the prices we may obtain.***

The U.S. and some foreign jurisdictions are considering or have enacted a number of legislative and regulatory proposals to change the healthcare system in ways that could affect our ability to sell any of our products profitably, once such products are approved for sale. Among policy makers and payers in the U.S. and elsewhere, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and/or expanding access. In the U.S., the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives.

For example, in 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, collectively, the PPACA, was enacted and includes measures that have significantly changed, or will significantly change, the way healthcare is financed by both governmental and private insurers. The Trump administration and Congress, through legislation, executive orders and other measures, has taken action to repeal and replace certain provisions of the PPACA. The impact of any such changes on us and the pharmaceutical industry as a whole is currently unknown. In addition, there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for pharmaceutical products. Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. These and other health reform measures that are implemented may have a material adverse effect on our operations.

In the EU, similar political, economic and regulatory developments may affect our ability to profitably commercialize our current or any future products. In addition to continuing pressure on prices and cost containment measures, legislative developments at the EU or member state level may result in significant additional requirements or obstacles that may increase our operating costs. In international markets, reimbursement and healthcare payment systems vary significantly by country, and many countries have instituted price ceilings on specific products and therapies. Our future products, if any, might not be considered medically reasonable and necessary for a specific indication or cost-effective by third-party payers. An adequate level of reimbursement might not be available for such products and third-party payers' reimbursement policies might adversely affect our or our collaborators' ability to sell any future products profitably.

Legislative and regulatory proposals have been made to expand post-approval requirements and restrict sales and promotional activities for pharmaceutical products. We cannot be sure whether additional legislative changes will be enacted, or whether the FDA regulations, guidance or interpretations will be changed, or what the impact of such changes on the marketing approvals of our product candidates, if any, may be. In addition, increased scrutiny by the U.S. Congress of the FDA's approval process may significantly delay or prevent marketing approval, as well as subject us to more stringent product labeling and post-approval testing and other requirements.

We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the U.S. or in other jurisdictions. If we or our collaborators are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we or our collaborators are not able to maintain regulatory compliance, our product candidates may lose any marketing approval that may have been obtained and we may not achieve or sustain profitability, which would adversely affect our business.

***Foreign governments tend to impose strict price controls, which may adversely affect our future profitability.***

In most foreign countries, particularly those in the EU, prescription drug pricing and/or reimbursement is subject to governmental control. In those countries that impose price controls, pricing negotiations with governmental authorities can take considerable time after the receipt of marketing approval for a product. To obtain reimbursement or pricing approval in some countries, we or our collaborators may be required to conduct a clinical trial that compares the cost-effectiveness of our product candidate to other available therapies.

Some countries require approval of the sale price of a drug before it can be marketed. In many countries, the pricing review period begins after marketing or product licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we or our collaborators might obtain marketing approval for a product in a particular country, but then be subject to price regulations that delay commercial launch of the product, possibly for lengthy time periods, and negatively impact the revenue that is generated from the sale of the product in that country. If reimbursement of such products is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, or if there is competition from lower priced cross-border sales, our profitability will be negatively affected.

**Risks Related to Our Dependence on Third Parties**

***Our prospects for successful development and commercialization of our partnered products and product candidates are dependent upon the research, development and marketing efforts of our collaborators.***

We have no control over the resources, time and effort that our collaborators may devote to our programs and limited access to information regarding or resulting from such programs. We are dependent on our collaborators, including Flexion, Genentech and Merck, to fund and conduct the research and any clinical development of product candidates under our agreements with each of them, and for the successful regulatory approval, marketing and commercialization of one or more of such products or product candidates. Such success will be subject to significant uncertainty.

Our ability to recognize revenue from successful collaborations may be impaired by multiple factors including:

- a collaborator may shift its priorities and resources away from our programs due to a change in business strategies, or a merger, acquisition, sale or downsizing of its company or business unit;
- a collaborator may cease development in therapeutic areas which are the subject of our strategic alliances;
- a collaborator may change the success criteria for a particular program or product candidate thereby delaying or ceasing development of such program or candidate;
- a significant delay in initiation of certain development activities by a collaborator will also delay payment of milestones tied to such activities, thereby impacting our ability to fund our own activities;
- a collaborator could develop a product that competes, either directly or indirectly, with our current or future products, if any;
- a collaborator with commercialization obligations may not commit sufficient financial or human resources to the marketing, distribution or sale of a product;
- a collaborator with manufacturing responsibilities may encounter regulatory, resource or quality issues and be unable to meet demand requirements;
- a collaborator may exercise its rights under the agreement to terminate our collaboration;
- a dispute may arise between us and a collaborator concerning the research or development of a product candidate, commercialization of a product or payment of royalties or milestone payments, any of which could result in a delay in milestones, royalty payments or termination of a program and possibly resulting in costly litigation or arbitration which may divert management attention and resources;

- a collaborator may not adequately protect the intellectual property rights associated with a product or product candidate; and
- a collaborator may use our proprietary information or intellectual property in such a way as to invite litigation from a third party.

If our collaborators do not perform in the manner we expect or fulfill their responsibilities in a timely manner, or at all, the clinical development, regulatory approval and commercialization efforts could be delayed, terminated or be commercially unsuccessful. Conflicts between us and our collaborators may arise. In the event of termination of one or more of our collaboration agreements, it may become necessary for us to assume the responsibility of any terminated product or product candidates at our own expense or seek new collaborators. In that event, we would likely be required to limit the size and scope of one or more of our independent programs or increase our expenditures and seek additional funding which may not be available on acceptable terms or at all, and our business would be materially and adversely affected.

***We may not be successful in establishing new collaborations or maintaining our existing alliances, which could adversely affect our ability to develop future product candidates and commercialize future products.***

In the ordinary course, we engage with other biotechnology and pharmaceutical companies to discuss potential in-licensing, out-licensing, alliances and other strategic transactions. We may seek to enter into these types of transactions to enhance and accelerate the development of our future product candidates and the commercialization of any resulting products. We face significant competition in seeking appropriate collaborators and the negotiation process is time-consuming and complex. Moreover, we may not be successful in our efforts to establish other collaborations or other alternative arrangements for any future product candidates because our research and development pipeline may be insufficient, our product candidates may be deemed to be at too early of a stage of development for collaboration effort and/or third parties may view our product candidates as lacking the requisite potential to demonstrate safety and efficacy. Even if we are successful in our efforts to establish collaborations, the terms that we agree upon may not be favorable to us and we may not be able to maintain such collaborations if, for example, development or approval of a product candidate is delayed or sales of an approved product are disappointing.

If any of our existing collaboration agreements is terminated, or if we determine that entering into other product collaborations is in our best interest but we either fail to enter into, delay in entering into or fail to maintain such collaborations:

- the development of certain of our current or future product candidates may be terminated or delayed;
- our cash expenditures related to development of our product candidates would increase significantly and we may need to seek additional financing sooner than expected;
- we may be required to hire additional employees or otherwise develop expertise, such as clinical, regulatory, sales and marketing expertise, which we do not currently have;
- we will bear all of the risk related to the development of any such product candidates; and
- the competitiveness of any product that is commercialized could be reduced.

***We intend to rely on third-party manufacturers to produce our clinical product candidate supplies. Any failure by a third-party manufacturer to produce acceptable supplies for us may delay or impair our ability to initiate or complete our clinical trials or commercialize approved products.***

We do not currently own or operate any manufacturing facilities nor do we have significant in-house manufacturing experience or personnel. We rely on our collaborators to manufacture product candidates licensed to them or work with multiple CMOs to produce sufficient quantities of materials required for the manufacture of our product candidates for pre-clinical testing and clinical trials and intend to do so for the commercial manufacture of our products. If we are unable to arrange for such third-party manufacturing sources, or fail to do so on commercially reasonable terms, we may not be able to successfully produce sufficient supply of product candidate or we may be delayed in doing so. Such failure or substantial delay could materially harm our business.

Reliance on third-party manufacturers entails risks to which we would not be subject if we manufactured product candidates ourselves, including reliance on the third party for regulatory compliance and quality control and assurance, volume production, the possibility of breach of the manufacturing agreement by the third party because of factors beyond our control (including a failure to synthesize and manufacture our product candidates in accordance with our product specifications) and the possibility of termination or nonrenewal of the agreement by the third party at a time that is costly or damaging to us. In addition, the FDA, EMA, Health Canada and other regulatory authorities require that our product candidates be manufactured according to cGMP and similar foreign standards. Pharmaceutical manufacturers and their subcontractors are required to register their facilities and/or products manufactured at the time of submission of the marketing application and then annually thereafter with the FDA, EMA, Health Canada and other regulatory agencies. They are also subject to periodic unannounced inspections by the FDA, EMA, Health Canada and other regulatory agencies. Any subsequent discovery of problems with a product, or a manufacturing or laboratory facility used by us or our collaborators, may result in restrictions on the product or on the manufacturing or laboratory facility, including product recall, suspension of manufacturing, product seizure or a voluntary withdrawal of the drug from the market. Any failure by our third-party manufacturers to comply with cGMP or any failure to deliver sufficient quantities of product candidates in a timely manner, could lead to a delay in, or failure to obtain, regulatory approval of any of our product candidates.

***We rely on third parties to monitor, support, conduct, and/or oversee pre-clinical studies and clinical trials of the product candidates that we are developing independently and, in some cases, to maintain regulatory files for those product candidates. We may not be able to obtain regulatory approval for our product candidates or commercialize any products that may result from our development efforts, if we are not able to maintain or secure agreements with such third parties on acceptable terms, if these third parties do not perform their services as required, or if these third parties fail to timely transfer any regulatory information held by them to us.***

We rely on entities outside of our control, which may include academic institutions, CROs, hospitals, clinics and other third-party collaborators, to monitor, support, conduct and/or oversee pre-clinical and clinical studies of our current and future product candidates. As a result, we have less control over the timing and cost of these studies and the ability to recruit trial subjects than if we conducted these trials with our own personnel.

If we are unable to maintain or enter into agreements with these third parties on acceptable terms, or if any such engagement is terminated prematurely, we may be unable to enroll patients on a timely basis or otherwise conduct our trials in the manner we anticipate. In addition, there is no guarantee that these third parties will devote adequate time and resources to our studies or perform as required by our contract or in accordance with regulatory requirements, including maintenance of clinical trial information regarding our product candidates. If these third parties fail to meet expected deadlines, fail to transfer to us any regulatory information in a timely manner, fail to adhere to protocols or fail to act in accordance with regulatory requirements or our agreements with them, or if they otherwise perform in a substandard manner or in a way that compromises the quality or accuracy of their activities or the data they obtain, then clinical trials of our future product candidates may be extended or delayed with additional costs incurred, or our data may be rejected by the FDA, EMA, Health Canada or other regulatory agencies.

Ultimately, we are responsible for ensuring that each of our clinical trials is conducted in accordance with the applicable protocol, legal, regulatory and scientific standards, and our reliance on third parties does not relieve us of our regulatory responsibilities.

We and our CROs are required to comply with current good laboratory practices, or cGLP, cGCP and cGMP regulations and guidelines enforced by the FDA, Health Canada, the competent authorities of the member states of the European Economic Area and comparable foreign regulatory authorities for products in clinical development. Regulatory authorities enforce these regulations through periodic inspections of clinical trial sponsors, principal investigators, clinical trial sites, manufacturing facilities, nonclinical testing facilities and other contractors. If we or any of our CROs fail to comply with these applicable regulations, the clinical data generated in our nonclinical studies and clinical trials may be deemed unreliable and our submission of marketing applications may be delayed or the FDA, EMA, Health Canada or another regulatory authority may require us to perform additional clinical trials before approving our marketing applications. Upon inspection, the FDA, EMA, Health Canada or another regulatory authority could determine that any of our clinical trials fail or have failed to comply with applicable cGCP regulations. In addition, our clinical trials must be conducted with product produced under the cGMP regulations enforced by the FDA, EMA, Health Canada and other regulatory authorities, and our clinical trials may require a large number of test subjects. Our failure to comply with cGLP, cGCP and cGMP regulations may require us to repeat clinical trials, which would delay the regulatory approval process and increase our costs. Moreover, our business may be implicated if any of our CROs violates federal or state fraud and abuse or false claims laws and regulations or healthcare privacy and security laws.

If any of our clinical trial sites terminates for any reason, we may experience the loss of follow-up information on patients enrolled in our ongoing clinical trials unless we are able to transfer the care of those patients to another qualified clinical trial site. Further, if our relationship with any of our CROs is terminated, we may be unable to enter into arrangements with alternative CROs on commercially reasonable terms, or at all.

Switching or adding CROs or other suppliers can involve substantial cost and require extensive management time and focus. In addition, there is a natural transition period when a new CRO or supplier commences work. As a result, delays may occur, which can materially impact our ability to meet our desired clinical development timelines. If we are required to seek alternative supply arrangements, the resulting delays and potential inability to find a suitable replacement could materially and adversely impact our business.

## **Risks Related to Intellectual Property**

### ***We could be unsuccessful in obtaining or maintaining adequate patent protection for one or more of our products or product candidates.***

Our commercial success will depend, in large part, on our ability to obtain and maintain patent and other intellectual property protection with respect to our product candidates. We evaluate our global patent portfolio in the ordinary course of business to enhance patent protection in areas of our strategic focus and in key markets for our potential products and abandon existing patents or patent applications related to terminated development programs or areas of low strategic importance. Patents might not be issued or granted with respect to our patent applications that are currently pending, and issued or granted patents might later be found to be invalid or unenforceable, be interpreted in a manner that does not adequately protect our current product or any future products, or fail to otherwise provide us with any competitive advantage. The patent position of biotechnology and pharmaceutical companies is generally uncertain because it involves complex legal and factual considerations. The standards applied by the U.S. Patent and Trademark Office, or USPTO, and foreign patent offices in granting patents are not always applied uniformly or predictably. For example, there is no uniform worldwide policy regarding patentable subject matter or the scope of claims allowable in biotechnology and pharmaceutical patents. Consequently, patents may not issue from our pending patent applications. As such, we do not know the degree of future protection that we will have on our proprietary products and technology, if any, and a failure to obtain adequate intellectual property protection with respect to our product candidates and proprietary technology could have a material adverse impact on our business.

Periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on patents and/or applications will be due to be paid to the USPTO and various governmental patent agencies outside of the U.S. in several stages over the lifetime of the patents and/or applications. The USPTO and various non-US governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. We employ reputable law firms and other professionals to help us comply with respect to the patents and patent applications that we own, and we rely upon our licensors or our other collaborators to effect compliance with respect to the patents and patent applications that we license. In many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. However, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, our competitors might be able to enter the market and this circumstance would have a material adverse effect on our business.

### ***Our intellectual property rights will not necessarily provide us with competitive advantages.***

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations, and may not adequately protect our business, or permit us to maintain our competitive advantage.

The following examples are illustrative:

- others may be able to make compounds that are similar to our product candidates but that are not covered by the claims of the patents that we or our collaborators own or have exclusively licensed;
- others may independently develop similar or alternative technologies without infringing our intellectual property rights;
- issued patents that we own or have exclusively licensed may not provide us with any competitive advantages, or may be held invalid or unenforceable, as a result of legal challenges by our competitors;
- we may obtain patents for certain compounds many years before we obtain marketing approval for products containing such compounds, and because patents have a limited life, which may begin to run out prior to the commercial sale of the related product, the commercial value of our patents may be limited;
- our competitors might conduct research and development activities in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we may fail to develop additional proprietary technologies that are patentable;

- the laws of certain foreign countries may not protect our intellectual property rights to the same extent as the laws of the U.S., or we may fail to apply for or obtain adequate intellectual property protection in all the jurisdictions in which we operate; and
- the patents of others may have an adverse effect on our business, for example by preventing us from marketing one or more of our product candidates for one or more indications.

Any of the aforementioned threats to our competitive advantage could have a material adverse effect on our business.

***We may not be able to protect our intellectual property rights throughout the world.***

Filing, prosecuting and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the U.S. can be less extensive than those in the U.S. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the U.S. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the U.S., or from selling or importing products made using our inventions in and into the U.S. or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and further, may export otherwise infringing products to territories where we have patent protection, but enforcement is not as strong as that in the U.S. These products may compete with our current or future products, if any, and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets and other intellectual property protection, particularly those relating to biotechnology products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

***Our patents covering one or more of our products or product candidates could be found invalid or unenforceable if challenged.***

Any of our intellectual property rights could be challenged or invalidated despite measures we take to obtain patent and other intellectual property protection with respect to our product candidates and proprietary technology. For example, if we were to initiate legal proceedings against a third party to enforce a patent covering one of our product candidates, the defendant could counterclaim that our patent is invalid and/or unenforceable. In patent litigation in the U.S. and in some other jurisdictions, defendant counterclaims alleging invalidity and/or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, for example, lack of novelty, obviousness or non-enablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld material information from the USPTO or the applicable foreign counterpart, or made a misleading statement, during prosecution. A litigant or the USPTO itself could challenge our patents on this basis even if we believe that we have conducted our patent prosecution in accordance with the duty of candor and in good faith. The outcome following such a challenge is unpredictable.

With respect to challenges to the validity of our patents, for example, there might be invalidating prior art, of which we and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on a product candidate. Even if a defendant does not prevail on a legal assertion of invalidity and/or unenforceability, our patent claims may be construed in a manner that would limit our ability to enforce such claims against the defendant and others. The cost of defending such a challenge, particularly in a foreign jurisdiction, and any resulting loss of patent protection could have a material adverse impact on one or more of our product candidates and our business.

Enforcing our intellectual property rights against third parties may also cause such third parties to file other counterclaims against us, which could be costly to defend, particularly in a foreign jurisdiction, and could require us to pay substantial damages, cease the sale of certain products or enter into a license agreement and pay royalties (which may not be possible on commercially reasonable terms or at all). Any efforts to enforce our intellectual property rights are also likely to be costly and may divert the efforts of our scientific and management personnel.

***Patent protection and patent prosecution for some of our product candidates is dependent on, and the ability to assert patents and defend them against claims of invalidity is maintained by, third parties.***

There have been and may be times in the future when certain patents that relate to our product candidates or any approved products are controlled by our licensees, licensors or other collaborators. Although we may, under such arrangements, have rights to consult with our collaborators on actions taken as well as back-up rights of prosecution and enforcement, we have in the past and may in the future relinquish rights to prosecute and maintain patents and patent applications within our portfolio as well as the ability to assert such patents against infringers. For example, currently some of the rights relating to the patent portfolio for novel Nav1.7 inhibitors are held by Genentech and the rights to the patent portfolio for XEN402 was sold to Flexion.

If any current or future licensee, licensor or other collaborators with rights to prosecute, assert or defend patents related to our product candidates fails to appropriately prosecute and maintain patent protection for patents covering any of our product candidates, or if patents covering any of our product candidates are asserted against infringers or defended against claims of invalidity or unenforceability in a manner which adversely affects such coverage, our ability to develop and commercialize any such product candidate may be adversely affected and we may not be able to prevent competitors from making, using and selling competing products.

***We may be involved in lawsuits to protect or enforce our patents or the patents of our licensors, which could be expensive, time consuming and unsuccessful.***

Competitors may infringe our patents or the patents of our licensors. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming. In addition, in an infringement proceeding, a court may decide that a patent of ours or one of our licensors is not valid or is unenforceable or may refuse to stop the other party in such infringement proceeding from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated, held unenforceable or interpreted narrowly, and could put any of our patent applications at risk of not yielding an issued patent.

Interference proceedings, derivation proceedings, entitlement proceedings, ex parte reexamination, inter partes reexamination, inter partes review, post-grant review, and opposition proceedings provoked by third parties or brought by the USPTO or any foreign patent authority may be used to challenge inventorship, ownership, claim scope, or validity of our patent applications. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms, if any license is offered at all. Litigation or interference proceedings may fail and, even if successful, may result in substantial costs and distract our management and other employees.

We may not be able to prevent, alone or with our licensors, misappropriation of our trade secrets or confidential information, particularly in countries where the laws may not protect those rights as fully as in the U.S. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the market price of our common shares.

***Claims that our product candidates or the sale or use of our future products infringe the patent or other intellectual property rights of third parties could result in costly litigation or could require substantial time and money to resolve, even if litigation is avoided.***

Our commercial success depends upon our ability to develop product candidates and commercialize products that may be approved in the future, using our proprietary technology without infringing the intellectual property rights of others. Our product or product candidates or any uses of them may now and in the future infringe third-party patents or other intellectual property rights. Third parties might allege that we or our collaborators are infringing their patent rights or that we have misappropriated their trade secrets, or that we are otherwise violating their intellectual property rights, whether with respect to the manner in which we have conducted our research or to the composition, use or manufacture of the compounds we have developed or are developing with our collaborators. Such third parties might resort to litigation against us or other parties we have agreed to indemnify, which litigation could be based on either existing intellectual property or intellectual property that arises in the future.



It is possible that relevant patents or patent applications held by third parties will cover our product candidates at the time of launch and we may also fail to identify, relevant patents or patent applications held by third parties that cover our product candidates. For example, applications filed before November 29, 2000, and certain applications filed after that date that will not be filed outside the U.S. remain confidential until patents issue. Other patent applications in the U.S. and several other jurisdictions are published approximately 18 months after the earliest filing for which priority is claimed, with such earliest filing date being commonly referred to as the priority date. Furthermore, publication of discoveries in the scientific or patent literature often lags behind actual discoveries. Therefore, we cannot be certain that we or our collaborators were the first to invent, or the first to file patent applications on, our product candidates or for their uses, or that our product candidates will not infringe patents that are currently issued or that are issued in the future. In the event that a third party has also filed a patent application covering one of our product candidates or a similar invention, we may have to participate in an adversarial proceeding, known as an interference, declared by the USPTO or its foreign counterpart to determine priority of invention. Additionally, pending patent applications and patents which have been published can, subject to certain limitations, be later amended in a manner that could cover our current or future products, if any, or their use.

Defending against claims of patent infringement, misappropriation of trade secrets or other violations of intellectual property rights could be costly and time consuming, regardless of the outcome. Thus, even if we were to ultimately prevail, or to settle at an early stage, such litigation could burden us with substantial unanticipated costs. In addition, litigation or threatened litigation could result in significant demands on the time and attention of our management team, distracting them from the pursuit of other company business. Claims that our product candidates or the sale or use of our future products infringe, misappropriate or otherwise violate third-party intellectual property rights could therefore have a material adverse impact on our business.

Most of our competitors are larger than we are and have substantially greater financial resources. They are, therefore, likely to be able to sustain the costs of complex intellectual property litigation longer than we could. In addition, the uncertainties associated with litigation could have a material adverse effect on our ability to raise the funds necessary to conduct our clinical trials, continue our internal research programs, in-license needed technology, or enter into strategic collaborations that would help us bring our product candidates to market.

In addition, any future intellectual property litigation, interference or other administrative proceedings will result in additional expense and distraction of our personnel. An adverse outcome in such litigation or proceedings may expose us or any future strategic collaborators to loss of our proprietary position, expose us to significant liabilities, or require us to seek licenses that may not be available on commercially acceptable terms, if at all, each of which could have a material adverse effect on our business.

***Unfavorable outcomes in intellectual property litigation could limit our research and development activities and/or our ability to commercialize certain products.***

If third parties successfully assert their intellectual property rights against us, we might be barred from using certain aspects of our technology or barred from developing and commercializing certain products. Prohibitions against using certain technologies, or prohibitions against commercializing certain products, could be imposed by a court or by a settlement agreement between us and a plaintiff. In addition, if we are unsuccessful in defending against allegations that we have infringed, misappropriated or otherwise violated patent or other intellectual property rights of others, we may be forced to pay substantial damage awards to the plaintiff. There is inevitable uncertainty in intellectual property litigation and we could lose, even if the case against us is weak or flawed. If litigation leads to an outcome unfavorable to us, we may be required to obtain a license from the intellectual property owner in order to continue our research and development programs or to market any resulting product. It is possible that the necessary license will not be available to us on commercially acceptable terms, or at all. Alternatively, we may be required to modify or redesign our current or future products, if any, in order to avoid infringing or otherwise violating third-party intellectual property rights. This may not be technically or commercially feasible, may render those products less competitive, or may delay or prevent the entry of those products to the market. Any of the foregoing could limit our research and development activities, our ability to commercialize one or more product candidates, or both.

In order to avoid or settle potential claims with respect to any patent or other intellectual property rights of third parties, we may choose or be required to seek a license from a third party and be required to pay license fees or royalties or both, which could be substantial. These licenses may not be available on acceptable terms, or at all. Even if we or any future collaborators were able to obtain a license, the rights may be nonexclusive, which could result in our competitors gaining access to the same intellectual property. Ultimately, we could be prevented from commercializing a product, or be forced, by court order or otherwise, to cease some or all aspects of our business operations, if, as a result of actual or threatened patent or other intellectual property claims, we are unable to enter into licenses on acceptable terms. Further, we could be found liable for significant monetary damages as a result of claims of intellectual property infringement. In the future, we may receive offers to license and demands to license from third parties claiming that we are infringing their intellectual property or owe license fees and, even if such claims are without merit, we could fail to successfully avoid or settle such claims.

If Flexion, Genentech, Merck or other collaborators license or otherwise acquire rights to intellectual property controlled by a third party in various circumstances, for example, where a product could not be legally developed or commercialized in a country without the third-party intellectual property right or, where it is decided that it would be useful to acquire such third-party right to develop or commercialize the product, they are eligible under our collaboration agreements to decrease payments payable to us on a product-by-product basis and, in certain cases, on a country-by-country basis. Any of the foregoing events could harm our business significantly.

***If we breach any of the agreements under which we license the use, development and commercialization rights to our product candidates or technology from third parties, we could lose license rights that are important to our business.***

Under our existing license and other agreements, including those associated with our XEN1101 and XEN007 programs, we are subject to various obligations, including diligence obligations such as development and commercialization obligations, as well as potential milestone payments and other obligations. If we fail to comply with any of these obligations or otherwise breach our license agreements, our licensing partners may have the right to terminate the applicable license in whole or in part. Generally, the loss of any one of our current licenses, or any other license we may acquire in the future, could materially harm our business, prospects, financial condition and results of operations.

***Confidentiality agreements with employees and third parties may not prevent unauthorized disclosure of trade secrets and other proprietary information, which would harm our competitive position.***

In addition to patents, we rely on trade secrets, technical know-how and proprietary information concerning our discovery platform, business strategy and product candidates in order to protect our competitive position, which are difficult to protect. In the course of our research and development activities and our business activities, we often rely on confidentiality agreements to protect our proprietary information. Such confidentiality agreements are used, for example, when we talk to vendors of laboratory, manufacturing or clinical development services or potential strategic collaborators. In addition, each of our employees and consultants is required to sign a confidentiality agreement and invention assignment agreement upon joining our company. Our employees, consultants, contractors, business partners or outside scientific collaborators might intentionally or inadvertently disclose our trade secret information in breach of these confidentiality agreements or our trade secrets may otherwise be misappropriated. Our collaborators might also have rights to publish data and we might fail to apply for patent protection prior to such publication. It is possible that a competitor will make use of such information, and that our competitive position will be compromised. In addition, to the extent that our employees, consultants or contractors use intellectual property owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions. Enforcing a claim that a third party illegally obtained and is using any of our trade secrets is expensive and time consuming, and the outcome is unpredictable. In addition, courts outside the U.S. sometimes are less willing than U.S. courts to protect trade secrets. Moreover, our competitors may independently develop equivalent knowledge, methods and know-how. If we cannot maintain the confidentiality of our proprietary technology and other confidential information, then our ability to obtain patent protection or to protect our trade secret information would be jeopardized, which would adversely affect our competitive position.

***Recent court decisions could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents.***

The patent positions of pharmaceutical and biopharmaceutical companies can be highly uncertain and involve complex legal and factual questions for which important legal principles remain unresolved. No consistent policy regarding the breadth of claims allowed in patents in these fields has emerged to date in the United States. There have been recent changes regarding how patent laws are interpreted, and both the U.S. Patent and Trademark Office, or USPTO, and Congress have recently made significant changes to the patent system. There have been U.S. Supreme Court decisions that now show a trend of the Supreme Court which is distinctly negative on some patents. The trend of these decisions along with resulting changes in patentability requirements being implemented by the USPTO could make it increasingly difficult for us to obtain and maintain patents on our products. We cannot accurately predict future changes in the interpretation of patent laws or changes to patent laws which might be enacted into law. Those changes may materially affect our patents, our ability to obtain patents, the costs to prosecute our patent applications and enforce our patents and/or the patents and applications of our collaborators. The patent situation in these fields outside the United States also has uncertainties. Changes in either the patent laws or in interpretations of patent laws in the United States and other countries may diminish the value of our intellectual property or narrow the scope of our patent protection. Accordingly, we cannot predict the breadth of claims that may be allowed or enforced in the patents we own or to which we have a license or third-party patents.

***If we do not obtain protection under the Hatch-Waxman Act and similar legislation outside of the U.S. by extending the patent terms for our product candidates, our business may be materially harmed.***

Depending upon the timing, duration and specifics of FDA marketing approval of our product candidates, if any, one or more U.S. patents may be eligible for limited patent term restoration under the Hatch-Waxman Act. The Hatch-Waxman Act permits a patent restoration term of up to five years as compensation for patent term lost during clinical testing of the product and the subsequent FDA regulatory review process. However, we may not be granted an extension because of, for example, failing to apply within applicable deadlines, failing to apply prior to expiration of relevant patents or otherwise failing to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request.

If we are unable to obtain patent term extension or restoration or the term of any such extension is less than we request, the period during which we will have the right to exclusively market our product will be shortened and our competitors may obtain approval of competing products following our patent expiration, and our revenue could be reduced, possibly materially.

***We have not registered our corporate name as a trademark in all of our potential markets, and failure to secure those registrations could adversely affect our business.***

Our corporate name, Xenon, has not been trademarked in each market where we operate and plan to operate. Our trademark applications for our corporate name or the name of our products may not be allowed for registration, and our registered trademarks may not be maintained or enforced. During trademark registration proceedings, we may receive rejections, which we may be unable to overcome in our responses. Third parties may also attempt to register trademarks utilizing the Xenon name on their products, and we may not be successful in preventing such usage. In addition, in the USPTO and in comparable agencies in many foreign jurisdictions, third parties are given an opportunity to oppose pending trademark applications and to seek to cancel registered trademarks. Opposition or cancellation proceedings may be filed against our trademarks, and our trademarks may not survive such proceedings. If we do not secure registrations for our trademarks, we may encounter more difficulty in enforcing them against third parties than we otherwise would.

***Intellectual property litigation may lead to unfavorable publicity that harms our reputation and causes the market price of our common shares to decline.***

During the course of any intellectual property litigation, there could be public announcements of the initiation of the litigation as well as results of hearings, rulings on motions, and other interim proceedings in the litigation. If securities analysts or investors regard these announcements as negative, the perceived value of our existing products, programs or intellectual property could be diminished. Accordingly, the market price of our common shares may decline. Such announcements could also harm our reputation or the market for our future products, which could have a material adverse effect on our business.

## **Risks Related to Our Industry**

***If product liability lawsuits are brought against us, we may incur substantial liabilities and may be required to limit commercialization of our current and any future products.***

We face an inherent risk of product liability as a result of the clinical testing of our product candidates, and we will face an even greater risk if we commercialize any product candidates. For example, we may be sued if any of our product candidates, including any that are developed in combination with other therapies, allegedly causes injury or is found to be otherwise unsuitable during product testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, negligence, strict liability and a breach of warranties. Claims could also be asserted under state consumer protection acts. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our product candidates. Even successful defense would require significant financial and management resources. There is also risk that third parties we have agreed to indemnify could incur liability. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for our product candidates or any resulting products;
- injury to our reputation;
- withdrawal of clinical trial participants;
- costs to defend the related litigation;
- a diversion of management's time and our resources;
- substantial monetary awards to trial participants or patients;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;

- loss of revenue;
- the inability to commercialize our product candidates; and
- a decline in the market price of our common shares.

We currently carry product liability insurance of \$10,000,000 per occurrence and \$10,000,000 aggregate limit. We believe our product liability insurance coverage is appropriate relative to our current clinical programs; however, we may not be able to maintain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses due to liability. If and when we obtain marketing approval for product candidates, we intend to expand our insurance coverage to include the sale of commercial products; however, we may then be unable to obtain product liability insurance on commercially reasonable terms or in adequate amounts. On occasion, large judgments have been awarded in class action lawsuits based on drugs or medical treatments that had unanticipated adverse effects. A successful product liability claim or series of claims brought against us could cause the market price of our common shares to decline and, if judgments exceed our insurance coverage, could adversely affect our future results of operations and business.

Patients with certain of the diseases targeted by our product candidates are often already in severe and advanced stages of disease and have both known and unknown significant pre-existing and potentially life-threatening conditions. During the course of treatment, patients may suffer adverse events, including death, for reasons that may be related to our product candidates. Such events could subject us to costly litigation, require us to pay substantial amounts of money to injured patients, delay, negatively impact or end our opportunity to receive or maintain regulatory approval to market those product candidates, or require us to suspend or abandon our commercialization efforts. Even in a circumstance in which we do not believe that an adverse event is related to our products, the investigation into the circumstance may be time-consuming or inconclusive. These investigations may interrupt our sales efforts, delay our regulatory approval process in other countries, or impact and limit the type of regulatory approvals our product candidates receive or maintain. As a result of these factors, a product liability claim, even if successfully defended, could have a material adverse effect on our business, financial condition or results of operations.

***Our current and future operations in the U.S. and elsewhere will be subject, directly or indirectly, to applicable federal and state anti-kickback, fraud and abuse, false claims, transparency, health information privacy and security, and other healthcare laws and regulations, which could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm, administrative burdens, and diminished profits and future earnings.***

Healthcare providers, physicians and third-party payers in the U.S. and elsewhere play a primary role in the recommendation and prescription of any product candidates for which we obtain marketing approval. Our current arrangements with health care providers and our future arrangements with third-party payers and customers may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations, including, without limitation, the federal Anti-Kickback Statute and the federal False Claims Act, that may constrain the business or financial arrangements and relationships through which we market, sell and distribute any products for which we obtain marketing approval. In addition, we may be subject to transparency laws and patient privacy regulation by the federal government and by the U.S. states and foreign jurisdictions in which we conduct our business. The applicable federal, state and foreign healthcare laws and regulations that may affect our ability to operate include the following:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, order or recommendation of, any good or service for which payment may be made under federal and state healthcare programs such as Medicare and Medicaid;
- federal civil and criminal false claims laws and civil monetary penalty laws, including the federal False Claims Act, which impose criminal and civil penalties, including civil whistleblower or qui tam actions, against individuals or entities for knowingly presenting, or causing to be presented, to the federal government, including the Medicare and Medicaid programs, or other third-party payers claims for payment that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government;
- HIPAA, which imposes criminal and civil liability for executing a scheme to defraud any healthcare benefit program and making false statements relating to healthcare matters;
- the federal Open Payments program; and

- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, which may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payers, including private insurers; state and foreign laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government or otherwise restrict payments that may be made to healthcare providers; state and foreign laws that require drug manufacturers to report information related to payments to physicians and other healthcare providers or marketing expenditures; state and local laws requiring the registration of pharmaceutical sales representatives; and state and foreign laws governing the collection, export, privacy, use and security of biological materials and health information in certain circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations may involve substantial costs. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, including, without limitation, damages, fines, imprisonment, exclusion from participation in government healthcare programs, such as Medicare and Medicaid, integrity oversight and reporting obligations, and the curtailment or restructuring of our operations, which could have a material adverse effect on our business. If any of the physicians or other providers or entities with whom we expect to do business, including our collaborators, is found not to be in compliance with applicable laws, it may be subject to criminal, civil or administrative sanctions, including exclusions from participation in government healthcare programs, which could also materially affect our business.

***If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on the success of our business.***

Our research and development activities involve the controlled use of potentially harmful biological materials as well as hazardous materials, chemicals, and various radioactive compounds typically employed in molecular and cellular biology. For example, we routinely use cells in culture and we employ small amounts of radioisotopes. We cannot completely eliminate the risk of accidental contamination or injury from the use, storage, handling, or disposal of these materials through our maintenance of up-to-date licensing and training programs. In the event of contamination or injury, we could be held liable for damages that result, and any liability could exceed our resources. We currently carry insurance covering certain claims arising from our use of these materials. However, if we are unable to maintain our insurance coverage at a reasonable cost and with adequate coverage, our insurance may not cover any liability that may arise. We are subject to Canadian federal, provincial, and local, and may be subject to U.S. and/or foreign, laws and regulations governing the use, storage, handling, and disposal of these materials and specified waste products. Complying with regulations regarding the use of these materials could be costly, and if we fail to comply with these regulations, it could have a material adverse effect on our operations and profitability.

***We or the third parties upon whom we depend may be adversely affected by earthquakes or other natural disasters and our business continuity and disaster recovery plans may not adequately protect us from serious disaster.***

Our headquarters are located in Burnaby, British Columbia, Canada. We are vulnerable to natural disasters such as earthquakes that could disrupt our operations. If a natural disaster, power outage, fire or other event occurred that prevented us from using all or a significant portion of our headquarters, that damaged critical infrastructure, such as the manufacturing facilities of our CMOs, or that otherwise disrupted operations, it may be difficult or, in certain cases, impossible for us to continue our business for a substantial period of time. Although we carry insurance for earthquakes and other natural disasters, we may not carry sufficient business interruption insurance to compensate us for all losses that may occur. The disaster recovery and business continuity plans we have in place may not be adequate in the event of a serious disaster or similar event. We may incur substantial expenses as a result of a natural disaster or earthquake, which could have a material adverse effect on our business. In addition, we may lose samples or other valuable data. The occurrence of any of the foregoing could have a material adverse effect on our business.

#### **Risks Related to the Securities Markets and Ownership of Our Common Shares**

***The market price of our common shares may be volatile, and purchasers of our common shares could incur substantial losses.***

The market price of our common shares has fluctuated in the past and is likely to be volatile in the future. As a result of this volatility, investors may experience losses on their investment in our common shares. The market price for our common shares may be influenced by many factors, including the following:

- announcements by us or our competitors of new products, product candidates or new uses for existing products, significant contracts, commercial relationships or capital commitments and the timing of these introductions or announcements;

- actions by any of our collaborators regarding our product candidates they are developing, including announcements regarding clinical or regulatory decisions or developments of our collaboration;
- unanticipated serious safety concerns related to the use of any of our products and product candidates;
- results from or delays of clinical trials of our product candidates;
- failure to obtain or delays in obtaining or maintaining product approvals or clearances from regulatory authorities;
- adverse regulatory or reimbursement announcements;
- announcements by us or our competitors of significant acquisitions, strategic collaborations, licenses, joint ventures or capital commitments;
- the results of our efforts to discover or develop additional product candidates;
- our dependence on third parties, including our collaborators, CROs, clinical trial sponsors and clinical investigators;
- regulatory or legal developments in Canada, the U.S. or other countries;
- developments or disputes concerning patent applications, issued patents or other proprietary rights;
- the recruitment or departure of key scientific or management personnel;
- our ability to successfully commercialize our future product candidates we develop independently, if approved;
- the level of expenses related to any of our product candidates or clinical development programs;
- actual or anticipated changes in estimates as to financial results, development timelines or recommendations by securities analysts;
- actual or anticipated quarterly variations in our financial results or those of our competitors;
- any change to the composition of the board of directors or key personnel;
- sales of common shares by us or our shareholders in the future, as well as the overall trading volume of our common shares;
- failure to comply with covenants or make required payments under loan agreements;
- changes in the structure of healthcare payment systems;
- commencement of, or our involvement in, litigation;
- general economic, industry and market conditions in the pharmaceutical and biotechnology sectors and other factors that may be unrelated to our operating performance or the operating performance of our competitors, including changes in market valuations of similar companies; and
- the other factors described in this “Risk Factors” section.

In addition, the stock market in general, and Nasdaq and the biopharmaceutical industry in particular, have from time to time experienced volatility that often has been unrelated to the operating performance of the underlying companies. These broad market and industry fluctuations may adversely affect the market price of our common shares, regardless of our operating performance. In several recent situations where the market price of a stock has been volatile, holders of that stock have instituted securities class action litigation against the company that issued the stock. If any of our shareholders were to bring a lawsuit against us, the defense and disposition of the lawsuit could be costly and divert the time and attention of our management and harm our operating results.

***Future sales of our common shares in the public market could cause the market price of our common shares to fall.***

The market price of our common shares could decline as a result of sales of a large number of our common shares or the perception that these sales could occur. These sales, or the possibility that these sales may occur, also might make it more difficult for us to sell equity securities in the future at a time and at a price that we deem appropriate.

In addition, in the future, we may issue additional common shares, preferred shares, or other equity or debt securities convertible into common shares in connection with a financing, acquisition, litigation settlement, employee arrangements or otherwise. Any such issuance, including any issuances pursuant to our “at-the-market” equity offering program under our Sales Agreement with Jefferies and Stifel, could result in substantial dilution to our existing shareholders and could cause the market price of our common shares to decline.

***Provisions in our corporate charter documents and Canadian law could make an acquisition of us, which may be beneficial to our shareholders, more difficult and may prevent attempts by our shareholders to replace or remove our current management and/or limit the market price of our common shares.***

Provisions in our articles and our by-laws, as well as certain provisions under the Canada Business Corporations Act, or CBCA, and applicable Canadian securities laws, may discourage, delay or prevent a merger, acquisition, tender offer or other change in control of us that shareholders may consider favorable, including transactions in which they might otherwise receive a premium for their common shares. These provisions could also limit the price that investors might be willing to pay in the future for our common shares, thereby depressing the market price of our common shares. In addition, because our board of directors is responsible for appointing the members of our management team, these provisions may frustrate or prevent any attempts by our shareholders to replace or remove our current management by making it more difficult for shareholders to replace members of our board of directors. Among other things, these provisions include the following:

- shareholders cannot amend our articles unless such amendment is approved by shareholders holding at least two-thirds of the shares entitled to vote on such approval;
- shareholders must give advance notice to nominate directors or to submit proposals for consideration at shareholders' meetings; and
- applicable Canadian securities laws generally require, subject to certain exceptions, a tender offer to remain open for 105 days and that more than 50% of the outstanding securities not owned by the offeror be tendered before the offeror may take up the securities.

Any provision in our articles, by-laws, under the CBCA or under any applicable Canadian securities law that has the effect of delaying or deterring a change in control could limit the opportunity for our shareholders to receive a premium for their common shares, and could also affect the price that some investors are willing to pay for our common shares.

***U.S. civil liabilities may not be enforceable against us, our directors, or our officers.***

We are governed by the CBCA and our principal place of business is in Canada. Many of our directors and officers reside outside of the U.S., and all or a substantial portion of their assets as well as all or a substantial portion of our assets are located outside the U.S. As a result, it may be difficult for investors to effect service of process within the U.S. upon us and certain of our directors and officers or to enforce judgments obtained against us or such persons, in U.S. courts, in any action, including actions predicated upon the civil liability provisions of U.S. federal securities laws or any other laws of the U.S. Additionally, rights predicated solely upon civil liability provisions of U.S. federal securities laws or any other laws of the U.S. may not be enforceable in original actions, or actions to enforce judgments obtained in U.S. courts, brought in Canadian courts, including courts in the Province of British Columbia.

***We are governed by the corporate and securities laws of Canada which in some cases have a different effect on shareholders than the corporate laws of Delaware, U.S. and U.S. securities laws.***

We are governed by the CBCA and other relevant laws, which may affect the rights of shareholders differently than those of a company governed by the laws of a U.S. jurisdiction, and may, together with our charter documents, have the effect of delaying, deferring or discouraging another party from acquiring control of our company by means of a tender offer, a proxy contest or otherwise, or may affect the price an acquiring party would be willing to offer in such an instance. The material differences between the CBCA and Delaware General Corporation Law, or DGCL, that may have the greatest such effect include, but are not limited to, the following: (i) for material corporate transactions (such as mergers and amalgamations, other extraordinary corporate transactions or amendments to our articles) the CBCA generally requires a two-thirds majority vote by shareholders, whereas DGCL generally only requires a majority vote; and (ii) under the CBCA holders of 5% or more of our shares that carry the right to vote at a meeting of shareholders can requisition a special meeting of shareholders, whereas such right does not exist under the DGCL.

***An active trading market for our common shares may not be maintained.***

Our common shares are currently traded on Nasdaq, but we can provide no assurance that we will be able to maintain an active trading market on Nasdaq or any other exchange in the future. If an active market for our common shares is not maintained, it may be difficult for our shareholders to sell the common shares they have purchased without depressing the market price for the common shares or at all. Further, an inactive market may also impair our ability to raise capital by selling additional common shares and may impair our ability to enter into strategic collaborations or acquire companies or products by using our common shares as consideration.

***We are an emerging growth company and a smaller reporting company, and any decision on our part to comply only with certain reduced reporting and disclosure requirements applicable to such companies could make our common shares less attractive to investors.***

We are an “emerging growth company,” as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act and a “smaller reporting company,” as defined under the Securities Exchange Act of 1934, as amended, or the Exchange Act. For as long as we continue to be an emerging growth company or smaller reporting company, we may choose to take advantage of exemptions from various reporting requirements applicable to other public companies that are not emerging growth companies or smaller reporting companies, including, but not limited to, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and shareholder approval of any golden parachute payments not previously approved.

As an emerging growth company, the JOBS Act allows us to delay adoption of new or revised accounting pronouncements applicable to public companies until such pronouncements are made applicable to private companies. However, we previously decided to “opt out” of such extended transition period, and as a result, we will comply with new or revised accounting standards on the relevant dates on which adoption of such standards is required for non-emerging growth companies. Section 107 of the JOBS Act provides that our decision to opt out of the extended transition period for complying with new or revised accounting standards is irrevocable. In addition, as a smaller reporting company, we are only required to include two years of audited financial statements in our annual reports and, as an emerging growth company, we are not required to have our independent registered public accounting firm audit our internal control over financial reporting under Section 404 of the Sarbanes-Oxley Act.

We expect to lose our status as an emerging growth company on December 31, 2019. We will remain a smaller reporting company so long as, as of June 30 of the preceding year, (i) the market value of our common shares held by non-affiliates, or our public float, is less than \$250 million; or (ii) we have annual revenues less than \$100 million and either we have no public float or our public float is less than \$700 million.

Investors could find our common shares less attractive if we choose to rely on these disclosure exemptions. If some investors find our common shares less attractive as a result of any choices to reduce future disclosure, there may be a less active trading market for our common shares and the market price of our common shares may be more volatile.

***Effective December 31, 2019, we expect to no longer be an emerging growth company which will increase our costs and demands on management and could harm our operating results and our ability to accurately report our financial condition, results of operations or cash flows, which may adversely affect investor confidence in us and, as a result, the value of our common shares.***

As an emerging growth company, we have availed ourselves of the exemption from the requirement that our independent registered public accounting firm attest to the effectiveness of our internal control over financial reporting under Section 404. However, we may no longer avail ourselves of this exemption when we cease to be an emerging growth company, which we expect to occur on December 31, 2019.

When our independent registered public accounting firm is required to undertake an assessment of our internal control over financial reporting, the cost of our compliance with Section 404 will correspondingly increase. We expect to incur significant expense and devote substantial management effort toward ensuring compliance with Section 404 in preparation for and once we lose our status as an emerging growth company. We currently do not have an internal audit group, and we will need to continue to hire additional accounting and financial staff with appropriate public company experience and technical accounting knowledge, and it may be difficult to recruit and maintain such personnel. Implementing any appropriate changes to our internal control over financial reporting may require specific compliance training for our directors, officers and employees and take a significant period of time to complete. Such changes may not, however, be effective in maintaining the adequacy of our internal control over financial reporting, and any failure to maintain that adequacy, or consequent inability to produce accurate financial statements or other reports on a timely basis, could increase our operating costs and could materially impair our ability to operate our business.

***If we fail to maintain an effective system of internal control over financial reporting, we may not be able to accurately report our financial results or prevent fraud. As a result, shareholders could lose confidence in our financial and other public reporting, which would harm our business and the market price of our common shares.***

Effective internal control over financial reporting is necessary for us to provide reliable financial reports and, together with adequate disclosure controls and procedures, are designed to prevent fraud. Any failure to implement required new or improved controls, or difficulties encountered in their implementation could cause us to fail to meet our reporting obligations.



We are required to disclose changes made in our internal controls and procedures on a quarterly basis and our management is required to assess the effectiveness of these controls annually. We have thus far elected to take advantage of certain exceptions from reporting requirements that are available to emerging growth companies under the JOBS Act and therefore have not previously delivered an auditor's attestation report on the effectiveness of our internal control over financial reporting pursuant to Section 404. Had our independent registered public accounting firm performed such an evaluation, control deficiencies may have been identified, and those control deficiencies could have also represented one or more material weaknesses. Undetected material weaknesses in our internal controls could lead to financial statement restatements and require us to incur the expense of remediation.

We no longer expect to qualify as an emerging growth company on December 31, 2019, requiring our independent registered public accounting firm to undertake an assessment of our internal control over financial reporting pursuant to Section 404. An independent assessment of the effectiveness of our internal controls could detect problems that our management's assessment might not. Going forward, even if our management concludes that our internal control over financial reporting is effective, our independent registered public accounting firm may conclude that there are material weaknesses or significant deficiencies with respect to our internal controls or the level at which our internal controls are documented, designed, implemented or reviewed. If we or our independent registered public accounting firm identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses or that may require prospective or retroactive changes to our financial statements, investors may lose confidence in our reported financial information, which could cause the market price of our common shares to decline and we could be subject to sanctions or investigations by the SEC or other regulatory authorities, which would require additional financial and management resources. Irrespective of compliance with Section 404, any failure of our internal control over financial reporting could have a material adverse effect on our stated operating results and harm our reputation.

***Future sales and issuances of our common shares, preferred shares, or rights to purchase common shares, including warrants or pursuant to our equity incentive plans, could cause you to incur dilution and could cause the market price of our common shares to fall.***

As of September 30, 2019, stock options to purchase 3,651,919 of our common shares with a weighted-average exercise price of \$7.84 per common share were outstanding, a warrant to purchase 40,000 of our common shares with a weighted-average exercise price of \$9.79 per common share was outstanding, and 1,016,000 of our Series 1 Preferred Shares were outstanding, which are convertible into our common shares on a one-for-one basis at the option of the holder, subject to certain ownership limitations following a requested conversion. During the year ended December 31, 2018, certain funds affiliated with BVF Partners L.P. exercised their conversion rights to convert 1,852,000 Series 1 Preferred Shares into the same number of common shares. The exercise of any of these stock options or warrant or conversion of the remaining Series 1 Preferred Shares would result in dilution to current shareholders. Further, because we anticipate the need to raise additional capital to fund our clinical development programs, we may in the future sell substantial amounts of common shares, preferred shares, or other securities convertible into or exchangeable for common shares. Pursuant to our equity incentive plans, our compensation committee (or a subset or delegate thereof) is authorized to grant equity-based incentive awards to our employees, directors and consultants. Future stock option grants and issuances of common shares under our share-based compensation plans may have an adverse effect on the market price of our common shares.

Any future issuances of common shares, preferred shares, or securities such as warrants, notes, or preferred shares that are convertible into, exercisable or exchangeable for, our common shares, would have a dilutive effect on the voting and economic interests of our existing shareholders.

***We are at risk of securities class action litigation.***

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because biotechnology companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management's attention and resources, which could harm our business.

***Nasdaq may delist our securities from its exchange, which could limit investors' ability to make transactions in our securities and subject us to additional trading restrictions.***

Our common shares are listed on Nasdaq under the trading symbol "XENE." Our securities may fail to meet the continued listing requirements to be listed on Nasdaq. If Nasdaq delists our common shares from trading on its exchange, we could face significant material adverse consequences, including:

- significant impairment of the liquidity for our common shares, which may substantially decrease the market price of our common shares;
- a limited availability of market quotations for our securities;

- a determination that our common shares qualify as a “penny stock” which will require brokers trading in our common shares to adhere to more stringent rules and possibly resulting in a reduced level of trading activity in the secondary trading market for our common shares;
- a limited amount of news and analyst coverage for our company; and
- a decreased ability to issue additional securities or obtain additional financing in the future.

***If securities or industry analysts do not publish research reports about our business, or if they issue an adverse opinion about our business, the market price of our common shares and the trading volume of our common shares could decline.***

The trading market for our common shares is influenced by the research and reports that securities or industry analysts publish about us or our business. If too few securities or industry analysts cover our company, the market price of our common shares would likely be negatively impacted. If securities and industry analysts who cover us downgrade our common shares or publish inaccurate or unfavorable research about our business, the market price of our common shares would likely decline. If one or more of these analysts cease coverage of our company or fail to publish reports on us regularly, demand for our common shares could decrease, which might cause the market price of our common shares and the trading volume of our common shares to decline.

***Our management team has broad discretion as to the use of the net proceeds from ongoing and previous public and private equity and debt financings and the investment of these proceeds may not yield a favorable return. We may invest the proceeds in ways with which our shareholders disagree.***

We have broad discretion in the application of any net proceeds we receive pursuant to our ongoing “at-the-market” equity offering program with Jefferies and Stifel as well as the net proceeds to us from previous equity and debt financings, including the net proceeds we received pursuant to our 2018 “at-the-market” equity offering programs, the net proceeds from our August 2018 amended and restated loan and security agreement, pursuant to which we have borrowed an aggregate of \$15.5 million of principal and the net proceeds from our September 2018 public offering of common shares. You may not agree with our decisions, and our use of the proceeds and our existing cash and cash equivalents and marketable securities may not improve our results of operation or enhance the value of our common shares. Our failure to apply these funds effectively could have a material adverse effect on our business, delay the development of our product candidates and cause the market price of our common shares to decline. In addition, until the net proceeds are used, they may be placed in investments that do not produce significant income or that may lose value.

***We do not anticipate paying any cash dividends on our common shares in the foreseeable future.***

We do not currently intend to pay any cash dividends on our common shares in the foreseeable future. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. In addition, the terms of any future debt agreements may preclude us from paying dividends. As a result, capital appreciation, if any, of our common shares may be investors’ sole source of gain for the foreseeable future.

#### **Risks Related to this Offering**

***If you purchase common shares sold in this offering, you will experience immediate and substantial dilution in the net tangible book value of your common shares.***

The price per common share being offered may be higher than the net tangible book value per share of our outstanding common shares prior to this offering. Assuming that an aggregate of 5,543,237 of our common shares are sold at an assumed offering price of \$9.02 per common share, the last reported sale price of our common shares on the Nasdaq Global Market on November 4, 2019, for aggregate gross proceeds of approximately \$50.0 million, and after deducting commissions and estimated offering expenses payable by us, new investors in this offering will incur immediate dilution of \$5.22 per common share. For a more detailed discussion of the foregoing, see the section entitled “Dilution” below.

***We will have broad discretion over the use of the net proceeds from this offering.***

We will have broad discretion to use the net proceeds from the sale of Shares in this offering, and investors in our common shares will be relying on the judgment of our board of directors and management regarding the application of these proceeds. Although we intend to use the net proceeds from this offering to progress our clinical development programs and for other general corporate purposes, we have not allocated these net proceeds for specific purposes. Investors will not have the opportunity, as part of their investment decision, to assess whether the proceeds are being used appropriately. Our use of the proceeds may not improve our operating results or increase the value of the securities being offered hereby.

## USE OF PROCEEDS

We intend to use the net proceeds from the sale of Shares offered by this prospectus, together with other available funds, to progress our clinical development programs and for other general corporate purposes.

We have not specifically identified the precise amounts we will spend on particular areas or the timing of these expenditures. The amounts actually expended for each purpose may vary significantly depending upon numerous factors, including the amount and timing of the proceeds from the sale of Shares offered by this prospectus, the progress of our clinical trials and other product development activities. In addition, expenditures may also depend on the establishment of new collaborative arrangements with other partners, the availability of other financing and other factors.

We anticipate that we will be required to raise substantial additional capital to continue to fund the clinical development of our drug candidates. We expect to seek to raise additional capital through additional public or private financings, principally through equity issuances.

## DILUTION

If you invest in our common shares, your interest will be diluted immediately to the extent of the difference between the public offering price per common share you will pay in this offering and the as adjusted net tangible book value per common share after this offering. Net tangible book value per common share represents our total tangible assets less total liabilities, divided by the number of common shares outstanding, as adjusted to reflect the assumed conversion of our outstanding Series 1 Preferred Shares as discussed below.

As of September 30, 2019, our net tangible book value was \$74.6 million, or \$2.77 per common share. After giving effect to the sale of our common shares in the aggregate amount of \$50.0 million at an assumed offering price of \$9.02 per common share, the last reported sale price of our common shares on November 4, 2019 on the Nasdaq Global Market, and after deducting estimated commissions and estimated offering expenses, our as adjusted net tangible book value as of September 30, 2019 would have been approximately \$123.1 million or approximately \$3.80 per common share. This represents an immediate increase in the net tangible book value of \$1.03 per common share to existing shareholders and an immediate dilution of \$5.22 per common share to new investors purchasing common shares in this offering.

The following table illustrates this per common share dilution to the new investors purchasing common shares in this offering:

Assumed public offering price per common share		\$9.02
Net tangible book value per common share at September 30, 2019	\$2.77	
Increase in net tangible book value per common share attributable to new investors purchasing common shares in this offering	<u>1.03</u>	
As adjusted net tangible book value per common share after this offering	\$3.80	
Dilution per common share to new investors in this offering		\$5.22

The table above assumes for illustrative purposes an aggregate of 5,543,237 of our common shares are sold at a price of \$9.02 per common share, for aggregate gross proceeds of \$50.0 million. The common shares, if any, sold in this offering will be sold from time to time at various prices. An increase of \$1.00 per common share in the price at which the common shares are sold from the assumed offering price of \$9.02 per common share shown in the table above, assuming all of our common shares in the aggregate amount of \$50.0 million are sold at that price, would increase our adjusted net tangible book value per common share after the offering to \$3.86 per common share and would increase the dilution in net tangible book value per common share to new investors in this offering to \$6.16 per common share, after deducting estimated commissions and estimated offering expenses. A decrease of \$1.00 per common share in the price at which the common shares are sold from the assumed offering price of \$9.02 per common share shown in the table above, assuming all of our common shares in the aggregate amount of \$50.0 million are sold at that price, would decrease our adjusted net tangible book value per common share after the offering to \$3.72 per common share and would decrease the dilution in net tangible book value per common share to new investors in this offering to \$4.30 per common share, after deducting estimated commissions and estimated offering expenses. This information is supplied for illustrative purposes only.

The foregoing table and calculations are based on 26,884,594 common shares outstanding as of September 30, 2019, which number includes 1,016,000 common shares issuable upon the conversion of 1,016,000 of our Series 1 Preferred Shares outstanding as of September 30, 2019, and excludes:

- 3,651,919 common shares issuable upon the exercise of stock options to purchase common shares as of September 30, 2019, at a weighted average exercise price of \$7.84 per common share;
- 40,000 common shares issuable upon the exercise of a warrant as of September 30, 2019, at a weighted-average exercise price of \$9.79 per common share;
- 65,328 common shares reserved for future issuance under our 2014 Equity Incentive Plan, as amended, as of September 30, 2019; and
- 244,750 common shares reserved for future issuance under our 2019 Inducement Equity Incentive Plan, as of September 30, 2019.

To the extent the stock options, warrant or rights outstanding as of September 30, 2019 have been or are exercised, or other common shares are issued, investors purchasing common shares in this offering could experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations, even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our shareholders.

## MARKET PRICE AND DIVIDEND INFORMATION

Our common shares are currently listed on the Nasdaq Global Market under the symbol “XENE.” As of November 4, 2019, we had 25,868,956 common shares outstanding, held by approximately 147 holders of record and 1,016,000 Series 1 Preferred Shares outstanding, held by 4 holders of record.

The following table sets forth the quarterly high and low sales prices of our common shares on the Nasdaq Global Market, for the periods indicated. Our Series 1 Preferred Shares are not listed on any exchange. Each Series 1 Preferred Share is convertible into one common share at any time at the holder’s option without payment of any additional consideration, subject to certain limitations.

	Share Prices	
	High	Low
<b>Year Ending December 31, 2019</b>		
First Quarter	\$ 9.43	\$ 6.17
Second Quarter	\$ 11.34	\$ 8.22
Third Quarter	\$ 10.90	\$ 8.62
Fourth Quarter (through November 4, 2019)	\$ 9.24	\$ 7.88
<b>Year Ended December 31, 2018</b>		
First Quarter	\$ 5.05	\$ 2.70
Second Quarter	\$ 11.00	\$ 4.50
Third Quarter	\$ 15.92	\$ 8.85
Fourth Quarter	\$ 13.49	\$ 5.41
<b>Year Ended December 31, 2017</b>		
First Quarter	\$ 9.95	\$ 3.95
Second Quarter	\$ 4.45	\$ 2.85
Third Quarter	\$ 3.50	\$ 2.25
Fourth Quarter	\$ 3.50	\$ 2.10

We have never paid or declared any cash dividends on our common shares, and we currently intend to retain any future earnings to finance the development and expansion of our business. We do not anticipate paying any cash dividends on our common shares in the foreseeable future.

## PLAN OF DISTRIBUTION

We have entered into the Sales Agreement with Jefferies and Stifel under which we may issue and sell from time to time up to \$50,000,000 of Shares through the sales agents. Sales of our Shares, if any, under this prospectus supplement may be made in sales deemed to be “at the market offerings” as defined in Rule 415(a)(4) under the Securities Act, including sales made directly on or through the Nasdaq Global Market or any other existing trading market for the common shares in the United States. This summary of the material provisions of the Sales Agreement does not purport to be a complete statement of its terms and conditions. A copy of the Sales Agreement will be filed as an exhibit to a Current Report on Form 8-K and incorporated by reference into this prospectus supplement.

Each sales agent will offer the Shares subject to the terms and conditions of the Sales Agreement on any trading day or as otherwise agreed upon by us and such sales agent. We will designate the maximum amount and minimum price of Shares to be sold through a sales agent on a daily basis or otherwise determine such amounts together with the sales agents. Subject to the terms and conditions of the Sales Agreement, each sales agent will use its commercially reasonable efforts to sell on our behalf the Shares. We may instruct the sales agents not to sell Shares if the sales cannot be effected at or above the price designated by us in any such instruction. We may only instruct one sales agent to sell common shares on any single given day. We or the sales agents may suspend the offering of Shares being made under the Sales Agreement upon proper notice.

Each sales agent will receive from us a commission of up to 3.0% of the gross sales price per Share for any Shares sold through it under the Sales Agreement. The remaining sales proceeds, after deducting any expenses payable by us and any transaction fees imposed by any governmental, regulatory, or self-regulatory organization in connection with the sales, will equal our net proceeds for the sale of such Shares.

Each sales agent will provide written confirmation to us following the close of trading on the Nasdaq Global Market each day in which Shares are sold by such sales agent for us under the Sales Agreement. Each confirmation will include the number of Shares sold on that day, the gross sales price per Share, the net proceeds to us, and the compensation payable by us to the sales agent.

Settlement for sales of Shares will occur, unless we and the applicable sales agent agree otherwise, on the second business day that is also a trading day following the date on which any sales were made in return for payment of the net proceeds to us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

In connection with the sale of the Shares on our behalf, the sales agents will be deemed to be “underwriters” within the meaning of the Securities Act and the compensation paid to the sales agents will be deemed to be underwriting commissions or discounts. We have agreed in the Sales Agreement to provide indemnification and contribution to the sales agents against certain civil liabilities, including liabilities under the Securities Act.

We estimate that the total expenses of the offering payable by us, excluding discounts and commissions payable to the sales agents under the Sales Agreement, will be approximately \$200,000.

The offering of Shares pursuant to the Sales Agreement will terminate upon the earlier of (1) the sale of all of the Shares subject to the Sales Agreement and (2) the termination of the Sales Agreement by the sales agents or us, as permitted therein.

The sales agents have from time to time provided, and in the future may provide, certain commercial banking, investment banking and financial advisory services to us and our affiliates, for which they have received, and in the future will receive, customary fees.

## MATERIAL INCOME TAX CONSIDERATIONS

### U.S. Federal Income Tax Information for U.S. Holders

The following summary describes the material U.S. federal income tax consequences of the ownership and disposition of common shares purchased in this offering. The discussion set forth below is applicable to U.S. Holders (as defined below). This summary deals only with common shares held as capital assets, meaning generally, assets held for investment.

The term “U.S. Holder” means a beneficial owner of a common share that is, for U.S. federal income tax purposes:

- an individual citizen or resident of the U.S.;
- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) created or organized in or under the laws of the U.S., any state thereof or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income taxation regardless of its source; or
- a trust if it (a) is subject to the primary supervision of a court within the U.S. and one or more U.S. persons have the authority to control all substantial decisions of the trust or (b) has a valid election in effect under applicable U.S. Treasury regulations to be treated as a U.S. person.

This summary does not describe all of the U.S. federal income tax consequences applicable to a U.S. Holder if such U.S. Holder is subject to special treatment under U.S. federal income tax laws, including if such U.S. Holder is:

- a dealer in securities or currencies;
- a financial institution;
- a regulated investment company;
- a real estate investment trust;
- an insurance company;
- a tax-exempt organization;
- a person holding our common shares as part of a hedging, integrated or conversion transaction, a constructive sale or a straddle;
- a trader in securities that has elected the mark-to-market method of accounting for its securities;
- a person liable for alternative minimum tax;
- a person who owns, directly, indirectly or constructively, or is deemed to own 10% or more of our equity, by vote or value;
- a partnership or other pass-through entity for U.S. federal income tax purposes;
- a person whose “functional currency” is not the U.S. dollar;
- accrual-method taxpayers subject to special accounting rules under Section 451(b) of the Code (as defined below);
- a person that received common shares as compensation for the performance of services; or
- a person holding our common shares in connection with a trade or business conducted outside of the United States.

If a partnership holds our common shares, the tax treatment of a partner will generally depend upon the status of the partner and the activities of the partnership. Partners of a partnership holding our common shares should consult their own tax advisors.

The discussion below is based upon the provisions of the U.S. Internal Revenue Code of 1986, as amended, or the Code, and regulations, including proposed regulations, Internal Revenue Service, or the IRS, rulings and judicial decisions thereunder as of the date of this prospectus supplement. These authorities may be replaced, revoked or modified so as to result in U.S. federal income tax consequences different from those discussed below. This discussion does not contain a detailed description of all U.S. federal income tax consequences applicable to a U.S. Holder in light of such U.S. Holder’s particular circumstances, including U.S. federal estate, gift, and alternative minimum tax consequences, or any state, local or non-U.S. tax consequences.

**If you are considering the purchase of our common shares, you should consult your own tax advisors concerning the U.S. federal income tax consequences to you in light of your particular situation as well as any consequences arising under the laws of any other taxing jurisdiction.**



### **Taxation of Dividends**

Subject to the discussion below under “Passive Foreign Investment Company Consequences,” the gross amount of distributions on our common shares (including amounts withheld to pay Canadian withholding taxes) will be taxable as dividends to a U.S. Holder to the extent paid out of our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Dividends paid on our common shares (including withheld taxes) will be includable in a U.S. Holder’s gross income as dividend income when actually or constructively received. Such dividends will not be eligible for the dividends-received deduction generally allowed to corporations with respect to dividends received from U.S. corporations. Distributions treated as dividends that are received by non-corporate U.S. Holders may qualify for the 20% reduced maximum tax rate available for dividends received from a “qualified foreign corporation” provided certain holding period and other requirements are met. A non-U.S. corporation generally will be considered to be a qualified foreign corporation if (i) it is eligible for the benefits of a comprehensive tax treaty with the United States, which the Secretary of Treasury of the United States determines is satisfactory for purposes of this provision, and which includes an exchange of information provision; or (ii) with respect to any dividend, it pays on shares that are readily tradeable on an established securities market in the United States. However, if we are a Passive Foreign Investment Company, or PFIC, for the taxable year in which the dividends are paid or the preceding taxable year (see “Passive Foreign Investment Company Consequences” below), we will not be treated as a qualified foreign corporation, and therefore the reduced maximum tax rate described above will not apply. Non-corporate U.S. Holders that do not meet a minimum holding period requirement during which they are not protected from the risk of loss or that elect to treat the dividend income as “investment income” under applicable Code provisions will not be eligible for the reduced rates of taxation regardless of our status as a qualified foreign corporation. Further, the rate reduction will not apply to dividends if the recipient of a dividend is obligated to make related payments with respect to positions in substantially similar or related property. This disallowance applies even if the minimum holding period has been met.

Subject to certain conditions and limitations, Canadian tax withheld from dividends paid on our common shares may be deducted by a U.S. Holder from adjusted gross income or claimed as a credit against the U.S. Holder’s U.S. federal income tax. A U.S. Holder may claim a deduction for Canadian taxes withheld from dividends paid in a taxable year only if the U.S. Holder elects to deduct all foreign income taxes paid in that taxable year. A foreign tax credit may only be claimed against U.S. federal income tax on foreign source income subject to the foreign tax credit limitation. The credit is calculated separately with respect to different categories of income. Dividends paid on our common shares will generally constitute foreign source “passive category income” for foreign tax credit purposes. A special rule will apply if we are a “United States-owned foreign corporation.” In that case, dividends paid in a taxable year will be treated as dividends from U.S. sources and foreign sources in proportion to our earnings and profits for the taxable year from U.S. sources and from foreign sources. A U.S. Holder who is eligible to claim benefits under the United States-Canada Income Tax Convention, September 26, 1980 however, may treat the entire dividend as one from foreign sources for the purpose of claiming a credit for any Canadian withholding tax deducted from the dividend if the U.S. Holder files the appropriate election on its U.S. federal tax return. We will be treated as a U.S.-owned foreign corporation as long as shares representing 50% or more of the voting power or value of our common shares is owned, directly or indirectly, by U.S. persons. The rules relating to the determination of foreign source income and the foreign tax credit are complex, and availability of a foreign tax credit depends on numerous factors. Each U.S. Holder should consult with its own tax advisor to determine whether its income with respect to our common shares would be foreign source income and whether and to what extent that U.S. Holder would be entitled to the foreign tax credit.

To the extent that the amount of any distribution exceeds our current and accumulated earnings and profits for a taxable year, as determined under U.S. federal income tax principles, the distribution will first be treated as a tax-free return of capital, causing a reduction in the adjusted basis of the common shares (thereby increasing the amount of gain, or decreasing the amount of loss, to be recognized on a subsequent disposition of the common shares), and the balance in excess of adjusted basis will be taxed as capital gain recognized on a sale or exchange. However, we cannot provide any assurance that we will maintain or provide earnings and profits determinations in accordance with U.S. federal income tax principles. Therefore, U.S. Holders should expect that a distribution will generally be treated as a dividend (as discussed above) even if that distribution would otherwise be treated as a non-taxable return of capital or as capital gain under the rules described above.

If a distribution is paid in Canadian dollars, the U.S. dollar value of such distribution on the date of receipt is used to determine the amount of the distribution received by a U.S. Holder. A U.S. Holder who continues to hold such Canadian dollars after the date on which they are received may recognize gain or loss upon their disposition due to exchange rate fluctuations. Generally, such gains and losses will be ordinary income or loss from U.S. sources.

## **Taxation of Capital Gains**

Subject to the discussion below under “Passive Foreign Investment Company Consequences,” a U.S. Holder will recognize taxable gain or loss on the sale of our common shares equal to the difference between the amount realized for the common shares and the U.S. Holder’s tax basis in the common shares. Such gain or loss will be capital gain or loss. Capital gains of non-corporate U.S. Holders, including individual U.S. Holders, derived with respect to capital assets held for more than one year are eligible for reduced rates of taxation. The deductibility of capital losses is subject to limitations. Any gain or loss recognized by a U.S. Holder will generally be U.S. source gain or loss for foreign tax credit limitation purposes.

### ***Passive Foreign Investment Company Consequences***

In general, a corporation organized outside the U.S. will be treated as a PFIC in any taxable year in which either (i) at least 75% of its gross income is “passive income” or (ii) on average at least 50% of its assets is attributable to assets that produce passive income or are held for the production of passive income. Passive income for this purpose generally includes, among other things, dividends, interest, royalties, rents, and gains from commodities and currency transactions and from the sale or exchange of property that gives rise to passive income. Assets that produce or are held for the production of passive income include cash, even if held as working capital or raised in a public offering, marketable securities and other assets that may produce passive income. The average percentage of a corporation’s assets that produce or are held for the production of passive income generally is determined on the basis of the fair market value of the corporation’s assets at the end of each quarter (which may be determined in part by the market value of our common shares, which is subject to change). In determining whether a foreign corporation is a PFIC, a proportionate share of the income and assets of each corporation in which it owns, directly or indirectly, at least a 25% interest (by value) is taken into account.

Based on the price of our common shares and the composition of our gross income and gross assets, we believe that we may be deemed a PFIC for the taxable years ended December 31, 2018 and 2017, and we could be a PFIC for the taxable year ending December 31, 2019 and in subsequent years.

Our status as a PFIC is a fact-intensive determination made on an annual basis and we cannot provide any assurance regarding our PFIC status for the future taxable years. Neither our U.S. counsel nor U.S. tax advisor expresses any opinion with respect to our PFIC status or with respect to our expectations regarding our PFIC status.

If we are a PFIC in any taxable year during which a U.S. Holder owns our common shares, such U.S. Holder would be subject to taxation under the rules related to “excess distributions.” Under such rules, additional taxes and interest charges would apply to certain distributions by us or to gain upon dispositions of our common shares if a U.S. Holder has not elected to have his or her investment in our common shares treated as an investment in a “qualified electing fund” or has not made a “mark-to-market election.” If we are a PFIC, all the gains recognized on disposition of our common shares would be treated as an excess distribution. In the case of an actual distribution, such distribution from us would be treated as an excess distribution only to the extent the total of actual distributions during a taxable year received by the U.S. Holder exceeds 125% of the average of actual distributions received in the three preceding taxable years, or, if shorter, the U.S. Holder’s holding period for our common shares. In these circumstances, the tax and interest charges will be determined by allocating such distributions ratably over the U.S. Holder’s holding period for the common shares. The amount allocated to the current taxable year (i.e. the year in which the gain is recognized or the distribution occurs) and any year prior to the first taxable year in which we are a PFIC would be taxed as ordinary income earned in the current taxable year, and the amount allocated to each of the other years in the holding period would be subject to a special tax and interest charge.

The amount allocated to prior taxable years in which we are a PFIC will be taxed at the highest marginal rates in effect for individuals or corporations as applicable to ordinary income for each such taxable year, and an interest charge, generally applicable to underpayments of tax, will be added to the tax. If we are a PFIC at any time when a U.S. Holder holds our common shares, we will generally continue to be treated as a PFIC with respect to the U.S. Holder for all succeeding years during which the U.S. Holder holds our common shares even if we cease to meet the PFIC gross income test or asset test. However, if we cease to meet these tests, a U.S. Holder can avoid the continuing impact of the PFIC rules by making a special election, or a Purging Election, to recognize gain in the manner described above as if our common shares had been sold on the last day of the last taxable year during which we were a PFIC. In addition, for a U.S. Holder making such an election, a new holding period would be deemed to begin for our common shares for purposes of the PFIC rules. After the Purging Election, the common shares with respect to which the Purging Election was made will not be treated as shares in a PFIC unless we subsequently become a PFIC.

The tax consequences that would apply if we were a PFIC would be different from those described above if a U.S. Holder were able to make a valid “qualified electing fund,” or QEF, election. For each year that we meet the PFIC gross income test or asset test, an electing U.S. Holder would be required to include in gross income, its pro rata share of our net ordinary income and net capital gains, if any, as determined under U.S. federal income tax principles. The U.S. Holder’s adjusted tax basis in our common shares would be increased by the amount of such inclusions. An actual distribution to the U.S. Holder out of such income generally would not be treated as a dividend and would decrease the U.S. Holder’s adjusted tax basis in our common shares. A U.S. Holder that has made a timely and effective QEF election generally may receive a distribution tax-free to the extent that such distribution represents “earnings and profits” that were previously included in income by the U.S. Holder because of such election and will adjust such U.S. Holder’s tax basis in our common shares to reflect the amount allowed as a tax-free distribution because of such QEF election. Gain realized from the sale of our common shares covered by a QEF election would be taxed as a capital gain.

Generally, a QEF election must be made by the U.S. Holder in a timely filed tax return for the first taxable year in which the U.S. Holder held our common shares that includes the close of our taxable year for which we met the PFIC gross income test or asset test. A QEF election is made on IRS Form 8621. U.S. Holders will be eligible to make QEF elections only if we agree to provide U.S. Holders with the information they will need to comply with the QEF rules. If we are a PFIC in the current or a future tax year, we will provide, upon request, U.S. Holders with the information that is necessary in order for them to make a QEF election and to report their common shares of ordinary earnings and net capital gains for each year for which we are a PFIC.

The tax consequences that would apply if we were a PFIC would also be different from those described above if a timely and valid “mark-to-market” election is made by a U.S. Holder of our common shares. An electing U.S. Holder generally would take into account as ordinary income for each year that we meet the PFIC gross income test or asset test, the excess of the fair market value of our common shares held at the end of the taxable year over the adjusted tax basis of such common shares. The U.S. Holder would also take into account, as an ordinary loss for each year that we meet the PFIC gross income test or asset test, the excess of the adjusted tax basis of such common shares over their fair market value at the end of the taxable year, but only to the extent of the aggregate of the amounts previously included in income as a result of the mark-to-market election. The U.S. Holder’s tax basis in our common shares would be adjusted to reflect any income or loss resulting from the mark-to-market election. Any gain from a sale, exchange or other disposition of the common shares in any taxable year in which we are a PFIC would be treated as ordinary income and any loss from such sale, exchange or other disposition would be treated first as ordinary loss to the extent of any net mark-to-market gains previously included in income and thereafter as capital loss. If, after having been a PFIC for one or more taxable years, we cease to be classified as a PFIC, the U.S. Holder would not be required to take into account any latent gain or loss in the manner described above and any realized gain or loss would be classified as a capital gain or loss. A mark-to-market election will not apply to our common shares for any taxable year during which we are not a PFIC, but it will remain in effect with respect to any subsequent taxable year in which we become a PFIC. Such election will not apply to any subsidiary that we own.

A mark-to-market election is available to a U.S. Holder only if the common shares are considered “marketable stock.” Generally, stock will be considered marketable stock if it is “regularly traded” on a “qualified exchange” within the meaning of applicable U.S. Treasury regulations. A class of stock is regularly traded during any calendar year during which such class of stock is traded, other than in de minimis quantities, on at least 15 days during each calendar quarter. We expect that our common shares will be marketable stock as long as they remain listed on the Nasdaq Global Market and are regularly traded.

If we are a PFIC in any taxable year during which a U.S. Holder owns the common shares, such U.S. Holder may also suffer adverse tax consequences under the PFIC rules described above with respect to any lower-tier PFIC in which we have a direct or indirect equity interest.

Each U.S. Holder who is a shareholder of a PFIC must file an annual report containing certain information as the U.S. Treasury may require.

U.S. Holders should consult their own tax advisors with respect to their particular circumstances, making any of the elections described above and any related reporting requirements if we are a PFIC in any taxable year.

### ***Net Investment Income Tax***

Certain U.S. Holders who are individuals, estates or trusts will be subject to a 3.8% U.S. federal tax on all or a portion of their “net investment income,” which includes all or a portion of their dividends (or deemed dividends) on our common shares and net gains from the disposition of our common shares. U.S. Holders that are individuals, estates or trusts should consult their tax advisors regarding the applicability of the U.S. federal tax on net investment income to any of their income or gains in respect of our common shares.

## **Information Reporting and Backup Withholding**

In general, information reporting will apply to dividends in respect of our common shares and the proceeds from the sale or disposition of our common shares that are paid to a U.S. Holder within the U.S. (and in certain cases, outside the U.S.), unless the U.S. Holder is an exempt recipient. Backup withholding may apply to such payments if the U.S. Holder fails to provide a taxpayer identification number or certification of other exempt status or if the U.S. Holder has previously failed to report in full dividend or interest income. If backup withholding applies to a payment, we or our paying agent will deduct the amount of any required withholding directly from such payment and remit it directly to the U.S. Treasury on behalf of the U.S. Holder. Backup withholding is not an additional tax. Any amounts withheld by us or our paying agent under the backup withholding rules will be allowed as a refund or a credit against the U.S. Holder's U.S. federal income tax liability provided the required information is timely furnished to the IRS.

U.S. Holders are urged to consult with their tax advisors regarding the applicable U.S. disclosure and information reporting requirements. In certain circumstances, the failure to comply with disclosure and information reporting requirements will result in an extension of the statute of limitations on the assessment and collection of U.S. federal income taxes applicable to the U.S. Holder.

## **Disclosure Requirements for Specified Foreign Financial Assets**

Certain U.S. Holders (and to the extent provided in IRS guidance, certain non-U.S. Holders) who hold interests in "specified foreign financial assets" (as defined in Section 6038D of the Code) are generally required to file an IRS Form 8938 as part of their U.S. federal income tax returns with information relating to such assets for each taxable year in which the aggregate value of all such assets exceeds \$75,000 at any time during the taxable year or \$50,000 on the last day of the taxable year (or such higher dollar amount as prescribed by applicable IRS guidance). "Specified foreign financial assets" generally include, among other assets, financial accounts maintained by foreign financial institutions, and our common shares, unless the common shares are held through an account maintained with a financial institution. Substantial penalties may apply to any failure to timely file IRS Form 8938. Additionally, in the event an applicable U.S. Holder (and to the extent provided in IRS guidance, a non-U.S. Holder) that is required to file IRS Form 8938 does not file such form, the statute of limitations on the assessment and collection of U.S. federal income taxes of such holder for the related tax year may not close until three years after the date that the required information is filed. Prospective investors are encouraged to consult with their own tax advisors regarding the possible reporting obligations under these disclosure requirements.

## **Principal Canadian Federal Income Tax Considerations**

The following summary describes, as of the date of this prospectus supplement, the principal Canadian federal income tax consequences under the Income Tax Act (Canada), as amended, and the regulations promulgated thereunder, or the Canadian Tax Act, generally applicable to a holder, or a Holder, who acquires our common shares as beneficial owner and who, for the purposes of the Canadian Tax Act, and at all relevant times: (a) is not (and is not deemed to be) resident in Canada; (b) will not use or hold (and will not be deemed to use or hold) the common shares in, or in the course of, carrying on a business or part of a business in Canada; (c) holds the common shares as capital property; and (d) deals at arm's length with, and is not affiliated with, us or the sales agents. The common shares will generally be considered to be capital property for this purpose unless either the Holder holds (or will hold) the common shares in the course of carrying on a business of trading or dealing in securities, or the Holder has acquired (or will acquire) the common shares in a transaction or transactions considered to be an adventure or concern in the nature of trade.

This summary is not applicable to: (a) a Holder that carries on or is deemed to carry on, an insurance business in Canada and elsewhere; or (b) a Holder that is an "authorized foreign bank," as defined in the Canadian Tax Act. Any such Holder to which this summary does not apply should consult its own tax advisor.

This summary is based upon the current provisions of the Canadian Tax Act and counsel's understanding of the current published administrative and assessing policies and practices of the Canada Revenue Agency. The summary also takes into account all specific proposals to amend the Canadian Tax Act that have been publicly announced by or on behalf of the Minister of Finance (Canada) prior to the date hereof, or the Canadian Tax Proposals, and assumes that all such Canadian Tax Proposals will be enacted in the form proposed. No assurance can be given that the Canadian Tax Proposals will be enacted in the form proposed or at all. This summary does not otherwise take into account or anticipate any changes in law, administrative policy or assessing practice, whether by way of legislative, regulatory, judicial or administrative action or interpretation, nor does it address any provincial, territorial or foreign tax considerations.

This summary is not exhaustive of all possible Canadian federal income tax considerations of acquiring, holding or disposing of common shares. The summary is of a general nature only and is not intended to be, and should not be construed to be, legal, business, or tax advice to any prospective Holder. Prospective Holders should consult their own tax advisors as to the Canadian federal tax consequences, and the tax consequences of any other jurisdiction, applicable to them having regard to their own particular circumstances.

All amounts in a currency other than the Canadian dollar relating to the acquisition, holding and disposition of the common shares must be converted into Canadian dollars based on the exchange rates determined in accordance with the Canadian Tax Act.

#### ***Dividends on the Common Shares***

Canadian withholding tax at a rate of 25% (subject to reduction under the provisions of any applicable income tax treaty or convention) will be payable on the gross amount of dividends on the common shares paid or credited, or deemed to be paid or credited, to a Holder. The Canadian withholding taxes will be deducted directly by us or our paying agent from the amount of the dividend otherwise payable and remitted to the Receiver General of Canada.

The rate of withholding tax applicable to a dividend paid on the common shares to a Holder who: (i) is a resident of the U.S. for purposes of the Canada-United States Tax Convention (1980), as amended, or the Convention, (ii) beneficially owns the dividend, and (iii) qualifies for the full benefits of the Convention, will generally be reduced to 15% or, if such a Holder is a corporation that owns at least 10% of our voting shares, to 5%. Not all persons that are residents of the U.S. for purposes of the Convention will qualify for the full benefits of the Convention. Holders that are residents of the U.S. are advised to consult their own tax advisors in this regard. The rate of withholding tax on dividends is also reduced under other bilateral income tax treaties or conventions to which Canada is a signatory.

#### ***Disposition of the Common Shares***

A Holder will not be subject to tax under the Canadian Tax Act in respect of any capital gain realized by such Holder on a disposition, or deemed disposition, of the common shares unless the common shares constitute “taxable Canadian property,” as defined in the Canadian Tax Act, of the Holder at the time of disposition and the Holder is not entitled to an exemption under an applicable income tax treaty or convention.

As long as the common shares are then listed on a “designated stock exchange” (which currently includes the Nasdaq), the common shares generally will not constitute taxable Canadian property of a Holder, unless (a) at any time during the 60-month period preceding the disposition: (i) one or any combination of (A) the Holder, (B) persons not dealing at arm’s length (within the meaning of the Canadian Tax Act) with the Holder, and (C) partnerships in which the Holder or a person described in (B) holds a membership interest directly or indirectly through one or more partnerships, owned 25% or more of our issued shares of any class or series; and (ii) more than 50% of the fair market value of the common shares was derived, directly or indirectly, from one or a combination of real or immovable property situated in Canada, “Canadian resource properties,” as such term is defined in the Canadian Tax Act, “timber resource properties,” as such term is defined in the Canadian Tax Act, or options in respect of, or interests in, or for civil law rights in, any such properties, whether or not the property exists, or (b) the common shares are otherwise deemed to be taxable Canadian property of the Holder. If the common shares are considered taxable Canadian property to a Holder, an applicable income tax treaty or convention may in certain circumstances exempt that Holder from tax under the Canadian Tax Act in respect of the disposition or deemed disposition of the common shares. Holders whose common shares are, or may be, taxable Canadian property should consult their own tax advisors for advice having regard to their particular circumstances.

## LEGAL MATTERS

We are being represented by Wilson Sonsini Goodrich & Rosati, Professional Corporation, Palo Alto, California. The validity of the Shares being offered by this prospectus supplement and legal matters relating to Canadian laws will be passed upon for us by Blake, Cassels & Graydon LLP, Vancouver, British Columbia. The sales agents are being represented by Cooley LLP, New York, New York. Stikeman Elliott LLP, Vancouver, British Columbia, is acting as Canadian counsel to the sales agents.

## EXPERTS

The financial statements of Xenon Pharmaceuticals Inc. as of December 31, 2018 and 2017, and for each of the years in the two-year period ended December 31, 2018, have been incorporated by reference herein in reliance upon the report of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing

## WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and other reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at [www.sec.gov](http://www.sec.gov). Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, including any amendments to those reports, and other information that we file with or furnish to the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act can also be accessed free of charge through the Internet. These filings will be available as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. You may also access these filings through our website at [www.xenon-pharma.com](http://www.xenon-pharma.com).

## INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" into this prospectus supplement the information we have filed with the SEC. The information we incorporate by reference into this prospectus supplement is an important part of this prospectus supplement. Any statement in a document we incorporate by reference into this prospectus supplement or the accompanying prospectus will be considered to be modified or superseded to the extent a statement contained in this prospectus supplement or any other subsequently filed document that is incorporated by reference into this prospectus supplement modifies or supersedes that statement. The modified or superseded statement will not be considered to be a part of this prospectus supplement or accompanying prospectus, as applicable, except as modified or superseded.

We incorporate by reference into this prospectus supplement the information contained in the documents listed below, which is considered to be a part of this prospectus supplement:

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2018, filed with the SEC on March 6, 2019;
- our Quarterly Reports on Form 10-Q for the fiscal quarters ended March 31, 2019, June 30, 2019 and September 30, 2019, filed with SEC on May 7, 2019, August 6, 2019 and November 5, 2019, respectively;
- the information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2018 from our definitive proxy statement on Schedule 14A (other than information furnished rather than filed), which was filed with the SEC on April 29, 2019;
- our Current Reports on Form 8-K filed with the SEC on March 13, 2019, March 25, 2019, June 5, 2019, September 10, 2019 and November 5, 2019 (pursuant to Items 1.01 and 9.01); and
- the description of our common shares contained in the Registration Statement on Form 8-A filed on October 10, 2014 and any further amendment or report filed thereafter for the purpose of updating such description.

We also incorporate by reference all documents filed pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus supplement and prior to the termination of this offering; provided, however, that we are not incorporating any information furnished under Item 2.02 or Item 7.01 of any Current Report on Form 8-K that we may subsequently file.

Statements made in this prospectus supplement or the accompanying prospectus or in any document incorporated by reference in this prospectus supplement or the accompanying prospectus as to the contents of any contract or other document referred to herein or therein are not necessarily complete, and in each instance reference is made to the copy of such contract or other document filed as an exhibit to the documents incorporated by reference, each such statement being qualified in all material respects by such reference.

You may request a copy of these filings, at no cost, by writing or telephoning us at the following address:

Xenon Pharmaceuticals Inc.  
Attn: Investor Relations  
200 – 3650 Gilmore Way  
Burnaby, BC V5G 4W8  
Canada  
(604) 484-3300

You may also access the documents incorporated by reference in this prospectus supplement through our website at [www.xenon-pharma.com](http://www.xenon-pharma.com). Except for the specific incorporated documents listed above, no information available on or through our website shall be deemed to be incorporated in this prospectus supplement or the registration statement of which it forms a part.

\$150,000,000

**XENON****Xenon Pharmaceuticals Inc.****Common Shares  
Preferred Shares  
Warrants  
Units**

We may offer and sell from time to time, in one or more series or issuances and on terms that we will determine at the time of the offering, any combination of the securities described in this prospectus, either individually or as units comprised of one or more of the other classes of securities, up to an aggregate amount of \$150,000,000.

This prospectus provides a general description of the securities we may offer. Each time we offer and sell securities, we will provide specific terms of the securities offered in a supplement to this prospectus. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings. A prospectus supplement and any free writing prospectus may also add, update or change information contained in this prospectus. You should carefully read this prospectus, the applicable prospectus supplement, and any related free writing prospectus, as well as the documents incorporated or deemed to be incorporated by reference in this prospectus, before you invest in any of our securities offered hereby.

**This prospectus may not be used to consummate a sale of any securities unless it is accompanied by a prospectus supplement.**

We may offer and sell the securities described in this prospectus and any prospectus supplement to or through one or more underwriters, broker-dealers, agents, directly to purchasers, or through any other means described in this prospectus under “Plan of Distribution” and in supplements to this prospectus in connection with a particular offering of securities. If any underwriters, dealers or agents are involved in the sale of any of these securities, their names and any applicable purchase price, fee, commission or discount arrangement between or among them will be set forth, or will be calculable from the information set forth, in the applicable prospectus supplement. The price to the public of such securities and the net proceeds we expect to receive from such sale will also be set forth in a prospectus supplement.

Our common shares are listed on The Nasdaq Global Market, or Nasdaq, under the symbol “XENE.” On August 2, 2019, the last reported sale price of our common shares on Nasdaq was \$9.37 per share. There is currently no market for the other securities we may offer; however, we will provide information in any applicable prospectus supplement regarding any listing of securities other than our common shares on any securities exchange.

**We are an “emerging growth company” as defined under the federal securities laws and, as such, have elected to comply with certain reduced public company reporting requirements.**

**INVESTING IN OUR SECURITIES INVOLVES SIGNIFICANT RISKS. YOU SHOULD REVIEW CAREFULLY THE “RISK FACTORS” ON PAGE 4 OF THIS PROSPECTUS AND IN THE APPLICABLE PROSPECTUS SUPPLEMENT BEFORE INVESTING IN OUR SECURITIES.**

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

**The date of this prospectus is August 15, 2019.**

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## ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the United States Securities and Exchange Commission, or the SEC, using a “shelf” registration process. Under this shelf process, we may, from time to time, sell any combination of the securities described in this prospectus in one or more offerings up to an aggregate dollar amount of \$150,000,000. This prospectus provides you with a general description of the securities we may offer.

Each time we sell securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings, hereinafter referred to as an issuer free writing prospectus. The prospectus supplement and any issuer free writing prospectus may also add to, update or change information contained in the prospectus and, accordingly, to the extent inconsistent, information in this prospectus is superseded by the information in the prospectus supplement or the issuer free writing prospectus, as applicable. You should carefully read this prospectus, any prospectus supplement, and any issuer free writing prospectus, together with the additional information described under the heading “Information Incorporated by Reference.”

The prospectus supplement to be attached to the front of this prospectus may describe, as applicable, the terms of the securities offered; the initial price to the public; the price paid for the securities; net proceeds; and the other specific terms related to the offering of the securities.

### **THIS PROSPECTUS MAY NOT BE USED TO OFFER AND SELL SECURITIES UNLESS IT IS ACCOMPANIED BY A PROSPECTUS SUPPLEMENT.**

You should only rely on the information contained or incorporated by reference in this prospectus and any prospectus supplement or issuer free writing prospectus relating to a particular offering. No person has been authorized to give any information or make any representations in connection with this offering other than those contained or incorporated by reference in this prospectus, any accompanying prospectus supplement and any related issuer free writing prospectus in connection with the offering described herein and therein, and, if given or made, such information or representations must not be relied upon as having been authorized by us. Neither this prospectus nor any prospectus supplement nor any related issuer free writing prospectus shall constitute an offer to sell or a solicitation of an offer to buy offered securities in any jurisdiction in which it is unlawful for such person to make such an offering or solicitation. This prospectus does not contain all of the information included in the registration statement. For a more complete understanding of the offering of the securities, you should refer to the registration statement, including its exhibits.

You should read the entire prospectus and any prospectus supplement and any related issuer free writing prospectus, as well as the documents incorporated by reference into this prospectus or any prospectus supplement or any related issuer free writing prospectus, before making an investment decision. Neither the delivery of this prospectus or any prospectus supplement or any issuer free writing prospectus nor any sale made hereunder shall under any circumstances imply that the information contained or incorporated by reference herein or in any prospectus supplement or issuer free writing prospectus is correct as of any date subsequent to the date hereof or of such prospectus supplement or issuer free writing prospectus, as applicable. You should assume that the information appearing in this prospectus, any prospectus supplement, any issuer free writing prospectus, or any document incorporated by reference is accurate only as of the date of the applicable documents, regardless of the time of delivery of this prospectus or any sale of securities. Our business, financial condition, results of operations and prospects may have changed since that date.

References in this prospectus to the “company,” “we,” “us” and “our” and similar terms or “Xenon” refer to Xenon Pharmaceuticals Inc. and its subsidiary.

## PROSPECTUS SUMMARY

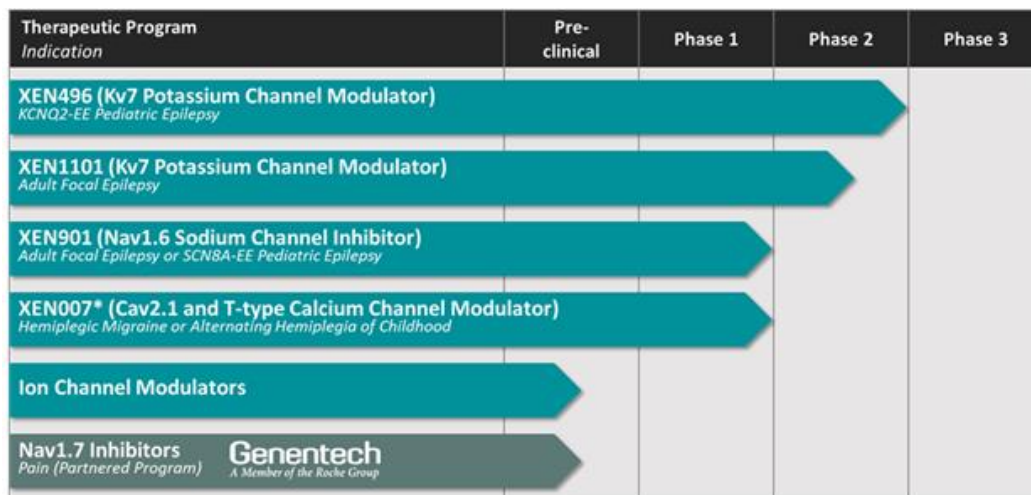
This summary description about us and our business highlights selected information contained elsewhere in this prospectus or incorporated in this prospectus by reference. This summary does not contain all of the information you should consider before deciding to invest in our securities. You should carefully read this entire prospectus and any applicable prospectus supplement, including each of the documents incorporated herein or therein by reference, before making an investment decision. Investors should carefully consider the information set forth under “Risk Factors” on page 4 and incorporated by reference to our annual report on Form 10-K and our quarterly reports on Form 10-Q, and any amendments thereto.

### Overview

We are a clinical stage biopharmaceutical company committed to developing innovative therapeutics to improve the lives of patients with neurological disorders, including rare central nervous system, or CNS, conditions. We are advancing a novel product pipeline of neurology-focused therapies to address areas of high unmet medical need, with a focus on epilepsy.

To date, our pharmaceutical collaborations have generated in aggregate over \$160.0 million in non-equity funding with the potential to provide us with future milestone payments, as well as royalties on product sales.

Our pipeline is summarized in the following figure, which shows our own proprietary product candidates and our partnered pain program with Genentech, a member of the Roche Group:



\* Xenon has entered into key regulatory and manufacturing agreements related to XEN007; it is anticipated that a Phase 2 (or later stage) clinical trial could be initiated after receiving regulatory feedback.

### Corporate Information

We were incorporated in the Province of British Columbia on November 5, 1996 under the predecessor to the Business Corporations Act (British Columbia) under the name “Xenon Bioresearch Inc.” We continued from British Columbia to the federal jurisdiction pursuant to Section 187 of the Canada Business Corporations Act, or the CBCA, on May 17, 2000 and concurrently changed our name to “Xenon Genetics Inc.” We registered as an extra-provincial company in British Columbia on July 10, 2000 and changed our name to “Xenon Pharmaceuticals Inc.” on August 24, 2004. We have no subsidiaries. Our principal executive offices are located at 200 – 3650 Gilmore Way, Burnaby, British Columbia, Canada V5G 4W8, and our telephone number is (604) 484-3300. Our website address is <http://www.xenon-pharma.com>. The information on, or that can be accessed through, our website is not incorporated by reference into this prospectus and should not be considered to be a part of this prospectus.

“Xenon,” the Xenon logo and other trademarks or service marks of Xenon appearing in this prospectus are trademarked and are the property of Xenon Pharmaceuticals Inc. This prospectus contains references to our trademarks and service marks and to those belonging to other entities. Solely for convenience, trademarks and trade names referred to in this prospectus, including logos, artwork and other visual displays, may appear without the ® or ™ symbols, but such references are not intended to indicate in any way that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use or display of other entities’ trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of us by, any other entity.

### **Implications of Being an Emerging Growth Company**

We qualify as an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. An emerging growth company may take advantage of relief from certain reporting requirements and other burdens that are otherwise applicable generally to public companies. As an emerging growth company:

- we have availed ourselves of the exemption from the requirement to obtain an attestation and report from our auditors on the assessment of our internal control over financial reporting pursuant to the Sarbanes-Oxley Act of 2002;
- we have provided and will continue to provide less extensive disclosure about our executive compensation arrangements; and
- we have not required and will not require shareholder non-binding advisory votes on executive compensation or golden parachute arrangements.

We may use these provisions until December 31, 2019, the last day of our fiscal year following the fifth anniversary of our initial public offering. However, if certain events occur prior to the end of such five-year period, including if we become a “large accelerated filer,” our annual gross revenues exceed \$1.07 billion or we issue more than \$1.0 billion of non-convertible debt in any three-year period, we will cease to be an emerging growth company prior to the end of such five-year period. We may choose to take advantage of some but not all of these reduced burdens. To the extent that we take advantage of these reduced burdens, the information that we provide securityholders may be different than you might obtain from other public companies in which you hold equity interests.

### **The Securities We May Offer**

We may offer up to \$150,000,000 of common shares, preferred shares, warrants and/or units in one or more offerings and in any combination, either individually or as units comprised of one or more of the other classes of securities. This prospectus provides you with a general description of the securities we may offer. A prospectus supplement, which we will provide each time we offer securities, will describe the specific amounts, prices and terms of these securities.

#### ***Common Shares***

Each holder of one common share is entitled to one vote for each common share on all matters submitted to a vote of the shareholders, including the election of directors. There are no cumulative voting rights. Subject to preferences that may be applicable to any then outstanding preferred shares, holders of common shares are entitled to receive ratably those dividends, if any, as may be declared from time to time by our board of directors out of legally available funds. In the event of our liquidation, dissolution or winding up, holders of common shares will be entitled to share ratably in the net assets legally available for distribution to shareholders after the payment of all of our debts and other liabilities and the satisfaction of any liquidation preference granted to the holders of any then outstanding preferred shares.

#### ***Preferred Shares***

Our board of directors has the authority, without further action by the shareholders, to issue an unlimited number of preferred shares in one or more series. Subject to the provisions of the CBCA and the provisions of our outstanding Series 1 preferred shares, our board of directors has the discretion to determine the rights, preferences, privileges, restrictions and conditions, including, among others, dividend rights, conversion rights, voting rights, redemption rights, and liquidation preference of each series of preferred shares. As of June 30, 2019, there were 1,016,000 Series 1 preferred shares outstanding. Any new series of preferred shares authorized by our board of directors will have rights, preferences and privileges that are substantially the same as our Series 1 preferred shares. For additional information regarding our Series 1 preferred shares, see the section of this prospectus titled “Description of Share Capital – Series 1 Preferred Shares.”

Each series of preferred shares will be more fully described in the particular prospectus supplement that will accompany this prospectus, including redemption provisions, rights in the event of our liquidation, dissolution or winding up, dividend and voting rights and rights to convert into common shares. No rights, privileges, restrictions or conditions attached to a series of preferred shares shall confer on a series a priority in respect of dividends or return of capital over any other series of preferred shares that are then outstanding.

If any cumulative dividends or amounts payable on return of capital in respect of a series of preferred shares are not paid in full, all series of the preferred shares participate rateably in respect of accumulated dividends and return of capital.

#### **Warrants**

We may issue warrants for the purchase of common shares or preferred shares. We may issue warrants independently or together with other securities.

#### **Units**

We may issue units comprised of one or more of the other classes of securities issued by us as described in this prospectus in any combination. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit.

### **RISK FACTORS**

An investment in our securities involves a high degree of risk. The prospectus supplement applicable to each offering of our securities will contain a discussion of the risks applicable to an investment in our securities. Prior to making a decision about investing in our securities, you should carefully consider the specific factors discussed under the heading “Risk Factors” in the applicable prospectus supplement, together with all of the other information contained or incorporated by reference in the prospectus supplement or appearing or incorporated by reference in this prospectus. You should also consider the risks, uncertainties and assumptions discussed under “Part I—Item 1A—Risk Factors,” in our Annual Report on Form 10-K for the fiscal year ended December 31, 2018 and “Part II—Item 1A—Risk Factors” in our Quarterly Reports on Form 10-Q, and any amendments thereto, all of which are incorporated herein by reference, and may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future and any prospectus supplement related to a particular offering. The risks and uncertainties we have described are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our operations.

### **SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS**

This prospectus, each prospectus supplement and the information incorporated by reference in this prospectus and each prospectus supplement contain certain statements that may constitute forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. The words “aim,” “anticipate,” “assume,” “believe,” “contemplate,” “continue,” “could,” “due,” “estimate,” “expect,” “goal,” “intend,” “may,” “objective,” “plan,” “predict,” “positioned,” “potential,” “seek,” “should,” “target,” “will,” “would” and similar expressions and variations thereof are intended to identify forward-looking statements, but are not the exclusive means of identifying such statements. Those statements may appear in this prospectus, any accompanying prospectus supplement and the documents incorporated herein and therein by reference, particularly in the sections entitled “Prospectus Summary,” “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Business” and include statements regarding the intent, belief or current expectations of Xenon and our management that are subject to known and unknown risks, uncertainties and assumptions. You are cautioned that any such forward-looking statements are not guarantees of future performance and involve risks and uncertainties, and that actual results may differ materially from those projected in the forward-looking statements as a result of various factors.

Forward-looking statements are subject to certain risks and uncertainties that could cause actual results to differ materially from those anticipated in the forward-looking statements. Factors that might cause such a difference include, but are not limited to, those described in “Risk Factors”, elsewhere in this prospectus or any applicable prospectus supplement and the documents incorporated by reference in this prospectus. Forward-looking statements are based on our management’s beliefs and assumptions and on information currently available to our management. These statements, like all statements in this prospectus, speak only as of their date, and we undertake no obligation to update or revise these statements in light of future developments, except as required by law.

This prospectus, any accompanying prospectus supplement and the documents incorporated herein and therein by reference may also contain estimates and other information concerning our industry that are based on government and industry publications. This information involves a number of assumptions and limitations, and you are cautioned not to give undue weight to these estimates. These government and industry publications generally indicate that their information has been obtained from sources believed to be reliable.

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

#### **USE OF PROCEEDS**

Unless otherwise indicated in the prospectus supplement, we will use the net proceeds from the sale of securities offered by us pursuant to this prospectus (i) to fund preclinical and clinical development of our product candidates; (ii) to fund drug discovery activities; and (iii) for general corporate purposes, which may include working capital, capital expenditures, and other corporate expenses.

We may also use a portion of the net proceeds to acquire, license and invest in complementary products, technologies or businesses; however, we currently have no agreements or commitments to complete any such transactions.

The amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including cash flows from operations, the anticipated growth of our business, the progress of our development and commercialization efforts and the status and results of our clinical trials, as well as results from any ongoing collaborations and additional collaborations that we may enter into with third parties and any unforeseen cash needs. As a result, unless otherwise indicated in the prospectus supplement, our management will have broad discretion to allocate the net proceeds of the offerings. More detailed information regarding use of proceeds will be described in the applicable prospectus supplement.

#### **DIVIDEND POLICY**

We have never declared or paid any cash dividends on our common shares or any other securities. We currently anticipate that we will retain all available funds and any future earnings, if any, in the foreseeable future for use in the operation of our business and do not currently anticipate paying cash dividends in the foreseeable future. Payment of future cash dividends, if any, will be at the discretion of the board of directors, subject to applicable law and will depend on various factors, including our financial condition, operating results, current and anticipated cash needs, the requirements of current or then-existing debt instruments and other factors the board of directors deems relevant.

#### **DESCRIPTION OF SHARE CAPITAL**

##### **General**

The following is a summary of the material rights of our common shares and preferred shares, as contained in our articles and by-laws. This summary is not a complete description of the share rights associated with our common shares and preferred shares. For more detailed information, please see our articles and by-laws, which are filed as exhibits to our quarterly report on Form 10-Q for the period ended September 30, 2014, as filed on December 15, 2014, and our articles of amendment to our articles, creating our Series 1 preferred shares, which is filed as an exhibit to our current report on Form 8-K, as filed on March 28, 2018.

Our authorized share capital consists of (i) an unlimited number of common shares and (ii) an unlimited number of preferred shares issuable in series, of which an unlimited number have been designated as Series 1 preferred shares. Our board of directors is authorized, without shareholder approval except as required by the listing standards of The Nasdaq Global Market, to issue additional shares of our common shares or preferred shares.

##### **Common Shares**

###### ***Outstanding Shares***

As of June 30, 2019, we had 25,775,056 common shares outstanding, held by approximately 146 holders of record.

As of June 30, 2019, we had outstanding options to purchase an aggregate of 2,663,788 common shares pursuant to our equity plans, at a weighted average exercise price of \$7.04 per common share. As of June 30, 2019, 1,036,992 common shares remain available for future grant or issuance under our 2014 Equity Incentive Plan.

### ***Voting Rights***

The holders of our common shares are entitled to one vote for each common share held on all matters submitted to a vote of the shareholders, including the election of directors. Our articles and by-laws do not provide for cumulative voting rights. Because of this, the holders of a plurality of the common shares entitled to vote in any election of directors can elect all of the directors standing for election, if they should so choose.

### ***Dividends***

Subject to priority rights that may be applicable to any then outstanding preferred shares, holders of our common shares are entitled to receive dividends, as and when declared by our board of directors in their absolute discretion out of legally available funds.

### ***Liquidation***

In the event of our liquidation, dissolution or winding up, holders of our common shares will be entitled to share ratably in the net assets legally available for distribution to shareholders after the payment of all of our debts and other liabilities and the satisfaction of any liquidation preference granted to the holders of any then outstanding preferred shares.

### ***Rights and Preferences***

Holders of common shares have no pre-emptive or conversion rights and our common shares have no provisions for redemption or repurchase for cancellation, surrender or sinking or purchase funds. There are no provisions in our articles or by-laws requiring holders of common shares to contribute additional capital. The rights, preferences and privileges of the holders of common shares are subject to and may be adversely affected by, the rights of the holders of any series of preferred shares that we may designate and issue in the future.

### ***Fully Paid and Nonassessable***

All of our outstanding common shares are fully paid and nonassessable. Our board of directors has the authority to issue, without further action by our shareholders, additional common shares.

### **Preferred Shares**

Our board of directors has the authority to issue, without further action by our shareholders, an unlimited number of preferred shares, issuable in one or more series, and subject to the provisions of the CBCA and the provisions of our Series 1 preferred shares, to fix such rights, preferences, privileges, restrictions and conditions thereon, including dividend and voting rights, as our board of directors may determine, and such rights, preferences and privileges, including dividend rights, voting rights and rights relating to the distribution of our assets in the event of liquidation, dissolution or winding up of our affairs, whether, voluntary or involuntary, or any other distribution of our assets among our shareholders for the purpose of winding up our affairs, may be superior to those of our common shares. Any new series of preferred shares authorized by our board of directors will have rights, preferences and privileges that are substantially the same as our Series 1 preferred shares, the terms of which are described in greater detail below. The issuance of preferred shares, while providing flexibility in connection with possible acquisitions and other corporate purposes, could adversely affect the voting power of holders of common shares and the likelihood that such holders will receive dividend payments and payments upon liquidation. In addition, the issuance of preferred shares could, among other things, have the effect of delaying, deferring or preventing a change in control of our company or other corporate action and could adversely affect the market price of our common shares and the voting and other rights of the holders of our common shares. No rights, privileges, restrictions or conditions attached to a series of preferred shares shall confer on a series a priority in respect of dividends or return of capital over any other series of preferred shares that are then outstanding. If any cumulative dividends or amounts payable on return of capital in respect of a series of preferred shares are not paid in full, all series of the preferred shares participate ratably in respect of accumulated dividends and return of capital.

### **Series 1 Preferred Shares**

#### ***Outstanding Shares***

As of June 30, 2019, we had 1,016,000 Series 1 preferred shares outstanding.

### **Rank**

In the event of our liquidation, dissolution or winding up or other distribution of our assets among our shareholders for the purpose of winding up our affairs, the holders of Series 1 preferred shares are entitled to all of our remaining property and assets *pari passu* on a share for share basis with the holders of our common shares.

### **Conversion**

Each Series 1 preferred share is convertible into one common share at any time at the holder's option without payment of any additional consideration, provided that any such conversion must be for at least the lesser of (i) 100,000 Series 1 preferred shares, (ii) the remaining number of Series 1 preferred shares then held by such holder and (iii) such other number of Series 1 preferred shares as agreed between us and such holder. Holders of the Series 1 preferred shares are prohibited from converting Series 1 preferred shares into common shares if, as a result of such conversion, the holder, together with its affiliates, would beneficially own more than 9.99% of the total number of common shares issued and outstanding immediately after giving effect to such conversion, which we refer to as the Beneficial Ownership Limitation, provided that the holder may reset the Beneficial Ownership Limitation to a higher or lower number (not to exceed 19.99% of the total number of common shares issued and outstanding immediately after giving effect to a conversion) upon providing written notice to us. Any such notice providing for an increase to the Beneficial Ownership Limitation will be effective 61 days after delivery to us.

Each Series 1 preferred share is also convertible into one common share at any time at our option without payment of additional consideration, provided that prior to any such conversion, the holder, together with its affiliates, beneficially owns less than 5.00% of the total number of common shares issued and outstanding and such conversion will not result in the holder, together with its affiliates, beneficially holding more than 5.00% of the total number of common shares issued and outstanding immediately after giving effect to such conversion.

In the event of a change of control, holders of Series 1 preferred shares shall be issued one common share for each outstanding Series 1 preferred share held immediately prior to the change of control (without regard to the Beneficial Ownership Limitation), and following such conversion, will be entitled to receive the same kind and amount of securities, cash or property that a holder of common shares is entitled to receive in connection with such change of control.

### **Voting Rights**

The holders of the Series 1 preferred shares will not be entitled to receive notice of or to attend any meeting of the shareholders and will not be entitled to vote at any such meeting. Notwithstanding the foregoing, the holders of the Series 1 preferred shares are entitled to receive notice of and attend any meeting of the shareholders and vote on all matters on which the common shares are entitled to vote, voting together with the common shares on an as-converted basis and as a single class, provided that the voting rights of any holder shall not exceed the Beneficial Ownership Limitation notwithstanding any voting or other rights the holder may have at law or otherwise. In no case shall a Series 1 preferred share be entitled to more than one vote on an as-converted basis. Any Series 1 preferred shares that are ineligible to convert into common shares due to the Beneficial Ownership Limitation, measured as of a given record date that applies for a shareholder meeting, shall be deemed to be non-voting securities.

We may not, without the affirmative vote of the holders of a majority of the then outstanding Series 1 preferred shares, (i) alter or change adversely the powers, preferences or rights given to the Series 1 preferred shares or alter or amend or repeal any provision of, or add any provision to, our articles or bylaws, or file any articles of amendment, if such action would adversely alter or change the rights, privileges, restrictions and conditions provided for the benefit of the Series 1 preferred shares, or (ii) enter into any agreement with respect to any of the foregoing.

### **Transferability**

Prior to any sale, transfer or other disposition of Series 1 preferred shares, the holder must provide us with prior written notice at least three trading days in advance. No transfers may be effected unless the number of Series 1 preferred shares being transferred is at least the lesser of (i) 100,000 Series 1 preferred shares, (ii) the remaining number of Series 1 preferred shares then held by such holder and (iii) such other number of Series 1 preferred shares as agreed between us and such holder.



## **Dividends**

Holders of the Series 1 preferred shares are entitled to receive dividends (other than dividends in the form of common shares) on the Series 1 preferred shares (without regard to the Beneficial Ownership Limitation) if, as and when declared by our board of directors on the common shares. All dividends which our board of directors may determine to declare and pay must be declared and paid in equal or equivalent amounts per share on all of the Series 1 preferred shares in priority to the holders of the common shares.

## **Adjustments**

If the common shares are subdivided, consolidated, reclassified or otherwise changed, the Series 1 preferred shares will be subdivided, consolidated, reclassified or otherwise changed in the same proportion and in the same manner. If the common shares are exchanged or changed into other securities, cash or other property, the Series 1 preferred shares when converted will be converted into such other securities, cash or other property in the same manner. If the common shares are converted into or exchanged for the right to receive more than one type of consideration, the consideration for which the Series 1 preferred shares are exchangeable will be deemed to be the weighted average of the types and amounts of consideration received by the holders of common shares.

## **Redemption**

We may not redeem the Series 1 preferred shares.

## **Warrants**

As of June 30, 2019, we had outstanding warrants entitling holders to purchase an aggregate of 40,000 of our common shares at a weighted-average exercise price of \$9.79.

These warrants have a net exercise provision under which their holders may, in lieu of payment of the exercise price in cash, surrender the warrant and receive a net amount of shares based on the fair market value of our stock at the time of exercise of the warrants after deduction of the aggregate exercise price. These warrants contain provisions for adjustment of the exercise price and number of shares issuable upon the exercise of warrants in the event of certain stock dividends, stock splits, reorganizations, reclassifications and consolidations.

## **Corporate Governance**

Under the CBCA, we are required to hold a general meeting of our shareholders at least once every year at a time and place determined by our board of directors, provided that the meeting must not be held later than 15 months after the preceding annual general meeting and no later than six months after the end of the preceding financial year. The CBCA requires that meetings of shareholders shall be held at any place within Canada as our board of directors may from time to time determine. A notice to convene a meeting, specifying the date, time and location of the meeting must be sent to shareholders, to each director and the auditor not less than 21 days prior to the meeting or such other minimum period as required by the applicable securities laws. Under the CBCA, shareholders entitled to notice of a meeting may waive or reduce the period of notice for that meeting, provided applicable securities laws requirements are met.

Under the CBCA, all business transacted at a special meeting of shareholders and all business transacted at an annual meeting of shareholders, except consideration of the financial statements, auditor's report, election of directors and re-appointment of the incumbent auditor, is deemed to be special business. Notice of a meeting of shareholders at which special business is to be transacted shall state (a) the nature of that business in sufficient detail to permit the shareholder to form a reasoned judgment thereon; and (b) the text of any special resolution to be submitted to the meeting.

Under the CBCA, our board of directors has the power at any time to call a special meeting of our shareholders. In addition, the holders of not less than 5% of our shares that carry the right to vote at a meeting sought to be held can also requisition our board of directors to call a meeting of our shareholders for the purposes stated in the requisition. If our board of directors does not call the meeting within 21 days after receiving the requisition, our shareholders can call the meeting and the expenses reasonably incurred by such shareholders in requisitioning, calling and holding the meeting must be reimbursed by us.

Those entitled to vote at a meeting are entitled to attend meetings of our shareholders. Every shareholder entitled to vote may appoint a proxyholder to attend the meeting in the manner and to the extent authorized and with the authority conferred by the proxy. Directors, auditors, legal counsels, secretary (if any), and any other persons invited by the chair of the meeting or with the consent of those at the meeting are entitled to attend any meeting of our shareholders but will not be counted in quorum or be entitled to vote at the meeting unless he or she or it is a shareholder or proxyholder entitled to vote at the meeting.

#### **Certain Takeover Bid Requirements**

Unless such offer constitutes an exempt transaction, an offer made by a person, an “offeror”, to acquire outstanding shares of a Canadian entity that, when aggregated with the offeror’s holdings (and those of persons or companies acting jointly with the offeror), would constitute 20% or more of the outstanding shares in a class, would be subject to the take-over provisions of Canadian securities laws. The foregoing is a limited and general summary of certain aspects of applicable securities law in the provinces and territories of Canada, all in effect as of the date hereof.

In addition to those takeover bid requirements noted above, the acquisition of our shares may trigger the application of statutory regimes including among others, the Investment Canada Act (Canada) and the Competition Act (Canada).

Limitations on the ability to acquire and hold our common shares may be imposed by the Competition Act (Canada). This legislation permits the Commissioner of Competition, or the Commissioner, to review any acquisition of control over a significant interest in us. This legislation grants the Commissioner of Competition jurisdiction to challenge an acquisition before the Canadian Competition Tribunal on the basis that it would, or would be likely to, substantially prevent or lessen competition in any definable market in Canada.

This legislation requires any person who intends to acquire our common shares to file a notification with the Canadian Competition Bureau if certain financial thresholds are exceeded and if that person (and their affiliates) would hold more than 20% of our common shares. If a person already owns 20% or more of our common shares, a notification must be filed when the acquisition of additional shares would bring that person’s holdings to over 50%. Where a notification is required, the legislation prohibits completion of the acquisition until the expiration of a statutory waiting period, unless the Commissioner first provides written notice that the acquisition will not be challenged. Where the waiting period has expired and such a written notice has not been provided, or where a notification is not required, the parties may complete the acquisition, though the Commissioner may still challenge it within one year from completion.

There is no limitation imposed by Canadian law or our articles on the right of non-residents to hold or vote our common shares, other than those imposed by the Investment Canada Act.

The Investment Canada Act requires any person that is a “non-Canadian” (as defined in the Investment Canada Act) who acquires control of an existing Canadian business, where the acquisition of control is not a reviewable transaction, to file a post-closing notification form with the Investment Review Division of the Canadian government. The Investment Canada Act generally prohibits the implementation of a reviewable transaction unless, after review, the relevant minister is satisfied that the investment is likely to be of net benefit to Canada. Under the Investment Canada Act, direct acquisition of control of us through the acquisition of our common shares (or the acquisition of all or substantially all our assets) by a non-Canadian investor who is a Trade Agreement country investor, including a U.S. investor, but not a state-owned enterprise, would be reviewable only if our enterprise value (as determined pursuant to the Investment Canada Act) exceeds CAD\$1.568 billion for 2019 (increasing annually on the basis of a prescribed formula in the Investment Canada Act to reflect changes in the Canadian gross domestic product). If the acquisition of control of us by a non-Canadian that is not a Trade Agreement country investor or a state-owned enterprise, but is a World Trade Organization member country investor, the acquisition of control would be reviewable only if our enterprise value exceeds CAD\$1.045 billion for 2019 (increasing annually on the basis of a prescribed formula in the Investment Canada Act to reflect changes in the Canadian gross domestic product). If the acquisition of control of us is by a state-owned enterprise that is a non-Canadian who is a World Trade Organization member country investor, including a U.S. investor, the acquisition of control would be reviewable only if the value of our assets was equal to or greater than CAD\$416 million (subject to an annual adjustment on the basis of a prescribed formula in the Investment Canada Act to reflect changes in Canadian gross domestic product).

The acquisition of a majority of the voting interests of an entity is deemed to be acquisition of control of that entity (more than 50% of voting shares). The acquisition of less than a majority but one-third or more of the voting shares of a corporation or an equivalent undivided ownership interest in the voting shares of a corporation is presumed to be an acquisition of control of that corporation unless it can be established that, on the acquisition, the corporation is not controlled in fact by the acquirer through the ownership of voting shares. The acquisition of less than one-third of the voting shares of a corporation is deemed not to be an acquisition of control of that corporation. Certain transactions in relation to our common shares would be exempt from review by the Investment Canada Act including:

- the acquisition of our common shares by a person in the ordinary course of that person’s business as a trader or dealer in securities;
- the acquisition of control of us in connection with the realization of security granted for a loan or other financial assistance and not for any purpose related to the provisions of the Investment Canada Act; and
- the acquisition of control of us by reason of an amalgamation, merger, consolidation or corporate reorganization following which ultimate direct or indirect control in fact of us, through the ownership of our voting shares, remains unchanged.

Under the national security regime in the Investment Canada Act, a review on a discretionary basis may also be undertaken by the federal government in respect of a much broader range of investments by a non-Canadian to “acquire, in whole or in part, or to establish an entity carrying on all or any part of its operations in Canada.” The relevant test is whether such an investment by a non-Canadian could be “injurious to national security.” Review on national security grounds is at the discretion of the federal government and may occur on a pre- or post-closing basis.

There is no law, governmental decree or regulation in Canada that restricts the export or import of capital or which would affect the remittance of dividends or other payments by us to non-Canadian holders of our common shares or preferred shares, other than withholding tax requirements.

Neither our articles nor by-laws contain any change of control limitations with respect to a merger, acquisition or corporate restructuring that involves us.

This summary is not a comprehensive description of relevant or applicable considerations regarding such requirements and, accordingly, is not intended to be, and should not be interpreted as, legal advice to any prospective purchaser and no representation with respect to such requirements to any prospective purchaser is made. Prospective investors should consult their own Canadian legal advisors with respect to any questions regarding securities law in the provinces and territories of Canada.

### **Actions Requiring a Special Majority**

Under the CBCA, certain corporate actions require the approval of a special majority of shareholders, meaning holders of shares representing not less than 66 2/3% of those votes cast in respect of a shareholder vote addressing such matter. Those items requiring the approval of a special majority generally relate to fundamental changes with respect to our business, and include among others, resolutions: (i) amending our articles; (ii) approving an amalgamation; (iii) approving a continuance; and (iv) providing for a sale, lease or exchange of all or substantially all of our property.

### **Advance Notice Procedures and Shareholder Proposals**

Under the CBCA, shareholders may make proposals for matters to be considered at the annual general meeting of shareholders. Such proposals must be sent to us in advance of any proposed meeting by delivering a timely written notice in proper form to our registered office in accordance with the requirements of the CBCA. The notice must include information on the business the shareholder intends to bring before the meeting.

In addition, our by-laws require that shareholders provide us with advance notice of their intention to nominate any persons, other than those nominated by management, for election to our board of directors at a meeting of shareholders.

These provisions could have the effect of delaying until the next shareholder meeting the nomination of certain persons for director that are favored by the holders of a majority of our outstanding voting securities.

### **Ownership and Exchange Controls**

There is currently no law, governmental decree or regulation in Canada that restricts the export or import of capital, or which would affect the remittance of dividends, interest or other payments by us to non-resident holders of our common shares, other than withholding tax requirements.

There is currently no limitation imposed by Canadian law or our articles or by-laws on the right of non-residents to hold or vote our common shares, other than those imposed by the Investment Canada Act and the Competition Act (Canada). These acts will generally not apply except where a control of an existing Canadian business or company, which has Canadian assets or revenue, or enterprise value (as applicable) over a certain threshold, is acquired and will not apply to trading generally of securities listed on a stock exchange.

### **Transfer Agent and Registrar**

The transfer agent and registrar for our common shares is American Stock Transfer & Trust Company, LLC, or AST. The transfer agent and registrar's address is 6201 15th Avenue, Brooklyn, NY 11219. The transfer agent's telephone number is (800) 937-5449. Additionally, in compliance with the CBCA, we have retained CST Trust Company, an affiliate of AST, to act as our Canadian transfer agent and registrar. CST Trust Company's address is 1066 West Hastings Street, Vancouver, BC V6E 3X1, and its telephone number is (604) 235-3703.

### **Listing**

Our common shares are listed on Nasdaq under the symbol "XENE."

## DESCRIPTION OF THE WARRANTS

We may issue warrants for the purchase of our common shares or preferred shares, or any combination thereof. Warrants may be issued independently or together with our common shares or preferred shares and may be attached to or separate from any offered securities. Each series of warrants will be issued under a separate warrant agreement to be entered into between us and a bank or trust company, as warrant agent. The warrant agent will act solely as our agent in connection with the warrants. The warrant agent will not have any obligation or relationship of agency or trust for or with any holders or beneficial owners of warrants.

### Equity Warrants

The prospectus supplement relating to a particular series of warrants to purchase our common shares or preferred shares will describe the terms of the warrants, including the following:

- the title of the warrants;
- the offering price for the warrants;
- the aggregate number of warrants offered;
- the designation and terms of the common shares or preferred shares that may be purchased upon exercise of the warrants;
- if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each security;
- if applicable, the date from and after which the warrants and any securities issued with the warrants will be separately transferable;
- the number of common shares or preferred shares that may be purchased upon exercise of a warrant and the exercise price for the warrants;
- the dates on which the right to exercise the warrants shall commence and expire;
- if applicable, the minimum or maximum amount of the warrants that may be exercised at any one time;
- the currency or currency units in which the offering price, if any, and the exercise price are payable;
- if applicable, a discussion of material U.S. and Canadian federal income tax considerations;
- the anti-dilution provisions of the warrants, if any;
- the redemption or call provisions, if any, applicable to the warrants;
- any adjustments to the terms of the warrants resulting from the occurrence of certain events or from the entry into or consummation by us of certain transactions;
- any provisions with respect to the holder's right to require us to repurchase the warrants upon a change in control or similar event; and
- any additional terms of the warrants, including procedures and limitations relating to the exchange, exercise and settlement of the warrants.

Holders of warrants will not be entitled:

- to vote or receive dividends;
- receive notice with respect to any meeting of shareholders for the election of our directors or any other matter; or
- exercise any rights as shareholders of us.

This summary of certain provisions of the warrants is not complete. For the terms of a particular series of warrants, you should refer to the prospectus supplement for that series of warrants and the warrant agreement for that particular series.

#### **DESCRIPTION OF THE UNITS**

We may issue units comprised of one or more of the other classes of securities described in this prospectus in any combination. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The units may be issued under unit agreements to be entered into between us and a unit agent, as detailed in the prospectus supplement relating to the units being offered. The prospectus supplement will describe:

- the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances the securities comprising the units may be held or transferred separately;
- a description of the terms of any unit agreement governing the units;
- a description of the provisions for the payment, settlement, transfer or exchange of the units;
- a discussion of material U.S. and Canadian federal income tax considerations, if applicable; and
- whether the units if issued as a separate security will be issued in fully registered or global form.

The descriptions of the units in this prospectus and in any prospectus supplement are summaries of the material provisions of the applicable agreements. These descriptions do not restate those agreements in their entirety and may not contain all the information that you may find useful. We urge you to read the applicable agreements because they, and not the summaries, define your rights as holders of the units. For more information, please review the forms of the relevant agreements, which will be filed with the SEC promptly after the offering of units and will be available as described in the section titled "Where You Can Find More Information."

## PLAN OF DISTRIBUTION

We may sell the securities offered through this prospectus (1) to or through underwriters or dealers, (2) directly to purchasers, including our affiliates, (3) through agents, or (4) through a combination of any these methods. The securities may be distributed at a fixed price or prices, which may be changed, market prices prevailing at the time of sale, prices related to the prevailing market prices, or negotiated prices.

The prospectus supplement relating to any offering will include the following information:

- the terms of the offering;
- the names of any underwriters or agents;
- the name or names of any managing underwriter or underwriters;
- the purchase price of the securities;
- the net proceeds from the sale of the securities;
- any delayed delivery arrangements
- any underwriting discounts, commissions or agency fees and other items constituting underwriters' or agents' compensation;
- any initial price to public;
- any discounts or concessions allowed or reallocated or paid to dealers; and
- any commissions paid to agents.

In addition, the manner in which we may sell some or all of the securities covered by this prospectus includes, without limitation, through:

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

We may engage in at-the-market offerings into an existing trading market in accordance with Rule 415(a)(4) in the manner described below under “—At-the-Market Offerings.”

## **Sale through Underwriters or Dealers**

If underwriters are used in the sale, the underwriters will acquire the securities for their own account, including through underwriting, purchase, security lending or repurchase agreements with us. The underwriters may resell the securities from time to time in one or more transactions, including negotiated transactions. Underwriters may sell the securities in order to facilitate transactions in any of our other securities (described in this prospectus or otherwise), including other public or private transactions and short sales. Underwriters may offer securities to the public either through underwriting syndicates represented by one or more managing underwriters or directly by one or more firms acting as underwriters. Unless otherwise indicated in the prospectus supplement, the obligations of the underwriters to purchase the securities will be subject to certain conditions, and the underwriters will be obligated to purchase all the offered securities if they purchase any of them (other than any securities purchased upon exercise of any option to purchase additional securities). In connection with any offering of securities pursuant to this prospectus, underwriters may have an option to purchase additional securities from us. We will provide information regarding any such option to purchase additional securities from us in the applicable prospectus supplement. The underwriters may change from time to time any initial public offering price and any discounts or concessions allowed or reallocated or paid to dealers. The prospectus supplement will include the names of the principal underwriters the respective amount of securities underwritten, the nature of the obligation of the underwriters to take the securities and the nature of any material relationship between an underwriter and us.

Some or all of the securities that we offer through this prospectus may be new issues of securities with no established trading market. Any underwriters to whom we sell securities for public offering and sale may make a market in those securities, but they will not be obligated to do so and they may discontinue any market making at any time without notice. Accordingly, we cannot assure you of the liquidity of, or continued trading markets for, any securities offered pursuant to this prospectus.

If dealers are used in the sale of securities offered through this prospectus, we will sell the securities to them as principals. They may then resell those securities to the public at varying prices determined by the dealers at the time of resale. The prospectus supplement will include the names of the dealers and the terms of the transaction.

## **Direct Sales and Sales through Agents**

We may sell the securities offered through this prospectus directly. In this case, no underwriters or agents would be involved. Such securities may also be sold through agents designated from time to time. The applicable prospectus supplement will name any agent involved in the offer or sale of the offered securities and will describe any commissions payable to the agent by us. Unless otherwise indicated in the prospectus supplement, any agent will agree to use its reasonable best efforts to solicit purchases for the period of its appointment.

We may sell the securities directly to institutional investors or others who may be deemed to be underwriters within the meaning of the Securities Act with respect to any sale of those securities. The terms of any such sales will be described in the prospectus supplement.

## **Delayed Delivery Contracts**

If the prospectus supplement indicates, we may authorize agents, underwriters or dealers to solicit offers from certain types of institutions to purchase securities at the public offering price under delayed delivery contracts. These contracts would provide for payment and delivery on a specified date in the future. The contracts would be subject only to those conditions described in the prospectus supplement. The applicable prospectus supplement will describe the commission payable for solicitation of those contracts.

## **At-the-Market Offerings**

To the extent that we make sales through one or more underwriters or agents in at-the-market offerings, we will do so pursuant to the terms of a sales agency financing agreement or other at-the-market offering arrangement between us, on one hand, and the underwriters or agents, on the other. If we engage in at-the-market sales pursuant to any such agreement, we will issue and sell our securities through one or more underwriters or agents, which may act on an agency basis or a principal basis. During the term of any such agreement, we may sell securities on a daily basis in exchange transactions or otherwise as we agree with the underwriters or agents. Any such agreement will provide that any securities sold will be sold at prices related to the then prevailing market prices for our securities. Therefore, exact figures regarding proceeds that will be raised or commissions to be paid cannot be determined as of the date of this prospectus. Pursuant to the terms of the agreement, we may agree to sell, and the relevant underwriters or agents may agree to solicit offers to purchase, blocks of our common stock or other securities. The terms of any such agreement will be set forth in more detail in the applicable prospectus or prospectus supplement.



## **Market Making, Stabilization and Other Transactions**

Unless the applicable prospectus supplement states otherwise, each offered security will be a new issue and will have no established trading market, with the exception of our common shares. We may elect to list any offered securities on an exchange. Any underwriters that we use in the sale of offered securities may make a market in such securities, but may discontinue such market making at any time without notice. Accordingly, we cannot assure you of the liquidity of, or continued trading markets for, any securities offered pursuant to this prospectus.

Any underwriter may also over-allot or engage in stabilizing transactions, syndicate covering transactions and penalty bids in accordance with Rule 104 under the Securities Exchange Act of 1934, as amended. Over-allotment or short sales involve sales by persons participating in the offering of more securities than were sold to them. In these circumstances, these persons would cover such over-allotments or short positions by making purchases in the open market or by exercising their over-allotment option, if any. Stabilizing transactions involve bids to purchase the underlying security in the open market for the purpose of pegging, fixing or maintaining the price of the securities. Syndicate covering transactions involve purchases of the securities in the open market after the distribution has been completed in order to cover syndicate short positions.

Penalty bids permit the underwriters to reclaim a selling concession from a syndicate member when the securities originally sold by the syndicate member are purchased in a syndicate covering transaction to cover syndicate short positions. Stabilizing transactions, syndicate covering transactions and penalty bids may cause the price of the securities to be higher than it would be in the absence of the transactions. The underwriters may, if they commence these transactions, discontinue them at any time.

## **Derivative Transactions and Hedging**

We, the underwriters or other agents may engage in derivative transactions involving the securities. These derivatives may consist of short sale transactions and other hedging activities. The underwriters or agents may acquire a long or short position in the securities, hold or resell securities acquired and purchase options or futures on the securities and other derivative instruments with returns linked to or related to changes in the price of the securities. In order to facilitate these derivative transactions, we may enter into security lending or repurchase agreements with the underwriters or agents. The underwriters or agents may effect the derivative transactions through sales of the securities to the public, including short sales, or by lending the securities in order to facilitate short sale transactions by others. The underwriters or agents may also use the securities purchased or borrowed from us or others (or, in the case of derivatives, securities received from us in settlement of those derivatives) to directly or indirectly settle sales of the securities or close out any related open borrowings of the securities.

## **Electronic Auctions**

We may also make sales through the Internet or through other electronic means. Since we may from time to time elect to offer securities directly to the public, with or without the involvement of agents, underwriters or dealers, utilizing the Internet or other forms of electronic bidding or ordering systems for the pricing and allocation of such securities, you should pay particular attention to the description of that system we will provide in a prospectus supplement.

Such electronic system may allow bidders to directly participate, through electronic access to an auction site, by submitting conditional offers to buy that are subject to acceptance by us, and which may directly affect the price or other terms and conditions at which such securities are sold. These bidding or ordering systems may present to each bidder, on a so-called "real-time" basis, relevant information to assist in making a bid, such as the clearing spread at which the offering would be sold, based on the bids submitted, and whether a bidder's individual bids would be accepted, prorated or rejected.

Upon completion of such an electronic auction process, securities will be allocated based on prices bid, terms of bid or other factors. The final offering price at which securities would be sold and the allocation of securities among bidders would be based in whole or in part on the results of the Internet or other electronic bidding process or auction.

## **General Information**

Agents, underwriters, and dealers may be entitled, under agreements entered into with us, to indemnification by us against certain liabilities, including liabilities under the Securities Act. Our agents, underwriters, and dealers, or their affiliates, may be customers of, engage in transactions with or perform services for us, in the ordinary course of business. In no event will the total amount of compensation paid to the agents, underwriters and dealers upon completion of any offering exceed 8.0% of the gross proceeds of such offering.

## MATERIAL INCOME TAX CONSIDERATIONS

The applicable prospectus supplement may describe material U.S. federal income tax consequences of the acquisition, ownership and disposition of any of the securities offered by such prospectus supplement by an investor who is subject to U.S. federal taxation.

The applicable prospectus supplement may also describe material Canadian federal income tax considerations generally applicable to investors described therein of purchasing, holding and disposing of securities offered by such prospectus supplement, including, in the case of an investor who is not a resident of Canada, Canadian non-resident withholding tax considerations.

You should read the tax discussion in any prospectus supplement with respect to a particular offering and consult your own tax advisors with respect to the specific tax consequences of the acquisition, ownership and disposition of the securities offered by such prospectus supplement, including the applicability and effect of state, local and non-U.S. or Canadian tax laws, as well as U.S. and Canadian federal tax laws.

## LEGAL MATTERS

We are being represented by Wilson Sonsini Goodrich & Rosati, Professional Corporation, Palo Alto, California. Certain legal matters relating to the securities offered by this prospectus under Canadian laws will be passed upon for us by Blake, Cassels & Graydon LLP, Vancouver, British Columbia. As of the date of this prospectus, the members and associates of Wilson Sonsini Goodrich & Rosati, Professional Corporation, as a group, own less than 1% of our outstanding securities and the partners and associates of Blake, Cassels & Graydon LLP, as a group, own less than 1% of our outstanding securities. Additional legal matters may be passed on for us, or any underwriters, dealers or agents, by counsel that we will name in the applicable prospectus supplement.

## EXPERTS

The consolidated financial statements of Xenon Pharmaceuticals Inc. as of December 31, 2018 and 2017, and for each of the years in the two-year period ended December 31, 2018, have been incorporated by reference herein in reliance upon the report of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

## WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and other reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K, including any amendments to those reports, and other information that we file with or furnish to the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act can also be accessed free of charge through the Internet. These filings will be available as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. You may also access these filings through our website at [www.xenon-pharma.com](http://www.xenon-pharma.com).

We have filed with the SEC a registration statement under the Securities Act of 1933 relating to the offering of these securities. The registration statement, including the attached exhibits, contains additional relevant information about us and the securities. This prospectus does not contain all of the information set forth in the registration statement. You can obtain a copy of the registration statement, at prescribed rates, from the SEC as discussed above. The registration statement and the documents referred to below under "Incorporation by Reference" are also available on our Internet website, [www.xenon-pharma.com](http://www.xenon-pharma.com). We have not incorporated by reference into this prospectus the information on our website, and you should not consider it to be a part of this prospectus.

## INFORMATION INCORPORATED BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus certain information we file with it, which means that we can disclose important information by referring you to those documents. The information incorporated by reference is considered to be a part of this prospectus, and information that we file later with the SEC will automatically update and supersede information contained in this prospectus and any accompanying prospectus supplement. We incorporate by reference the documents listed below that we have previously filed with the SEC (excluding any portions of any Form 8-K that are not deemed "filed" pursuant to the General Instructions of Form 8-K):

- our Annual Report on [Form 10-K](#) for the fiscal year ended December 31, 2018, filed with the SEC on March 6, 2019;

- the portions of our Definitive Proxy Statement on [Schedule 14A](#) (other than information furnished rather than filed) that are incorporated by reference into our Annual Report on Form 10-K, filed with the SEC on April 29, 2019;
- our Quarterly Reports on Form 10-Q for the quarters ended [March 31, 2019](#) and [June 30, 2019](#), filed with the SEC on May 7, 2019 and August 6, 2019, respectively;
- our Current Reports on Form 8-K filed with the SEC on [March 13](#), [March 25](#) and [June 5, 2019](#), respectively; and
- the description of our common shares contained in our Registration Statement on [Form 8-A](#) as filed with the SEC on October 10, 2014 pursuant to Section 12(b) of the Exchange Act.

We also incorporate by reference into this prospectus additional documents (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits on such form that are related to such items) that we may file with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the completion or termination of the offering of the securities described in this prospectus, including all such documents we may file with the SEC after the date of the initial registration statement and prior to the effectiveness of the registration statement, but excluding any information deemed furnished and not filed with the SEC. Any statements contained in a previously filed document incorporated by reference into this prospectus is deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus, or in a subsequently filed document also incorporated by reference herein, modifies or supersedes that statement.

You should rely only on the information incorporated by reference or provided in this prospectus. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus is accurate as of any date other than the date of this prospectus or the date of the documents incorporated by reference in this prospectus.

We will provide to each person, including any beneficial owner, to whom this prospectus is delivered, upon written or oral request, at no cost to the requester, a copy of any and all of the information that is incorporated by reference in this prospectus.

Requests for such documents should be directed to:

Xenon Pharmaceuticals Inc.  
Attn: Investor Relations  
200 – 3650 Gilmore Way  
Burnaby, BC V5G 4W8  
Canada  
(604) 484-3300

You may also access the documents incorporated by reference in this prospectus through our website at [www.xenon-pharma.com](http://www.xenon-pharma.com). Except for the specific incorporated documents listed above, no information available on or through our website shall be deemed to be incorporated in this prospectus or the registration statement of which it forms a part.



**PROSPECTUS SUPPLEMENT**

**Jefferies**

**Stifel**

November 5, 2019