

The information in this preliminary prospectus supplement is not complete and may be changed. This preliminary prospectus supplement and the accompanying base prospectus are not an offer to sell these securities, and are not soliciting an offer to buy these securities, in any jurisdiction where the offer or sale is not permitted.

Subject to completion, dated June 27, 2018

Preliminary prospectus supplement
(To prospectus dated September 1, 2017)



INTREXON CORPORATION

\$200,000,000

% Convertible Senior Notes due 2023

Interest payable January 1 and July 1

We are offering \$200,000,000 principal amount of our % Convertible Senior Notes due 2023. The notes will bear interest at a rate of % per year, payable semiannually in arrears on January 1 and July 1 of each year, beginning on January 1, 2019. The notes will mature on July 1, 2023.

Holders may convert all or any portion of their notes in multiples of \$1,000 principal amount at their option at any time prior to the close of business on the business day immediately preceding April 1, 2023 only under the following circumstances: (1) during any calendar quarter commencing after the calendar quarter ending on September 30, 2018 (and only during such calendar quarter), if the last reported sale price of the common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day; (2) during the five business day period after any five consecutive trading day period (the "measurement period") in which the trading price (as defined below) per \$1,000 principal amount of notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of our common stock and the conversion rate on each such trading day; or (3) upon the occurrence of specified corporate events. On or after April 1, 2023 until the close of business on the business day immediately preceding the maturity date, holders may convert their notes at any time, regardless of the foregoing circumstances. Upon conversion, we will pay or deliver, as the case may be, cash, shares of our common stock or a combination of cash and shares of our common stock, at our election, as described in this prospectus supplement.

The conversion rate will initially be shares of common stock per \$1,000 principal amount of notes (equivalent to an initial conversion price of approximately \$ per share of common stock). The conversion rate will be subject to adjustment in some events but will not be adjusted for any accrued and unpaid interest. In addition, following certain corporate events that occur prior to the maturity date, we will increase the conversion rate for a holder who elects to convert its notes in connection with such a corporate event in certain circumstances.

We may not redeem the notes prior to the maturity date, and no sinking fund is provided for the notes.

If we undergo a fundamental change, holders may require us to repurchase for cash all or any portion of their notes at a fundamental change repurchase price equal to 100% of the principal amount of the notes to be repurchased, plus accrued and unpaid interest to, but excluding, the fundamental change repurchase date.

The notes will be our senior unsecured obligations and will rank senior in right of payment to any of our indebtedness that is expressly subordinated in right of payment to the notes; equal in right of payment to any of our unsecured indebtedness that is not so subordinated; effectively junior in right of payment to any of our secured indebtedness to the extent of the value of the assets securing such indebtedness; and structurally junior to all indebtedness and other liabilities (including trade payables) of our subsidiaries. The notes will not be guaranteed.

Concurrently with this offering, we are offering \$100,000,000 of shares of our common stock by means of a separate prospectus supplement and prospectus. Such shares, which we refer to as the "borrowed shares", will be loaned by us to J.P. Morgan Securities LLC, the underwriter for the concurrent offering of the borrowed shares, which we refer to as the "share borrower". The share borrower or its affiliates will receive all of the proceeds of the concurrent offering of borrowed shares and we will not receive any proceeds of that offering. The offering of the notes is contingent upon the closing of the concurrent offering of the borrowed shares, and the concurrent offering of the borrowed shares is contingent upon the closing of the offering of the notes. See "Description of share lending agreement" and "Underwriting" in this prospectus supplement. This prospectus supplement is not an offer to sell or a solicitation of an offer to buy any securities being offered in the concurrent offering of borrowed shares.

The notes are new securities and there is currently no established market for the notes. We do not intend to apply to list the notes on any securities exchange or any automated dealer quotation system. Our common stock trades on the New York Stock Exchange under the symbol "XON." On June 26, 2018, the last reported sale price of our common stock on the New York Stock Exchange was \$14.15 per share.

Investing in our notes involves risks. Before buying any notes, you should read the discussion of material risks of investing in our notes in "Risk Factors" beginning on page S-8 of this prospectus supplement, and in the risks discussed in the documents incorporated by reference in this prospectus supplement, as they may be amended, updated or modified periodically in our reports filed with the Securities and Exchange Commission.

	Per note	Total
Public offering price(1)	\$	\$
Underwriting discounts and commissions	\$	\$
Proceeds, before expenses, to us	\$	\$

(1) Plus accrued interest, if any, from , 2018.

We have granted the underwriters the right to purchase, exercisable within a 30-day period, up to an additional \$30,000,000 principal amount of notes, solely to cover over-allotments, if any.

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

We expect that delivery of the notes will be made to investors in book-entry form through The Depository Trust Company on or about , 2018.

J.P. Morgan

The date of this prospectus supplement is June , 2018.

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About this prospectus supplement

This document is in two parts, both of which are part of a shelf registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the SEC, on September 1, 2017, pursuant to which we may from time to time offer various securities in one or more offerings. The first part of this document is this prospectus supplement, which describes the terms of this offering and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus. The second part is the accompanying prospectus, which gives more general information about the notes and other securities we may offer from time to time under our shelf registration statement, some of which may not apply to the notes offered by this prospectus. When we refer to this “prospectus,” we are generally referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus or any document incorporated by reference into this prospectus, on the other hand, you should rely on the prospectus supplement unless the document incorporated by reference has a later date than this prospectus supplement, in which case you should rely on the document with a later date.

We have not, and the underwriters have not, authorized anyone to provide any information other than that contained or incorporated by reference in this prospectus supplement or in any free writing prospectus prepared by or on behalf of us. Neither we nor the underwriters take any responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We are not, and the underwriters are not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should not assume that the information contained in this prospectus supplement, the accompanying prospectus or the documents incorporated herein by reference is accurate as of any date other than their respective dates. Our business, financial condition, results of operations and prospects may have changed since those dates.

We are offering to sell, and seeking offers to buy, our notes only in jurisdictions where such offers and sales are permitted.

When used in this prospectus, the terms “Intrexon,” “the Company,” “we,” “our” and “us” refer to Intrexon Corporation and its subsidiaries, unless otherwise specified or the context otherwise requires. Intrexon® is our registered trademark in the United States. This prospectus and the information incorporated herein by reference contain references to trademarks, service marks and trade names owned by us or other companies. Solely for convenience, trademarks, service marks and trade names referred to in this prospectus and the information incorporated herein, 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, service marks and trade names. We do not intend our use or display of other companies’ trade names, service marks or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other companies. Other trademarks, trade names and service marks appearing in this prospectus supplement and any accompanying prospectus or any related free writing prospectus are the property of their respective owners.

Prospectus supplement summary

The following summary highlights information contained or incorporated by reference in this prospectus supplement and the accompanying prospectus and is qualified in its entirety by the more detailed information and consolidated financial statements included elsewhere or incorporated by reference in this prospectus supplement. This summary does not contain all of the information that may be important to you. You should read and carefully consider the following summary together with the entire prospectus supplement and accompanying prospectus, including the documents incorporated by reference herein and therein, before deciding to invest in our notes. Some of the statements included or incorporated reference in this prospectus supplement or the accompanying prospectus constitute forward-looking statements that involve risks and uncertainties. See "Cautionary statement regarding forward-looking statements." Our actual results could differ materially from those anticipated in such forward-looking statements as a result of certain factors, including those discussed in the "Risk factors" and other sections of this prospectus supplement and the accompanying prospectus.

Overview

At present rates of global industrialization and population growth, food and energy supplies and environmental and healthcare resources are becoming more scarce and/or costly. We believe it is not a viable option for mankind to continue on this path—new solutions will be necessary to preserve and globally expand a high quality of life. We believe that synthetic biology is a solution.

We believe we are a leader in the field of synthetic biology, focusing on programming biological systems to alleviate disease, remediate environmental challenges, and provide sustainable food and industrial chemicals. Synthetic biology involves the tightly controlled expression of natural and engineered genes (DNA segments) in a variety of animal, plant and microorganismal hosts. Our historical approach primarily involved an exclusive channel collaboration, or ECC, model in which we served principally as the technology engine for a partner experienced in a given commercial arena. As our experience has deepened, we have moved toward more joint ventures, or JVs, and the self-development of projects we view as particularly compelling and within our increasing areas of expertise.

Synthetic biology is a rapidly evolving discipline that applies engineering principles to biological systems to enable rational, design-based control of cellular function for a specific purpose. Using our suite of proprietary and complementary technologies, we design, build and regulate gene programs, which are DNA sequences that consist of key genetic components. A single gene program or a complex, multi-genic program is fabricated and stored within a DNA vector. Vectors are segments of DNA used as a vehicle to transmit genetic information. DNA vectors can, in turn, be introduced into cells in order to generate a simple or complex cellular system, which are the basic and complex cellular activities that take place within a cell and the interaction of those systems in the greater cellular environment. It is these genetically modified cell systems that can be used to produce biological effector molecules, or be employed directly to enable the development of new and improved products and manufacturing processes across a variety of end markets, including health, food, energy, environment, and consumer. Our synthetic biology capabilities include the ability to precisely control the amount, location and modification of biological molecules to control the function and output of living cells and optimize for desired results at an industrial scale.

Working with our subsidiaries, JVs, and collaborators, we seek to create more effective, less costly and more sustainable solutions than can be provided through current industry practices. Our technologies combine the principles of precision engineering, statistical modeling, automation and production at an industrial scale. We efficiently engineer precise and complex gene programs across many cell types. We apply the engineering

principle of a design-build-test-learn continuum, through which we accumulate knowledge about the characteristics and performance of gene programs and cell lines. This process of continuous learning allows us to enhance our ability to design and build improved and more complex gene programs and cellular systems.

While the field of synthetic biology is still emerging, the addressable markets that may benefit from this approach are large and well-established. In health, synthetic biology may provide new approaches to treating diseases, as well as improvements to the manufacture of existing products. It is estimated that the global biopharmaceuticals market is over \$175 billion. While genetically modified salmon or tilapia may be considered new products, the global market for aquaculture was estimated at more than \$170 billion in 2017. Genetically modified agricultural plants are already grown on approximately 180 million hectares around the world and are worth an estimated \$15 billion. In energy, we are working to create novel, highly engineered bacteria that utilize specific energy feedstocks, typically pipeline grade natural gas, to synthesize commercial end products, such as isobutanol for gasoline blending, 2,3 Butanediol for conversion to synthetic rubber and 1,4 Butanediol for polyester. Today these target markets are estimated to represent over \$100 billion in aggregate commercial opportunity.

We believe our technologies are broadly applicable across many diverse end markets, including some end markets that have failed to recognize the applicability of synthetic biology or failed to efficiently utilize biologically-based processes to produce products. To enable us to maximize the number of these markets we could address, we devised a strategy that allowed us to focus on our core expertise in synthetic biology while developing many different commercial product candidates via collaborations in a broad range of industries or end markets. Historically, we built our business primarily around the formation of ECCs. An ECC is an agreement with a collaborator to develop products based on technologies in a specifically defined field. We have sought collaborators with expertise within a specific industry sector and the commitment to provide resources for the commercialization of products within that industry sector. Through our ECCs, we provide expertise in the engineering of gene programs and cellular systems, and our collaborators are responsible for providing market and product development expertise, as well as sales and marketing capabilities. In addition, we have sometimes executed a research collaboration to develop an early-stage program pursuant to which we received reimbursement for our development costs but the exclusive commercial rights, and related access fees, were deferred until completion of an initial research program.

This ECC strategy has allowed us to leverage our capabilities and capital across numerous product development programs and a broader landscape of end markets than we would have been capable of addressing on our own. The strategy has also allowed us to participate in the potential upside from products that are enabled by our technologies across an extensive range of industries, without the need for us to invest considerable resources in bringing individual products to market. We presently are party to a number of these collaborations, which are in varying stages from research and development of product candidates to monitoring the progress of our collaborator in their further development and the potential commercialization of product candidates enabled through our collaborations.

Over time, our strategy has evolved away from ECC-type collaborations to relationships and structures that provide us with more control and ownership over the development process and commercialization path. In these new relationships and structures, we bear more of the responsibility to fund the projects and execute on product candidate development.

First, in certain strategic circumstances, we may enter into a JV with a third-party collaborator whereby we may contribute access to our technology, cash or both into the JV which we will jointly control with our collaborator. Pursuant to a JV agreement, we may be required to contribute additional capital to the JV, and we may be able

to receive a higher financial return than we would normally receive from an ECC to the extent that we and our collaborator are successful in developing one or more products. Second, we are increasing the resources we are expending internally on early-stage proof of concept programs where we believe we can leverage our competitive edge in gene program creation and host cell and genome expertise. We are also seeking to partner more mature programs and capabilities or later-stage assets. In this way, we endeavor to leverage our capital resources and ultimately hope to realize significant value from our mature assets.

As we consider the broad potential applications of our synthetic biology technologies, and consistent with the evolution of our business strategy, we have acquired a number of ventures that are already enabling products that benefit from the application of synthetic biology. Our strategy contemplates the continued acquisition of product-focused companies that we believe may leverage our technologies and expertise in order to expand their respective product applications. We believe that the acquisition of these types of companies allows us to develop and commercialize innovative products and create significant value.

Consistent with the ongoing evolution of our strategy, from principally utilizing ECCs to seeking a more diverse approach to leverage our technology assets, we routinely consider ways to organize our business and the grouping of our assets to facilitate strategic opportunities.

Corporate information

We were founded by Thomas D. Reed, Ph.D., in 1998, as an Ohio limited liability company under the name Genomatix LTD. We were reincorporated as a Virginia corporation in 2004 and changed our name to Intrexon Corporation in 2005. The principal executive offices of Intrexon are located at 20374 Seneca Meadows Parkway, Germantown, Maryland 20876, and our telephone number is (301) 556-9900. Our website is www.dna.com. The information on, or that can be accessed through, our website does not constitute part of this prospectus supplement, and you should not rely on any such information in making the decision whether to purchase our notes. Our common stock is traded on the NYSE under the symbol "XON."

The offering

The summary below describes the principal terms of the notes. Certain of the terms and conditions described below are subject to important limitations and exceptions. The “Description of Debt Securities” section of the accompanying prospectus, as supplemented by the “Description of notes” section of this prospectus supplement, contains a more detailed description of the terms and conditions of the notes. As used in this section, “we,” “our,” and “us” refer to Intrexon Corporation and not to its consolidated subsidiaries.

Issuer	Intrexon Corporation, a Virginia corporation.
Securities	\$200,000,000 principal amount of % Convertible Senior Notes due 2023 (<i>plus</i> up to an additional \$30,000,000 principal amount to cover over-allotments).
Maturity	July 1, 2023, unless earlier repurchased or converted.
Interest	% per year. Interest will accrue from , 2018 and will be payable semiannually in arrears on January 1 and July 1 of each year, beginning on January 1, 2019. We will pay additional interest, if any, at our election as the sole remedy relating to the failure to comply with our reporting obligations as described under “Description of notes—Events of default.”
Conversion rights	<p>Holders may convert all or any portion of their notes, in multiples of \$1,000 principal amount, at their option at any time prior to the close of business on the business day immediately preceding April 1, 2023, only under the following circumstances:</p> <ul style="list-style-type: none">• during any calendar quarter commencing after the calendar quarter ending on September 30, 2018 (and only during such calendar quarter), if the last reported sale price of the common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day;• during the five business day period after any five consecutive trading day period (the “measurement period”) in which the “trading price” (as defined under “Description of notes—Conversion rights—Conversion upon satisfaction of trading price condition”) per \$1,000 principal amount of notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of our common stock and the conversion rate on each such trading day; or• upon the occurrence of specified corporate events described under “Description of notes—Conversion rights—Conversion upon specified corporate events.” <p>On or after April 1, 2023 until the close of business on the business day immediately preceding the maturity date, holders may convert all or any portion of their notes, in multiples of \$1,000 principal amount, at the option of the holder regardless of the foregoing circumstances.</p>

The conversion rate for the notes is initially _____ shares of common stock per \$1,000 principal amount of notes (equivalent to an initial conversion price of approximately \$ _____ per share of common stock), subject to adjustment as described in this prospectus supplement.

Upon conversion, we will pay or deliver, as the case may be, cash, shares of our common stock or a combination of cash and shares of our common stock, at our election. If we satisfy our conversion obligation solely in cash or through payment and delivery, as the case may be, of a combination of cash and shares of our common stock, the amount of cash and shares of common stock, if any, due upon conversion will be based on a daily conversion value (as described herein) calculated on a proportionate basis for each trading day in a 30 trading day observation period (as described herein). If we satisfy our conversion obligation solely through delivery of shares of our common stock (other than paying cash in lieu of delivering any fractional share), the amount of shares of our common stock to be delivered per \$1,000 principal amount of notes will be equal to the conversion rate. See “Description of Notes—Conversion rights—Settlement upon conversion.”

In addition, following certain corporate events that occur prior to the maturity date, we will increase the conversion rate for a holder who elects to convert its notes in connection with such a corporate event in certain circumstances as described under “Description of notes—Conversion rights—Increase in conversion rate upon conversion upon a make-whole fundamental change.”

You will not receive any additional cash payment or additional shares representing accrued and unpaid interest, if any, upon conversion of a note, except in limited circumstances. Instead, interest will be deemed to be paid by the cash, shares of our common stock or a combination of cash and shares of our common stock paid or delivered, as the case may be, to you upon conversion of a note.

No redemption

We may not redeem the notes prior to the maturity date and no “sinking fund” is provided for the notes, which means that we are not required to redeem or retire the notes periodically.

Fundamental change

If we undergo a “fundamental change” (as defined in this prospectus supplement under “Description of notes—Fundamental change permits holders to require us to repurchase notes”), subject to certain conditions, holders may require us to repurchase for cash all or part of their notes in principal amounts of \$1,000 or an integral multiple thereof. The fundamental change repurchase price will be equal to 100% of the principal amount of the notes to be repurchased, *plus* accrued and unpaid interest to, but excluding, the fundamental change repurchase date. See “Description of Notes—Fundamental change permits holders to require us to repurchase notes.”

Ranking

The notes will be our senior unsecured obligations and will rank:

- senior in right of payment to any of our indebtedness that is expressly subordinated in right of payment to the notes;
- equal in right of payment to any of our unsecured indebtedness that is not so subordinated;

- effectively junior in right of payment to any of our secured indebtedness to the extent of the value of the assets securing such indebtedness; and
- structurally junior to all indebtedness and other liabilities (including trade payables) of our subsidiaries.

As of March 31, 2018, our total consolidated indebtedness was \$8.2 million, of which an aggregate of \$5.9 million was secured indebtedness. As of March 31, 2018, our subsidiaries had \$13.5 million of indebtedness and trade payables (excluding intercompany obligations and liabilities of a type not required to be reflected on a balance sheet of such subsidiaries in accordance with U.S. GAAP) to which the notes would have been structurally subordinated. As of March 31, 2018 and as adjusted for the issuance of the notes (assuming no exercise of the underwriters' over-allotment option) and the use of proceeds therefrom, our total consolidated indebtedness would have been \$208.2 million.

The indenture governing the notes will not limit the amount of debt, including secured debt, that we or our subsidiaries may incur.

Concurrent offering and share lending agreement

Concurrently with this offering, we are offering \$100,000,000 of shares of our common stock by means of a separate prospectus supplement and prospectus. Such shares, which we refer to as the "borrowed shares", will be loaned by us to J.P. Morgan Securities LLC, the underwriter for the concurrent offering of the borrowed shares, which we refer to as the "share borrower". The share borrower or its affiliates will receive all of the proceeds of the concurrent offering of borrowed shares and we will not receive any proceeds of that offering. The offering of the notes is contingent upon the closing of the concurrent offering of the borrowed shares, and the concurrent offering of the borrowed shares is contingent upon the closing of the offering of the notes. Randal J. Kirk, our Chairman, Chief Executive Officer and principal shareholder, has indicated that he or an entity with which he is affiliated may have interest in purchasing at the public offering price up to all of the borrowed shares offered in the concurrent offering of borrowed shares. The ultimate allocation of the borrowed shares will be determined by the share borrower, and Mr. Kirk or such entity may or may not purchase some or all of the borrowed shares.

We have been informed by the share borrower that it or one of its affiliates intends to use the short position created by the share loan and the concurrent short sales of the borrowed shares to facilitate transactions by which investors in the notes may hedge their investments. We expect to make delivery of the borrowed shares concurrently with the closing of this offering. See "Description of Share Lending Agreement" and "Underwriting" in this prospectus supplement.

Use of proceeds	We estimate that the net proceeds from this offering will be approximately \$193.9 million (or \$223.1 million if the underwriters exercise their option to purchase additional notes solely to cover over-allotments, if any, in full), after deducting underwriting discounts and commissions and estimated offering expenses payable by us in connection with this offering and our concurrent offering of borrowed shares. We intend to use the net proceeds from this offering for general corporate purpose and for strategic acquisitions or investments. General corporate purposes may include additions to working capital, financing internal research and development programs, financing of capital expenditures, repayment or redemption of existing indebtedness or payments to satisfy commitments under our ECCs, joint ventures and other collaborations. In addition, we intend to use the net proceeds for future strategic acquisitions and strategic investment opportunities, but we have not determined the amount of net proceeds to be used specifically for such purposes, or any particular acquisitions or investments. See "Use of proceeds."
Book-entry form	The notes will be issued in book-entry form and will be represented by permanent global certificates deposited with, or on behalf of, The Depository Trust Company ("DTC") and registered in the name of a nominee of DTC. Beneficial interests in any of the notes will be shown on, and transfers will be effected only through, records maintained by DTC or its nominee and any such interest may not be exchanged for certificated securities, except in limited circumstances.
Absence of a public market for the notes	The notes are new securities and there is currently no established market for the notes. Accordingly, we cannot assure you as to the development or liquidity of any market for the notes. The underwriters have advised us that they currently intend to make a market in the notes. However, they are not obligated to do so, and they may discontinue any market making with respect to the notes without notice. We do not intend to apply for a listing of the notes on any securities exchange or any automated dealer quotation system.
U.S. federal income tax consequences	For the U.S. federal income tax consequences of the holding, disposition and conversion of the notes, and the holding and disposition of shares of our common stock, see "Material U.S. federal tax considerations."
New York Stock Exchange symbol for our common stock	Our common stock is listed on The New York Stock Exchange under the symbol "XON."
Trustee, paying agent, registrar and conversion agent	The Bank of New York Mellon Trust Company, N.A.

Risk factors

An investment in our notes and the underlying shares of common stock involves a high degree of risk. Prior to making a decision about investing in our securities, you should carefully consider the risks, uncertainties and assumptions discussed under Item 1A, "Risk Factors," in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017, under Item 1A, "Risk Factors," in our Quarterly Report on Form 10-Q for the three months ended March 31, 2018 and any subsequently filed SEC reports, all of which are incorporated herein by reference and the other information set forth or incorporated by reference in this prospectus supplement and the accompanying prospectus. See the sections of this prospectus supplement entitled "Where you can find more information" and "Incorporation of certain information by reference." Additional risks and uncertainties not presently known to us, or that we currently see as immaterial, may also harm our business. If any of these risks occur, our business, financial condition and operating results could be harmed, the trading price of the notes and/or our common stock could decline and you could lose part or all of your investment.

This prospectus supplement also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks faced by us described below and elsewhere in this prospectus supplement and the documents incorporated by reference herein. See "Cautionary statement regarding forward-looking Statements" for information relating to these forward-looking statements.

Risks related to the notes

The notes are effectively subordinated to our secured debt and any liabilities of our subsidiaries.

The notes will rank senior in right of payment to any of our indebtedness that is expressly subordinated in right of payment to the notes; equal in right of payment to any of our liabilities that are not so subordinated; effectively junior in right of payment to any of our secured indebtedness to the extent of the value of the assets securing such indebtedness; and structurally junior to all indebtedness and other liabilities (including trade payables) of our subsidiaries. In the event of our bankruptcy, liquidation, reorganization or other winding up, our assets that secure debt ranking senior or equal in right of payment to the notes will be available to pay obligations on the notes only after the secured debt has been repaid in full from these assets. There may not be sufficient assets remaining to pay amounts due on any or all of the notes then outstanding. The indenture governing the notes will not prohibit us from incurring additional senior debt or secured debt, nor does it prohibit any of our subsidiaries from incurring additional liabilities.

As of March 31, 2018, our total consolidated indebtedness was \$8.2 million, of which an aggregate of \$5.9 million was secured indebtedness. As of March 31, 2018, our subsidiaries had \$13.5 million of indebtedness and trade payables (excluding intercompany obligations and liabilities of a type not required to be reflected on a balance sheet of such subsidiaries in accordance with U.S. GAAP) to which the notes would have been structurally subordinated. As of March 31, 2018 and as adjusted for the issuance of the notes (assuming no exercise of the underwriters' over-allotment option) and the use of proceeds therefrom, our total consolidated indebtedness would have been \$208.2 million.

The notes are our obligations only and our operations are conducted through, and a substantial portion of our consolidated assets are held by, our subsidiaries.

The notes are our obligations exclusively and are not guaranteed by any of our operating subsidiaries. A substantial portion of our consolidated assets is held by our subsidiaries. Accordingly, our ability to service our debt, including the notes, depends on the results of operations of our subsidiaries and upon the ability of such subsidiaries to provide us with cash, whether in the form of dividends, loans or otherwise, to pay amounts due

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on our obligations, including the notes. Our subsidiaries are separate and distinct legal entities and have no obligation, contingent or otherwise, to make payments on the notes or to make any funds available for that purpose. In addition, dividends, loans or other distributions to us from such subsidiaries may be subject to contractual and other restrictions and are subject to other business considerations.

Servicing our debt requires a significant amount of cash, and we may not have sufficient cash flow from our business to pay our substantial debt.

Our ability to make scheduled payments of the principal of, to pay interest on or to refinance our indebtedness, including the notes, depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control. Our business may not continue to generate cash flow from operations in the future sufficient to service our debt and make necessary capital expenditures. If we are unable to generate such cash flow, we may be required to adopt one or more alternatives, such as selling assets, restructuring debt or obtaining additional equity capital on terms that may be onerous or highly dilutive. Our ability to refinance our indebtedness will depend on the capital markets and our financial condition at such time. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations.

Recent and future regulatory actions and other events may adversely affect the trading price and liquidity of the notes.

We expect that many investors in, and potential purchasers of, the notes will employ, or seek to employ, a convertible arbitrage strategy with respect to the notes. Investors would typically implement such a strategy by selling short the common stock underlying the notes and dynamically adjusting their short position while continuing to hold the notes. Investors may also implement this type of strategy by entering into swaps on our common stock in lieu of or in addition to short selling the common stock.

The SEC and other regulatory and self-regulatory authorities have implemented various rules and taken certain actions, and may in the future adopt additional rules and take other actions, that may impact those engaging in short selling activity involving equity securities (including our common stock). Such rules and actions include Rule 201 of SEC Regulation SHO, the adoption by the Financial Industry Regulatory Authority, Inc. and the national securities exchanges of a "Limit Up-Limit Down" program, the imposition of market-wide circuit breakers that halt trading of securities for certain periods following specific market declines, and the implementation of certain regulatory reforms required by the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. Any governmental or regulatory action that restricts the ability of investors in, or potential purchasers of, the notes to effect short sales of our common stock, borrow our common stock or enter into swaps on our common stock could adversely affect the trading price and the liquidity of the notes.

Volatility in the market price and trading volume of our common stock could adversely impact the trading price of the notes.

The stock market in recent years has experienced significant price and volume fluctuations that have often been unrelated to the operating performance of companies. The market price of our common stock could fluctuate significantly for many reasons, including in response to the risks described in this section, elsewhere in this prospectus supplement or the documents we have incorporated by reference in this prospectus supplement or for reasons unrelated to our operations, such as reports by industry analysts, investor perceptions or negative announcements by our customers, competitors or suppliers regarding their own performance, as well as industry conditions and general financial, economic and political instability. A decrease in the market price of our common stock would likely adversely impact the trading price of the notes. The market price of our common stock could also be affected by possible sales of our common stock by investors who view the notes as a more attractive means of equity participation in us and by hedging or arbitrage trading

activity that we expect to develop involving our common stock. This trading activity could, in turn, affect the trading price of the notes.

Despite our current debt levels, we may still incur substantially more debt or take other actions which would intensify the risks discussed above.

Despite our current consolidated debt levels, we and our subsidiaries may be able to incur substantial additional debt in the future, subject to the restrictions contained in our debt instruments, some of which may be secured debt. We will not be restricted under the terms of the indenture governing the notes from incurring additional debt, securing existing or future debt, recapitalizing our debt or taking a number of other actions that are not limited by the terms of the indenture governing the notes that could have the effect of diminishing our ability to make payments on the notes when due.

We may not have the ability to raise the funds necessary to settle conversions of the notes in cash or to repurchase the notes upon a fundamental change, and our future debt may contain limitations on our ability to pay cash upon conversion or repurchase of the notes.

Holders of the notes will have the right to require us to repurchase their notes upon the occurrence of a fundamental change at a fundamental change repurchase price equal to 100% of the principal amount of the notes to be repurchased, plus accrued and unpaid interest, if any, as described under “Description of notes—Fundamental change permits holders to require us to repurchase notes.” In addition, upon conversion of the notes, unless we elect to deliver solely shares of our common stock to settle such conversion (other than paying cash in lieu of delivering any fractional share), we will be required to make cash payments in respect of the notes being converted as described under “Description of notes—Conversion rights—Settlement upon conversion.” However, we may not have enough available cash or be able to obtain financing at the time we are required to make repurchases of notes surrendered therefor or notes being converted. In addition, our ability to repurchase the notes or to pay cash upon conversions of the notes may be limited by law, by regulatory authority or by agreements governing our future indebtedness. Our failure to repurchase notes at a time when the repurchase is required by the indenture or to pay any cash payable on future conversions of the notes as required by the indenture would constitute a default under the indenture. A default under the indenture or the fundamental change itself could also lead to a default under agreements governing our future indebtedness. If the repayment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay the indebtedness and repurchase the notes or make cash payments upon conversions thereof.

The conditional conversion feature of the notes, if triggered, may adversely affect our financial condition and operating results.

In the event the conditional conversion feature of the notes is triggered, holders of notes will be entitled to convert the notes at any time during specified periods at their option. See “Description of Notes—Conversion rights.” If one or more holders elect to convert their notes, unless we elect to satisfy our conversion obligation by delivering solely shares of our common stock (other than paying cash in lieu of delivering any fractional share), we would be required to settle a portion or all of our conversion obligation through the payment of cash, which could adversely affect our liquidity. In addition, even if holders do not elect to convert their notes, we could be required under applicable accounting rules to reclassify all or a portion of the outstanding principal of the notes as a current rather than long-term liability, which would result in a material reduction of our net working capital.

The accounting for convertible debt securities that may be settled in cash, such as the notes, could have a material effect on our reported financial results.

In May 2008, the Financial Accounting Standards Board, which we refer to as FASB, issued FASB Staff Position No. APB 14-1, Accounting for Convertible Debt Instruments That May Be Settled in Cash Upon Conversion (Including Partial Cash Settlement), which has subsequently been codified as Accounting Standards Codification 470-20, Debt with Conversion and Other Options, which we refer to as ASC 470-20. Under ASC 470-20, an entity must separately account for the liability and equity components of the convertible debt instruments (such as the notes) that may be settled entirely or partially in cash upon conversion in a manner that reflects the issuer's economic interest cost. The effect of ASC 470-20 on the accounting for the notes is that the equity component is required to be included in the additional paid-in capital section of shareholders' equity on our consolidated balance sheet, and the value of the equity component would be treated as original issue discount for purposes of accounting for the debt component of the notes. As a result, we will be required to record a greater amount of non-cash interest expense in current periods presented as a result of the amortization of the discounted carrying value of the notes to their face amount over the term of the notes. We will report lower net income in our financial results because ASC 470-20 will require interest to include both the current period's amortization of the debt discount and the instrument's coupon interest, which could adversely affect our reported or future financial results, the trading price of our common stock and the trading price of the notes.

In addition, under certain circumstances, convertible debt instruments (such as the notes) that may be settled entirely or partly in cash are currently accounted for utilizing the treasury stock method, the effect of which is that the shares issuable upon conversion of the notes are not included in the calculation of diluted earnings per share except to the extent that the conversion value of the notes exceeds their principal amount. Under the treasury stock method, for diluted earnings per share purposes, the transaction is accounted for as if the number of shares of common stock that would be necessary to settle such excess, if we elected to settle such excess in shares, are issued. We cannot be sure that the accounting standards in the future will continue to permit the use of the treasury stock method. If we are unable to use the treasury stock method in accounting for the shares issuable upon conversion of the notes, then our diluted earnings per share would be adversely affected.

Future sales of our common stock or equity-linked securities in the public market could lower the market price for our common stock and adversely impact the trading price of the notes.

In the future, we may sell additional shares of our common stock or equity-linked securities to raise capital. In addition, a substantial number of shares of our common stock is reserved for issuance upon the exercise of stock options and upon conversion of the notes. We cannot predict the size of future issuances or the effect, if any, that they may have on the market price for our common stock. The issuance and sale of substantial amounts of common stock or equity-linked securities, or the perception that such issuances and sales may occur, could adversely affect the trading price of the notes and the market price of our common stock and impair our ability to raise capital through the sale of additional equity or equity-linked securities.

Holders of notes will not be entitled to any rights with respect to our common stock, but they will be subject to all changes made with respect to them to the extent our conversion obligation includes shares of our common stock.

Holders of notes will not be entitled to any rights with respect to our common stock (including, without limitation, voting rights and rights to receive any dividends or other distributions on our common stock) prior to the conversion date relating to such notes (if we have elected to settle the relevant conversion by delivering solely shares of our common stock (other than paying cash in lieu of delivering any fractional share)) or the last trading day of the relevant observation period (if we elect to pay and deliver, as the case may be, a combination of cash and shares of our common stock in respect of the relevant conversion), but holders of notes will be

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subject to all changes affecting our common stock. For example, if an amendment is proposed to our certificate of incorporation or bylaws requiring shareholder approval and the record date for determining the shareholders of record entitled to vote on the amendment occurs prior to the conversion date related to a holder's conversion of its notes (if we have elected to settle the relevant conversion by delivering solely shares of our common stock (other than paying cash in lieu of delivering any fractional share)) or the last trading day of the relevant observation period (if we elect to pay and deliver, as the case may be, a combination of cash and shares of our common stock in respect of the relevant conversion), such holder will not be entitled to vote on the amendment, although such holder will nevertheless be subject to any changes affecting our common stock.

The conditional conversion feature of the notes could result in your receiving less than the value of our common stock into which the notes would otherwise be convertible.

Prior to the close of business on the business day immediately preceding April 1, 2023, you may convert your notes only if specified conditions are met. If the specific conditions for conversion are not met, you will not be able to convert your notes, and you may not be able to receive the value of the cash, common stock or a combination of cash and common stock, as applicable, into which the notes would otherwise be convertible.

Upon conversion of the notes, you may receive less valuable consideration than expected because the value of our common stock may decline after you exercise your conversion right but before we settle our conversion obligation.

Under the notes, a converting holder will be exposed to fluctuations in the value of our common stock during the period from the date such holder surrenders notes for conversion until the date we settle our conversion obligation.

Upon conversion of the notes, we have the option to pay or deliver, as the case may be, cash, shares of our common stock, or a combination of cash and shares of our common stock. If we elect to satisfy our conversion obligation in cash or a combination of cash and shares of our common stock, the amount of consideration that you will receive upon conversion of your notes will be determined by reference to the volume-weighted average price of our common stock for each trading day in a 30 trading day observation period. As described under "Description of notes—Conversion rights—Settlement upon conversion," this period would be (i) if the relevant conversion date occurs prior to April 1, 2023, the 30 consecutive trading day period beginning on, and including, the second trading day immediately succeeding such conversion date; and (ii) if the relevant conversion date occurs on or after April 1, 2023, the 30 consecutive trading days beginning on, and including, the 31st scheduled trading day immediately preceding the maturity date. Accordingly, if the price of our common stock decreases during this period, the amount and/or value of consideration you receive will be adversely affected. In addition, if the market price of our common stock at the end of such period is below the average volume-weighted average price of our common stock during such period, the value of any shares of our common stock that you will receive in satisfaction of our conversion obligation will be less than the value used to determine the number of shares that you will receive.

If we elect to satisfy our conversion obligation solely in shares of our common stock upon conversion of the notes, we will be required to deliver the shares of our common stock, together with cash for any fractional share, on the second business day following the relevant conversion date. Accordingly, if the price of our common stock decreases during this period, the value of the shares that you receive will be adversely affected and would be less than the conversion value of the notes on the conversion date.

The notes are not protected by restrictive covenants.

The indenture governing the notes will not contain any financial or operating covenants or restrictions on the payments of dividends, the incurrence of indebtedness or the issuance or repurchase of securities by us or any of our subsidiaries. The indenture will not contain any covenants or other provisions to afford protection to

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holders of the notes in the event of a fundamental change or other corporate transaction involving us except to the extent described under “Description of notes—Fundamental change permits holders to require us to repurchase notes,” “Description of notes—Conversion rights—Increase in conversion rate upon conversion upon a make-whole fundamental change” and “Description of notes—Consolidation, merger and sale of assets.”

The increase in the conversion rate for notes converted in connection with a make-whole fundamental change may not adequately compensate you for any lost value of your notes as a result of such transaction.

If a make-whole fundamental change occurs prior to the maturity date, under certain circumstances, we will increase the conversion rate by a number of additional shares of our common stock for notes converted in connection with such make-whole fundamental change. The increase in the conversion rate will be determined based on the date on which the specified corporate transaction becomes effective and the price paid (or deemed to be paid) per share of our common stock in such transaction, as described below under “Description of notes—Conversion rights—Increase in conversion rate upon conversion upon a make-whole fundamental change.” The increase in the conversion rate for notes converted in connection with a make-whole fundamental change may not adequately compensate you for any lost value of your notes as a result of such transaction. In addition, if the price per share of our common stock paid (or deemed paid) in the transaction is greater than \$ per share or less than \$ per share (in each case, subject to adjustment), no additional shares will be added to the conversion rate. Moreover, in no event will the conversion rate per \$1,000 principal amount of notes as a result of this adjustment exceed shares of common stock, subject to adjustment in the same manner as the conversion rate as set forth under “Description of notes—Conversion rights—Conversion rate adjustments.”

Our obligation to increase the conversion rate for notes converted in connection with a make-whole fundamental change could be considered a penalty, in which case the enforceability thereof would be subject to general principles of reasonableness and equitable remedies.

The conversion rate of the notes may not be adjusted for all dilutive events.

The conversion rate of the notes is subject to adjustment for certain events, including, but not limited to, the issuance of certain stock dividends on our common stock, the issuance of certain rights or warrants, subdivisions, combinations, distributions of capital stock, indebtedness, or assets, cash dividends and certain issuer tender or exchange offers as described under “Description of notes—Conversion rights—Conversion rate adjustments.” However, the conversion rate will not be adjusted for other events, such as a third-party tender or exchange offer or an issuance of common stock for cash, that may adversely affect the trading price of the notes or our common stock. An event that adversely affects the value of the notes may occur, and that event may not result in an adjustment to the conversion rate.

Some significant restructuring transactions may not constitute a fundamental change, in which case we would not be obligated to offer to repurchase the notes.

Upon the occurrence of a fundamental change, you have the right to require us to repurchase your notes. However, the fundamental change provisions will not afford protection to holders of notes in the event of other transactions that could adversely affect the notes. For example, transactions such as leveraged recapitalizations, refinancings, restructurings, or acquisitions initiated by us may not constitute a fundamental change requiring us to repurchase the notes. In the event of any such transaction, the holders would not have the right to require us to repurchase the notes, even though each of these transactions could increase the amount of our indebtedness, or otherwise adversely affect our capital structure or any credit ratings, thereby adversely affecting the holders of notes.

We cannot assure you that an active trading market will develop for the notes.

Prior to this offering, there has been no trading market for the notes, and we do not intend to apply to list the notes on any securities exchange or to arrange for quotation on any automated dealer quotation system. We have been informed by the underwriters that they intend to make a market in the notes after the offering is completed. However, the underwriters may cease their market-making at any time without notice. In addition, the liquidity of the trading market in the notes, and the market price quoted for the notes, may be adversely affected by changes in the overall market for this type of security and by changes in our financial performance or prospects or in the prospects for companies in our industry generally. As a result, we cannot assure you that an active trading market will develop for the notes. If an active trading market does not develop or is not maintained, the market price and liquidity of the notes may be adversely affected. In that case you may not be able to sell your notes at a particular time or you may not be able to sell your notes at a favorable price.

Any adverse rating of the notes may cause their trading price to fall.

We do not intend to seek a rating on the notes. However, if a rating service were to rate the notes and if such rating service were to lower its rating on the notes below the rating initially assigned to the notes or otherwise announces its intention to put the notes on credit watch, the trading price of the notes could decline.

You may be subject to tax if we make or fail to make certain adjustments to the conversion rate of the notes even though you do not receive a corresponding cash distribution.

The conversion rate of the notes is subject to adjustment in certain circumstances, including the payment of cash dividends. If the conversion rate is adjusted as a result of a distribution that is taxable to our common shareholders, such as a cash dividend, you will be deemed to have received a distribution, which may be subject to U.S. federal income tax without the receipt of any cash. In addition, a failure to adjust (or to adjust adequately) the conversion rate after an event that increases your proportionate interest in us could be treated as a deemed taxable dividend to you. If a make-whole fundamental change occurs prior to the maturity date, under some circumstances, we will increase the conversion rate for notes converted in connection with the make-whole fundamental change. Such increase may also be treated as a distribution, which may be subject to U.S. federal income tax as a dividend. See "Material U.S. federal tax considerations." If you are a non-U.S. holder (as defined in "Material U.S. federal tax considerations"), any deemed dividend would be subject to U.S. federal withholding tax at a 30% rate, or such lower rate as may be specified by an applicable treaty, which may be set off against subsequent payments on the notes. See "Material U.S. federal tax considerations."

Because the notes will initially be issued in book-entry form, holders must rely on DTC's procedures to receive communications relating to the notes and exercise their rights and remedies.

We will initially issue the notes in the form of one or more global notes registered in the name of Cede & Co., as nominee of DTC. Beneficial interests in global notes will be shown on, and transfers of global notes will be effected only through, the records maintained by DTC. Except in limited circumstances, we will not issue certificated notes. See "Description of notes—Book-entry, settlement and clearance." Accordingly, if you own a beneficial interest in a global note, then you will not be considered an owner or holder of the notes. Instead, DTC or its nominee will be the sole holder of global notes. Unlike persons who have certificated notes registered in their names, owners of beneficial interests in global notes will not have the direct right to act on our solicitations for consents or requests for waivers or other actions from holders. Instead, those beneficial owners will be permitted to act only to the extent that they have received appropriate proxies to do so from DTC or, if applicable, a DTC participant. The applicable procedures for the granting of these proxies may not be sufficient to enable owners of beneficial interests in global notes to vote on any requested actions on a timely basis. In addition, notices and other communications relating to the notes will be sent to DTC. We expect DTC to forward any such communications to DTC participants, which in turn would forward such communications to indirect DTC participants. But we can make no assurances that you timely receive any such communications.

Risks related to our financial position, operating results and need for additional capital

We will need substantial additional capital in the future in order to fund our business and continue as a going concern.

We expect our future capital requirements will be substantial, as we continue to develop our business and expand our synthetic biology technology platform and for capital investment needed to scale up our commercial operations. Our need for additional capital will depend on many factors, including:

- the commercial success of products being developed by our subsidiaries, JVs and unpartnered programs;
- the commercial success of our operating subsidiaries, ECCs and JVs;
- whether we are successful in obtaining payments in connection with strategic transactions;
- whether we are successful in obtaining payments from our collaborators and licensees;
- whether we can enter into additional collaborations or JVs;
- the progress and scope of the collaborative and independent research and development projects performed by us and our collaborators;
- the timing and capital requirements to scale up our various products and services offerings;
- the effect of any acquisitions of other businesses or technologies that we may make in the future;
- whether we decide to develop internal development or manufacturing capabilities;
- the filing, prosecution and enforcement of our intellectual property;
- investments we may make in current and future collaborators, including JVs;
- our ability to maintain or improve the volume and pricing of our current product offerings and to develop new offerings, including those which may incorporate new technologies; and
- the costs associated with legal activities, including litigation, arising in the course of our business activities and our ability to prevail in any such legal activities.

In October 2017, we entered into a Preferred Stock Equity Facility Agreement with Kapital Joe, LLC, or Kapital Joe, an entity affiliated with Randal J. Kirk, our Chairman and Chief Executive Officer, pursuant to which we may, at our sole and exclusive option, issue and sell to Kapital Joe, up to \$100 million of our Series A Redeemable Preferred Stock, or Series A Preferred Stock. The Company intends to terminate the Preferred Stock Facility upon the closing of this offering. We are currently party to an "at-the-market" sales agreement with Cantor Fitzgerald & Co., or Cantor, under which we may offer and sell from time to time our common stock with aggregate proceeds of up to \$200 million through Cantor as our sales agent. To date, no offerings have occurred under this agreement. The Company intends to terminate the Preferred Stock Facility upon closing of this offering.

We have evaluated our ability to continue as a going concern within one year after the date of this prospectus supplement. As of March 31, 2018, we had an accumulated deficit of \$930.2 million. During the quarter ended March 31, 2018, we incurred a net loss of \$43.2 million and used \$29.9 million of cash in operating activities. Due to our recurring losses from operations and the expectation that we will continue to incur losses in the foreseeable future, we will need to raise additional capital to complete the development and commercialization of our current product candidates. As of May 31, 2018, our cash and cash equivalents balance was approximately \$90.5 million and our available equity and credit facilities totaled approximately \$105.3 million, including the \$100 million available from our Preferred Stock Equity Facility Agreement with Kapital Joe

discussed above. If we are unable to consummate this offering on anticipated terms, based on these available balances and facilities and our current projected cash flows for the foreseeable future, we will need to seek additional funding through public or private equity or debt financings, through existing or new collaboration agreements, and/or through divestitures of our assets and may need to implement certain plans to reduce development efforts or other expenditures in order to continue operations beyond 12 months from the date of the prospectus supplement. Our ability to obtain additional equity or debt financing or collaborations is subject to a number of factors, many of which are beyond our control, including market conditions, our operating performance and investor sentiment. We may not be able to obtain financing on acceptable terms, or at all, and we may not be able to enter into additional collaboration arrangements or divest our assets. If necessary, we believe we could reduce activities and expenditures with certain of our general and administrative contractors, reduce or eliminate certain internal research and development programs, and divest in certain of our assets in order to continue operations beyond twelve months from the date of this prospectus supplement; there is no guarantee that we could carry out all of these actions or that they would be sufficient for the Company to continue as a going concern.

Risks related to our common stock

The continued evolution of our business strategy and the restructuring of our business and assets may not be a successful strategy and may increase our capital requirements, increase our costs or otherwise harm our operating results and financial condition.

Our business strategy has evolved, and continues to evolve, toward relationships and structures that provide us with more control and ownership over the development process and commercialization path. This new strategy or approach entails risks in implementation and operations and there is no guarantee that it will be successful. Furthermore, the changing focus of our business strategy may require additional capital beyond what we have historically used and what is available and we may incur costs associated with the implementation and execution of our evolving business strategy. In addition, as we perform our annual impairment tests, we will evaluate the impact of changes in our business strategy and, as a result, may incur impairment charges and write-offs and other related expenses, any of which, if material, could harm our operating results and financial condition.

The effect of the issuance and sale of our shares of common stock in the concurrent offering of borrowed shares, which issuance is being made to facilitate transactions by which investors in the notes may hedge their investments, may be to lower the market price of our common stock.

Concurrently with this offering, we are offering \$100,000,000 of shares of our common stock by means of a separate prospectus supplement and prospectus. Such shares, which we refer to as the "borrowed shares", will be loaned by us to J.P. Morgan Securities LLC, the underwriter for the concurrent offering of the borrowed shares, which we refer to as the "share borrower," pursuant to a share lending agreement. The share borrower or its affiliates will receive all of the proceeds of the concurrent offering of borrowed shares and we will not receive any proceeds of that offering. The offering of the notes is contingent upon the closing of the concurrent offering of the borrowed shares, and the concurrent offering of the borrowed shares is contingent upon the closing of the offering of the notes. See "Description of Share Lending Agreement."

We have been informed by the share borrower that it or one of its affiliates intends to use the short position created by the share loan and the concurrent short sales of the borrowed shares to facilitate transactions by which investors in the notes may hedge their investments through short sales or privately negotiated derivatives transactions. The existence of the share lending agreement in connection with the concurrent offering of the borrowed shares, the short sales of our common stock effected in connection with the sale of the notes and the related derivatives transactions, or any unwind of such short sales or derivatives transactions,

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could cause the market price of our common stock to be lower over the term of the share lending agreement than it would have been had we not entered into that agreement, due to the effect of the increase in the number of outstanding shares of our common stock or otherwise. For example, in connection with any cash settlement of any such derivative transaction, the share borrower or its affiliates may purchase shares of our common stock and the note investors may sell shares of our common stock, which could temporarily increase, temporarily delay a decline in, or temporarily decrease, the market price of our common stock. The market price of our common stock could be further negatively affected by these or other short sales of our common stock, including other sales by the purchasers of the notes hedging their investment therein.

Randal J. Kirk, our Chairman, Chief Executive Officer and principal shareholder, has indicated that he or an entity with which he is affiliated may have interest in purchasing at the public offering price up to all of the borrowed shares offered in the concurrent offering of borrowed shares. The ultimate allocation of the borrowed shares will be determined by the share borrower, and Mr. Kirk or such entity may or may not purchase some or all of the borrowed shares.

Adjustments by purchasers of the notes of their hedging positions in our common stock and the expectation thereof may have a negative effect on the market price of our common stock.

The borrowed shares offered in the concurrent offering in connection with the share lending agreement are expected to be used by investors in the notes to establish hedged positions with respect to our common stock through short sale transactions or privately negotiated derivative transactions. The number of shares of our common stock offered in the concurrent offering may be more or less than the number of shares that will be needed in such hedging transactions. Any buying or selling of shares of our common stock by those investors to adjust their hedging positions in connection with this offering or the concurrent offering or in the future may affect the market price of our common stock.

In addition, the existence of the notes may also encourage short selling by market participants because the conversion of the notes could depress our common stock price. The price of our common stock could be affected by possible sales of our common stock by investors who view the notes as a more attractive means of equity participation in us and by hedging or arbitrage trading activity which we expect to occur involving our common stock. This hedging or arbitrage trading activity could, in turn, affect the trading price of the notes.

Changes in the accounting guidelines relating to the borrowed shares or our ability to classify the borrowed shares as equity could decrease our reported earnings per share and potentially our common stock price.

Because the borrowed shares that are being offered in the concurrent offering (or identical shares) must be returned to us when the share lending agreement terminates pursuant to its terms (or earlier in certain circumstances), we believe that under U.S. GAAP, as presently in effect, assuming the borrowed shares issued pursuant to the share lending agreement are classified as equity under U.S. GAAP the borrowed shares will not be considered outstanding for the purpose of computing and reporting our earnings per share. If accounting guidelines were to change in the future or we are unable to classify the borrowed shares issued pursuant to the share lending agreement as equity, we may be required to treat the borrowed shares as outstanding for purposes of computing earnings per share, our reported earnings per share would be reduced and our common stock price could decrease, possibly significantly.

Our stock price is volatile and purchasers of our common stock could incur substantial losses.

Our stock price has been, and is likely to continue to be, volatile. The market price of our common stock could fluctuate significantly for many reasons, including in response to the risks described in this "Risk Factors" section, or for reasons unrelated to our operations, such as reports by industry analysts, investor perceptions or negative announcements by our collaborators regarding their own performance, as well as industry conditions and general financial, economic and political instability. From January 1, 2016 through June 26, 2018, our common stock has traded as high as \$40.24 per share and as low as \$10.26 per share. The stock market in

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general as well as the market for biopharmaceutical companies in particular has experienced extreme volatility that has often been unrelated to the operating performance of particular companies. The market price of our common stock may be influenced by many factors, including, among others:

- announcements of acquisitions, collaborations, financings or other transactions by us, our subsidiaries or JVs;
- financial results of our company, our subsidiaries or JVs;
- termination or delay of a development program;
- the recruitment or departure of key personnel; and
- the other factors described in the “Risk Factors” sections of our Annual Report on Form 10-K for the fiscal year ended December 31, 2017 and any subsequent updates described in our Quarterly Reports on Form 10-Q and Current Reports on Form 8-K.

Randal J. Kirk controls approximately 46 percent of our common stock and is able to control or significantly influence corporate actions, which may result in Mr. Kirk taking actions contrary to the desires of our other shareholders.

We have historically been controlled, managed and principally funded by Randal J. Kirk, our Chairman and Chief Executive Officer, and affiliates of Mr. Kirk, including Third Security. As of March 31, 2018, Mr. Kirk and shareholders affiliated with him beneficially owned approximately 46 percent of our voting stock. Mr. Kirk has indicated that he or an entity with which he is affiliated may have interest in purchasing at the public offering price up to all of the borrowed shares offered in the concurrent offering. If Mr. Kirk purchases all of the borrowed shares in the concurrent offering at an assumed purchase price of \$14.15, which was the last reported sale price of our common stock on the New York Stock Exchange on June 26, 2018, Mr. Kirk will beneficially own approximately 49 percent of our voting stock. In addition, pursuant to a Preferred Stock Equity Facility, or Preferred Stock Facility, we may, from time to time at our sole and exclusive option, issue and sell to an affiliate of Mr. Kirk up to 1,000,000 shares of our Series A Preferred Stock, which will be convertible into shares of our common stock upon the approval of our shareholders, subject to regulatory approval, at a conversion rate based on future market prices. The Company intends to terminate the Preferred Stock Facility upon the closing of this offering. Mr. Kirk is able to control or significantly influence all matters requiring approval by our shareholders, including the election of directors and the approval of mergers or other business combination transactions. The interests of Mr. Kirk may not always coincide with the interests of other shareholders, and he may take actions that advance his personal interests and are contrary to the desires of our other shareholders.

After December 31, 2020, the holder of the Series A Preferred Stock, if and when issued, may require us to redeem any or all of the outstanding Series A Preferred Stock.

If we are unable to obtain the approval of our shareholders to convert any outstanding shares of Series A Preferred Stock prior to December 31, 2020, the holder of the Series A Preferred Stock may require us to redeem any or all of the outstanding shares of Series A Preferred Stock at the issue price of \$100 per share plus any accumulated but unpaid dividends thereon to, but not including, the redemption date, subject to adjustments. Any such redemption of our Series A Preferred Stock in cash would reduce the cash that we have available to invest in our business. In the event that we have issued Series A Preferred Stock and redemption is required, there can be no assurance that we will have enough cash at such time to redeem the outstanding shares. No shares of Series A Preferred Stock are currently outstanding, and the Company intends to terminate the Preferred Stock Facility upon the closing of this offering.

A significant portion of our total outstanding shares of common stock is restricted from immediate resale but may be sold into the market in the near future. This could cause the market price of our common stock to drop significantly, even if our business is doing well.

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Sales of a substantial number of shares of our common stock in the public market could occur at any time. These sales, or the perception in the market that the holders of a large number of shares of common stock intend to sell shares, could reduce the market price of our common stock. If Mr. Kirk or any of his affiliates were to sell a substantial portion of the shares they hold, it could cause our stock price to decline.

In addition, as of March 31, 2018, there were 11,546,434 shares subject to outstanding options that will become eligible for sale in the public market to the extent permitted by any applicable vesting requirements, lock-up agreements and Rules 144 and 701 under the Securities Act of 1933, as amended. As of March 31, 2018, there were 1,052,182 restricted stock units, or RSUs, outstanding. Shares issuable upon the exercise of such options and upon vesting of the RSUs can be freely sold in the public market upon issuance and once vested. Additionally, as of March 31, 2018, we had 3,279,291 shares available for grant under the 2013 Omnibus Incentive Plan, or the 2013 Plan. In June 2018, Intrexon's shareholders approved an additional 2,000,000 shares of common stock to be reserved for issuance under the 2013 Plan.

Cautionary statement regarding forward-looking statements

This prospectus supplement, the accompanying prospectus and the information incorporated herein by reference contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Any applicable free writing prospectus may also contain these types of forward-looking statements. All statements, other than statements of historical facts, included or incorporated by reference in this prospectus supplement and the accompanying prospectus, and in any free writing prospectus, regarding our strategies, prospects, financial condition, costs, plans and objectives are forward-looking statements. These forward-looking statements reflect our beliefs and expectations as to future events and trends affecting our business, our consolidated financial condition and results of operations. These forward-looking statements are based upon our current expectations concerning future events and discuss, among other things, anticipated future financial performance and future business plans. Forward-looking statements are necessarily subject to risks and uncertainties, many of which are outside our control, that could cause actual results to differ materially from these statements. Forward-looking statements can be identified by such words as “anticipates,” “believes,” “plan,” “assumes,” “could,” “should,” “estimates,” “expects,” “intends,” “potential,” “seek,” “predict,” “may,” “will” and similar expressions. These forward-looking statements include, among other things, statements about:

- our strategy and overall approach to our business model;
- our ability to successfully enter new markets or develop additional products, whether with our collaborators or independently;
- our ability to successfully enter into optimal strategic relationships with our subsidiaries and operating companies that we may form in the future;
- competition from existing technologies and products or new technologies and products that may emerge;
- actual or anticipated variations in our operating results;
- our current and future joint ventures, or JVs, exclusive channel collaborations, or ECCs, license agreements and other collaborations;
- developments concerning our collaborators and licensees;
- actual or anticipated fluctuations in our competitors’ or our collaborators’ and licensees’ operating results or changes in their respective growth rates;
- our cash position;
- our concurrent offering of borrowed shares;
- market conditions in our industry;
- our ability to protect our intellectual property and other proprietary rights and technologies;
- our ability to adapt to changes in laws or regulations and policies;
- the ability of our collaborators and licensees to adapt to changes in laws or regulations and policies and to secure any necessary regulatory approvals to commercialize any products developed under the ECCs, license agreements and JVs;
- the ability of our collaborators and licensees to protect our intellectual property and other proprietary rights and technologies;
- the ability of our collaborators and licensees to develop and successfully commercialize products enabled by our technologies;

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- the rate and degree of market acceptance of any products developed by our subsidiaries, a collaborator under an ECC, or through a JV or license under a license agreement;
- our ability to retain and recruit key personnel;
- the result of litigation proceedings that we face currently or may face in the future;
- our expectations related to the use of proceeds from our public offerings and other financing efforts;
- our estimates regarding expenses, future revenue, capital requirements and needs for additional financing; and
- the impact of the Tax Cuts and Jobs Act of 2017, or the Tax Act, on our current and future operating results.

We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Item 1A, "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2017, and Item 1A, "Risk Factors" in our Quarterly Reports on Form 10-Q for the three months ended March 31, 2018, which are incorporated by reference into this prospectus supplement, include factors that could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments that we may make. Forward-looking statements may also concern our expectations relating to our subsidiaries and other affiliates. We caution you that the foregoing list may not contain all of the forward-looking statements made in this prospectus supplement, the accompanying prospectus and the documents that we incorporate by reference.

You should read this prospectus supplement, the accompanying prospectus and the documents that we incorporate by reference into this prospectus supplement completely and with the understanding that our actual future results may be materially different from what we expect. We do not assume any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

Ratio of earnings to fixed charges

The following table sets forth our historical ratio of earnings to fixed charges for each of the periods indicated. You should read this table in conjunction with our consolidated financial statements and related notes and Management's Discussion and Analysis of Financial Condition and Results of Operations, which are included in our Annual Report on Form 10-K for the year ended December 31, 2017 and our Quarterly Report on Form 10-Q for the three months ended March 31, 2018, each of which is incorporated by reference in this prospectus supplement. For further information, see Exhibit 12.1 (Computation of Ratio of Earnings to Fixed Charges and Ratio of Earnings to Combined Fixed Charges and Preferred Stock Dividends) to the registration statement of which this prospectus supplement forms a part.

	Three Months Ended March 31, 2018	2017	2016	2015	Year Ended December 31, 2014	2013
Ratio of earnings (loss) to fixed charges	—	—	—	—	—	—

The historical ratios were prepared on a consolidated basis using amounts calculated in accordance with U.S. GAAP and, therefore, reflect all consolidated earnings and fixed charges. For purposes of calculating the ratios for the three months ended March 31, 2018 and years ended December 31, 2017, 2016, 2015, 2014 and 2013 above, earnings consist of pre-tax loss from continuing operations before adjustment for loss from equity method investment plus fixed charges. Fixed charges for the three months ended March 31, 2018 and years ended December 31, 2017, 2016, 2015, 2014 and 2013 include interest expense and an estimate of interest expense within rental expense.

We did not record earnings for the three months ended March 31, 2018 and years ended December 31, 2017, 2016, 2015, 2014 and 2013. Accordingly, during those periods our earnings were insufficient to cover fixed charges in such periods and we are unable to disclose a ratio of earnings to fixed charges for such periods. Due to our losses for the three months ended March 31, 2018 and years ended December 31, 2017, 2016, 2015, 2014 and 2013, the ratio coverage was less than 1:1. For the three months ended March 31, 2018 and years ended December 31, 2017, 2016, 2015, 2014 and 2013, we would have needed to generate additional earnings of \$44.9 million, \$115.4 million, \$173.0 million, \$78.0 million, \$80.5 million and \$40.3 million, respectively, to achieve an earnings to fixed charges coverage ratio of 1:1.

Use of proceeds

We estimate that the net proceeds we will receive from this offering will be approximately \$193.9 million, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us in connection with this offering and the concurrent offering of the borrowed shares. If the underwriters exercise their option to purchase additional notes solely to cover over-allotments, if any, in full, we estimate that the net proceeds from this offering will be approximately \$223.1 million, after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

We intend to use the net proceeds from the sale of the notes offered by us pursuant to this prospectus for general corporate purposes and for strategic acquisitions or investments. General corporate purposes may include additions to working capital, financing internal research and development programs, financing of capital expenditures, repayment or redemption of existing indebtedness or payments to satisfy commitments under our ECCs, joint ventures and other collaborations. In addition, we intend to use the net proceeds for future strategic acquisitions and strategic investment opportunities, but we have not determined the amount of net proceeds to be used specifically for such purposes, or any particular acquisitions or investments. As a result, management will retain broad discretion over the allocation of net proceeds. Pending the application of net proceeds, we expect to invest the net proceeds in investment grade, interest-bearing securities.

Capitalization

The following table sets forth our cash, cash equivalents and short-term investments and our capitalization as of March 31, 2018:

- on an actual basis; and
- on an as adjusted basis to give effect to the sale of the notes (assuming the underwriters' option to purchase additional notes is not exercised), the sale of the borrowed shares in our concurrent offering of borrowed shares and the receipt of \$193.9 million of net proceeds from this offering, after deducting the underwriters' discounts and commissions and our estimated offering expenses related to this offering and our concurrent offering of borrowed shares, assuming the net proceeds are held as cash or cash equivalents and the borrowed shares issued pursuant to the share lending agreement are classified as equity.

This table assumes no exercise of the underwriters' option to purchase additional notes in this offering. You should read this table together with our consolidated financial statements, related notes and other information included or incorporated by reference in this prospectus supplement.

	As of March 31, 2018	
	Actual	As adjusted (unaudited)
	(in thousands, except share data)	
Cash, cash equivalents and short-term investments	\$ 120,205	\$ 314,080
Long-term debt:		
% convertible senior notes due 2023 offered hereby(1)	—	200,000
Other long-term debt	7,926	7,926
Lines of credit	321	321
Total debt	8,247	208,247
Shareholders' equity:		
Preferred stock, no par value; 25,000,000 shares authorized, no shares issued and outstanding, actual and as adjusted	—	—
Common stock, no par value; 200,000,000 shares authorized, 129,239,376 shares issued and outstanding, actual and as adjusted(2)	\$ —	\$ —
Additional paid-in capital(3)	1,492,916	1,492,916
Accumulated deficit	(930,220)	(930,220)
Accumulated other comprehensive loss	(9,587)	(9,587)
Total Intrexon shareholders' equity(3)	553,109	553,109
Total capitalization(3)	\$ 561,356	\$ 761,356

(1) In accordance with Financial Accounting Standards Board Accounting Standards Codification 470-20, *Debt with Conversion and Other Options* ("ASC 470-20"), convertible debt that may be entirely or partially settled in cash (such as the notes) is required to be separated into a liability and an equity component, such that interest expense reflects the issuer's non-convertible debt interest cost. On the issuance date, the value of the conversion option of the notes, representing the equity component, will be recorded as additional paid-in capital within shareholders' equity and as a discount to the notes, which reduces their initial carrying value. The carrying value of the notes, net of the discount recorded, will be accreted up to the principal amount of the notes from the issuance date until maturity. ASC 470-20 does not affect the actual amount that we are required to repay. The amount shown in the table above for the notes is the aggregate principal amount of the notes, without reflecting the debt discount for the value of the conversion option as well as the underwriters' discounts and commissions and our estimated offering expenses related to this offering and the concurrent offering of borrowed shares.

(2) The number of shares issued and outstanding in the actual and as adjusted columns in the table above excludes:

- 11,546,434 shares of common stock issuable upon the exercise of outstanding options at a weighted average exercise price of \$28.31 per share, of which 6,533,996 options are vested as of March 31, 2018;
- 1,052,182 shares of common stock issuable upon vesting of restricted stock units outstanding as of March 31, 2018;

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- 133,264 shares of common stock issuable upon the exercise of warrants outstanding as of March 31, 2018 at a weighted average exercise price of \$28.85 per share;
 - 3,279,291 shares of our common stock available for future issuance under our 2013 Omnibus Incentive Plan as of March 31, 2018 (and an additional 2,000,000 shares of our common stock available for future issuance under our 2013 Omnibus Incentive Plan as of June 7, 2018);
 - \$800,000 per month in shares of common stock issuable to Third Security, LLC, following March 31, 2018, in connection with the services agreement we entered into with it in November 2015, as amended;
 - \$200,000 per month in shares of common stock issuable to Randal J. Kirk, our Chairman and Chief Executive Officer, following March 31, 2018, in connection with the compensation arrangement we entered into with him in November 2015, as amended;
 - the shares of our common stock to be issued in the concurrent offering of borrowed shares which will be outstanding for state corporate law purposes, but assuming the borrowed shares will be classified as equity under U.S. GAAP, will not be outstanding under U.S. GAAP currently in effect;
 - the issuance of up to \$4,000,000 of shares of common stock to the former members of EnviroFlight, LLC in connection with a joint venture formed with EnviroFlight, LLC in February 2016, if certain commercial milestones are met prior to February 2019; and
 - the shares of our common stock reserved for issuance upon conversion of the notes being offered by us in this offering.
- (3) The issuance of the notes (after giving effect to the application of ASC 470-20 as described in note (1) above) will result in an increase to additional paid-in capital and, therefore, an increase in total Intrexon shareholders' equity and total capitalization. However, amounts shown in the table above do not reflect the application of ASC 470-20 to the notes nor the note underwriters' discounts and commissions and our estimated offering expenses related to this offering and our concurrent offering of borrowed shares.

Price range of common stock and dividend policy

Our common stock is listed and traded on the NYSE under the symbol "XON." The following table sets forth, for the periods indicated, the high and low sale prices per share of our common stock.

	High	Low
Year Ended December 31, 2018		
Second Quarter (through June 26, 2018)	\$19.87	\$14.15
First Quarter	\$17.10	\$12.01
Year Ended December 31, 2017		
Fourth Quarter	\$20.49	\$10.26
Third Quarter	\$25.30	\$17.04
Second Quarter	\$26.99	\$18.41
First Quarter	\$26.95	\$18.55
Year Ended December 31, 2016		
Fourth Quarter	\$32.90	\$24.01
Third Quarter	\$30.56	\$22.88
Second Quarter	\$38.60	\$22.81
First Quarter	\$40.24	\$18.52

Dividend policy

We have never declared or paid any cash dividends on our capital stock. We currently intend to retain earnings, if any, to finance the growth and development of our business. We do not expect to pay any cash dividends on our common stock in the foreseeable future. Payment of future dividends, if any, will be at the discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements, restrictions contained in current or future financing instruments, provisions of applicable law and other factors that our board of directors deems relevant.

Description of notes

We will issue the notes under a base indenture to be dated as of _____, 2018 between us and The Bank of New York Mellon Trust Company, N.A., as supplemented by a supplemental indenture with respect to the notes. In this section, we refer to the base indenture (the “base indenture”), as supplemented by the supplemental indenture (the “supplemental indenture”), collectively as the “indenture.” This description of the notes supplements and, to the extent it is inconsistent, replaces the description of the general provisions of the notes and the base indenture in the accompanying prospectus. The terms of the notes include those expressly set forth in the indenture and those made part of the indenture by reference to the Trust Indenture Act of 1939, as amended (the “Trust Indenture Act”).

You may request a copy of the indenture from us as described under “Where you can find more information.”

The following description is a summary of the material provisions of the notes and the indenture and does not purport to be complete. This summary is subject to and is qualified by reference to all the provisions of the notes and the indenture, including the definitions of certain terms used in the indenture. We urge you to read these documents because they, and not this description, define your rights as a holder of the notes.

For purposes of this description, references to “we,” “our” and “us” refer only to Intrexon Corporation and not to its subsidiaries.

General

The notes will:

- be our general unsecured, senior obligations;
- initially be limited to an aggregate principal amount of \$200,000,000 (or \$230,000,000 if the underwriters’ over-allotment option is exercised in full);
- bear cash interest from _____, 2018 at an annual rate of _____ % payable on January 1 and July 1 of each year, beginning on January 1, 2019;
- not be redeemable prior to maturity;
- be subject to repurchase by us at the option of the holders following a fundamental change (as defined below under “—Fundamental change permits holders to require us to repurchase notes”), at a fundamental change repurchase price equal to 100% of the principal amount of the notes to be repurchased, *plus* accrued and unpaid interest to, but excluding, the fundamental change repurchase date;
- mature on July 1, 2023, unless earlier converted or repurchased;
- be issued in denominations of \$1,000 and integral multiples of \$1,000 in excess thereof; and
- be represented by one or more registered notes in global form, but in certain limited circumstances may be represented by notes in definitive form. See “—Book-entry, settlement and clearance.”

Subject to satisfaction of certain conditions and during the periods described below, the notes may be converted at an initial conversion rate of _____ shares of common stock per \$1,000 principal amount of notes (equivalent to an initial conversion price of approximately \$ _____ per share of common stock). The conversion rate is subject to adjustment if certain events occur as described under “— Conversion rights – Conversion rate adjustments” and “— Conversion rights – Increase in conversion rate upon conversion upon a make-whole fundamental change.”

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We will settle conversions of notes by paying or delivering, as the case may be, cash, shares of our common stock or a combination of cash and shares of our common stock, at our election, as described under “—Conversion rights—Settlement upon conversion.” You will not receive any separate cash payment for interest, if any, accrued and unpaid to the conversion date except under the limited circumstances described below. A holder may convert fewer than all of such holder’s notes so long as the notes converted are a multiple of \$1,000 principal amount.

The indenture will not limit the amount of debt that may be issued by us or our subsidiaries under the indenture or otherwise. The indenture will not contain any financial covenants and will not restrict us from paying dividends or issuing or repurchasing our other securities. Other than restrictions described under “—Fundamental change permits holders to require us to repurchase notes” and “—Consolidation, merger and sale of assets” below and except for the provisions set forth under “—Conversion rights—Increase in conversion rate upon conversion upon a make-whole fundamental change,” the indenture will not contain any covenants or other provisions designed to afford holders of the notes protection in the event of a highly leveraged transaction involving us or in the event of a decline in our credit rating as the result of a takeover, recapitalization, highly leveraged transaction or similar restructuring involving us that could adversely affect such holders.

We may, without the consent of the holders, reopen the indenture for the notes and issue additional notes under the indenture with the same terms as the notes offered hereby (other than differences in the issue date, the issue price and interest accrued prior to the issue date of such additional notes) in an unlimited aggregate principal amount; *provided* that if any such additional notes are not fungible with the notes initially offered hereby for U.S. federal income tax purposes, such additional notes will have a separate CUSIP number.

We do not intend to list the notes on any securities exchange or any automated dealer quotation system.

Except to the extent the context otherwise requires, we use the term “notes” in this prospectus supplement to refer to each \$1,000 principal amount of notes. We use the term “common stock” in this prospectus supplement to refer to our common stock, no par value per share. References in this prospectus supplement to a “holder” or “holders” of notes that are held through The Depository Trust Company (“DTC”) are references to owners of beneficial interests in such notes, unless the context otherwise requires. However, we and the trustee will treat the person in whose name the notes are registered (Cede & Co., in the case of notes held through DTC) as the owner of such notes for all purposes. References herein to the “close of business” refer to 5:00 p.m., New York City time, and to the “open of business” refer to 9:00 a.m., New York City time.

Purchase and cancellation

We will cause all notes surrendered for payment, repurchase (including as described below), registration of transfer or exchange or conversion, if surrendered to any person other than the trustee (including any of our agents, subsidiaries or affiliates), to be delivered to the trustee for cancellation. All notes delivered to the trustee shall be cancelled by the trustee in accordance with its normal procedure therefor. Except for notes surrendered for transfer or exchange, no notes shall be authenticated in exchange for any notes cancelled as provided in the indenture.

We may, to the extent permitted by law, and directly or indirectly (regardless of whether such notes are surrendered to us), repurchase notes in the open market or otherwise, whether by us or our subsidiaries or through a private or public tender or exchange offer or through counterparties to private agreements, including by cash-settled swaps or other derivatives. We will cause any notes so repurchased (other than notes repurchased pursuant to cash-settled swaps or other derivatives) to be surrendered to the trustee for cancellation, and they will no longer be considered “outstanding” under the indenture upon their repurchase.

Payments on the notes; paying agent and registrar; transfer and exchange

We will pay the principal of, and interest on, notes in global form registered in the name of or held by DTC or its nominee in immediately available funds to DTC or its nominee, as the case may be, as the registered holder of such global note.

We will pay the principal of any certificated notes at the office or agency designated by us for that purpose. We have initially designated the trustee as our paying agent and registrar and its agency in Atlanta, Georgia as a place where notes may be presented for payment or for registration of transfer. We may, however, change the paying agent or registrar without prior notice to the holders of the notes, and we may act as paying agent or registrar. Interest on certificated notes will be payable (i) to holders having an aggregate principal amount of \$5,000,000 or less, by check mailed to the holders of these notes and (ii) to holders having an aggregate principal amount of more than \$5,000,000, either by check mailed to each holder or, upon application by such a holder to the registrar not later than the relevant regular record date, by wire transfer in immediately available funds to that holder's account within the United States, which application shall remain in effect until the holder notifies, in writing, the registrar to the contrary.

A holder of notes may transfer or exchange notes at the office of the registrar in accordance with the indenture. The registrar and the trustee may require a holder, among other things, to furnish appropriate endorsements and transfer documents. No service charge will be imposed by us, the trustee or the registrar for any registration of transfer or exchange of notes, but we may require a holder to pay a sum sufficient to cover any transfer tax or other similar governmental charge required by law or permitted by the indenture. We are not required to transfer or exchange any note surrendered for conversion or required repurchase.

The registered holder of a note will be treated as its owner for all purposes.

Interest

The notes will bear cash interest at a rate of % per year until maturity. Interest on the notes will accrue from , 2018 or from the most recent date on which interest has been paid or duly provided for. Interest will be payable semiannually in arrears on January 1 and July 1 of each year, beginning on January 1, 2019.

Interest will be paid to the person in whose name a note is registered at the close of business on December 15 or June 15, as the case may be, immediately preceding the relevant interest payment date (each, a "regular record date"). Interest on the notes will be computed on the basis of a 360-day year composed of twelve 30-day months and, for partial months, on the basis of the number of days actually elapsed in a 30-day month.

If any interest payment date, the maturity date or any earlier required repurchase date upon a fundamental change of a note falls on a day that is not a business day, the required payment will be made on the next succeeding business day and no interest on such payment will accrue in respect of the delay. The term "business day" means, with respect to any note, any day other than a Saturday, a Sunday or a day on which the Federal Reserve Bank of New York is authorized or required by law or executive order to close or be closed.

Unless the context otherwise requires, all references to interest in this prospectus supplement include additional interest, if any, payable at our election as the sole remedy relating to the failure to comply with our reporting obligations as described under "—Events of default."

Ranking

The notes will be our general unsecured obligations that rank senior in right of payment to all of our indebtedness that is expressly subordinated in right of payment to the notes. The notes will rank equal in right

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of payment with all of our liabilities that are not so subordinated. The notes will effectively rank junior to any of our secured indebtedness to the extent of the value of the assets securing such indebtedness. In the event of our bankruptcy, liquidation, reorganization or other winding up, our assets that secure secured debt will be available to pay obligations on the notes only after all indebtedness under such secured debt has been repaid in full from such assets. The notes will rank structurally junior to all indebtedness and other liabilities of our subsidiaries (including trade payables but excluding intercompany obligations and liabilities of a type not required to be reflected on a balance sheet of such subsidiaries in accordance with U.S. GAAP). We advise you that there may not be sufficient assets remaining to pay amounts due on any or all the notes then outstanding.

As of March 31, 2018, our total consolidated indebtedness was \$8.2 million, of which an aggregate of \$5.9 million was secured indebtedness. As of March 31, 2018, our subsidiaries had \$13.5 million of indebtedness and trade payables (excluding intercompany obligations and liabilities of a type not required to be reflected on a balance sheet of such subsidiaries in accordance with U.S. GAAP) to which the notes would have been structurally subordinated. As of March 31, 2018 and as adjusted for the issuance of the notes (assuming no exercise of the underwriters' over-allotment option) and the use of proceeds therefrom, our total consolidated indebtedness would have been \$208.2 million.

The ability of our subsidiaries to pay dividends and make other payments to us is restricted by, among other things, applicable corporate and other laws and regulations as well as agreements to which our subsidiaries may become a party. We may not be able to pay the cash portions of any settlement amount upon conversion of the notes, or to pay cash for the fundamental change repurchase price upon a fundamental change if a holder requires us to repurchase notes as described below. See "Risk Factors—Risks related to the notes—We may not have the ability to raise the funds necessary to settle conversions of the notes in cash or to repurchase the notes upon a fundamental change, and our future debt may contain limitations on our ability to pay cash upon conversion or repurchase of the notes."

No redemption

We may not redeem the notes prior to the maturity date, and no "sinking fund" is provided for the notes, which means that we are not required to redeem or retire the notes periodically.

Conversion rights

General

Prior to the close of business on the business day immediately preceding April 1, 2023, the notes will be convertible only upon satisfaction of one or more of the conditions described under the headings "—Conversion upon satisfaction of sale price condition," "—Conversion upon satisfaction of trading price condition" and "—Conversion upon specified corporate events." On or after April 1, 2023 until the close of business on the business day immediately preceding the maturity date, holders may convert all or any portion of their notes at the conversion rate at any time irrespective of the foregoing conditions.

The conversion rate will initially be _____ shares of common stock per \$1,000 principal amount of notes (equivalent to an initial conversion price of approximately \$ _____ per share of common stock). Upon conversion of a note, we will satisfy our conversion obligation by paying or delivering, as the case may be, cash, shares of our common stock or a combination of cash and shares of our common stock, at our election, all as set forth below under "—Settlement upon conversion." If we satisfy our conversion obligation solely in cash or through payment and delivery, as the case may be, of a combination of cash and shares of our common stock, the amount of cash and shares of common stock, if any, due upon conversion will be based on a daily conversion value (as defined below) calculated on a proportionate basis for each trading day in a 30 trading day

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observation period (as defined below under “—Settlement upon conversion”). The trustee will initially act as the conversion agent.

A holder may convert fewer than all of such holder’s notes so long as the notes converted are a multiple of \$1,000 principal amount.

Upon conversion, you will not receive any separate cash payment for accrued and unpaid interest, if any, except as described below. We will not issue fractional shares of our common stock upon conversion of notes. Instead, we will pay cash in lieu of delivering any fractional share as described under “—Settlement upon conversion.” Our payment and delivery, as the case may be, to you of the cash, shares of our common stock or a combination thereof, as the case may be, into which a note is convertible will be deemed to satisfy in full our obligation to pay:

- the principal amount of the note; and
- accrued and unpaid interest, if any, to, but not including, the relevant conversion date.

As a result, accrued and unpaid interest, if any, to, but not including, the relevant conversion date will be deemed to be paid in full rather than cancelled, extinguished or forfeited. Upon a conversion of notes into a combination of cash and shares of our common stock, accrued and unpaid interest will be deemed to be paid first out of the cash paid upon such conversion.

Notwithstanding the immediately preceding paragraph, if notes are converted after the close of business on a regular record date for the payment of interest, holders of such notes at the close of business on such regular record date will receive the full amount of interest payable on such notes on the corresponding interest payment date notwithstanding the conversion. Notes surrendered for conversion during the period from the close of business on any regular record date to the open of business on the immediately following interest payment date must be accompanied by funds equal to the amount of interest payable on the notes so converted; *provided* that no such payment need be made:

- for conversions following the regular record date immediately preceding the maturity date;
- if we have specified a fundamental change repurchase date that is after a regular record date and on or prior to the business day immediately following the corresponding interest payment date; or
- to the extent of any overdue interest, if any overdue interest exists at the time of conversion with respect to such note.

Therefore, for the avoidance of doubt, all record holders on the regular record date immediately preceding the maturity date will receive the full interest payment due on the maturity date in cash regardless of whether their notes have been converted following such regular record date.

If a holder converts notes, we will pay any documentary, stamp or similar issue or transfer tax due on any issuance of any shares of our common stock upon the conversion, unless the tax is due because the holder requests such shares to be issued in a name other than the holder’s name, in which case the holder will pay that tax.

Holders may surrender their notes for conversion under the following circumstances:

Conversion upon satisfaction of sale price condition

Prior to the close of business on the business day immediately preceding April 1, 2023, a holder may surrender all or any portion of its notes for conversion at any time during any calendar quarter commencing after the

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calendar quarter ending on September 30, 2018 (and only during such calendar quarter), if the last reported sale price of the common stock for at least 20 trading days (whether or not consecutive) during the period of 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day. If the sale price condition has been met, we will so notify the holders, the trustee and the conversion agent (if other than the trustee).

The “last reported sale price” of our common stock on any date means the closing sale price per share (or if no closing sale price is reported, the average of the bid and ask prices or, if more than one in either case, the average of the average bid and the average ask prices) on that date as reported in composite transactions for the principal U.S. national or regional securities exchange on which our common stock is traded. If our common stock is not listed for trading on a U.S. national or regional securities exchange on the relevant date, the “last reported sale price” will be the last quoted bid price for our common stock in the over-the-counter market on the relevant date as reported by OTC Markets Group Inc. or a similar organization. If our common stock is not so quoted, the “last reported sale price” will be the average of the mid-point of the last bid and ask prices for our common stock on the relevant date from each of at least three nationally recognized independent investment banking firms selected by us for this purpose.

“Trading day” means a day on which (i) trading in our common stock (or other security for which a closing sale price must be determined) generally occurs on The New York Stock Exchange or, if our common stock (or such other security) is not then listed on The New York Stock Exchange, on the principal other U.S. national or regional securities exchange on which our common stock (or such other security) is then listed or, if our common stock (or such other security) is not then listed on a U.S. national or regional securities exchange, on the principal other market on which our common stock (or such other security) is then traded, and (ii) a last reported sale price for our common stock (or closing sale price for such other security) is available on such securities exchange or market. If our common stock (or such other security) is not so listed or traded, “trading day” means a “business day.”

Conversion upon satisfaction of trading price condition

Prior to the close of business on the business day immediately preceding April 1, 2023, a holder of notes may surrender all or any portion of its notes for conversion at any time during the five business day period after any five consecutive trading day period (the “measurement period”) in which the “trading price” per \$1,000 principal amount of notes, as determined following a request by a holder of notes in accordance with the procedures described below, for each trading day of the measurement period was less than 98% of the product of the last reported sale price of our common stock and the conversion rate on each such trading day.

The “trading price” of the notes on any date of determination means the average of the secondary market bid quotations obtained by the bid solicitation agent for \$5,000,000 principal amount of notes at approximately 3:30 p.m., New York City time, on such determination date from three independent nationally recognized securities dealers we select for this purpose; *provided* that if three such bids cannot reasonably be obtained by the bid solicitation agent but two such bids are obtained, then the average of the two bids shall be used, and if only one such bid can reasonably be obtained by the bid solicitation agent, that one bid shall be used. If the bid solicitation agent cannot reasonably obtain at least one bid for \$5,000,000 principal amount of notes from a nationally recognized securities dealer, then the trading price per \$1,000 principal amount of notes will be deemed to be less than 98% of the product of the last reported sale price of our common stock and the conversion rate. If (x) we are not acting as bid solicitation agent, and we do not, when we are required to, instruct the bid solicitation agent to obtain bids, or if we give such instruction to the bid solicitation agent, and the bid solicitation agent fails to make such determination, or (y) we are acting as bid solicitation agent and we

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fail to make such determination, then, in either case, the trading price per \$1,000 principal amount of notes will be deemed to be less than 98% of the product of the last reported sale price of our common stock and the conversion rate on each trading day of such failure.

The bid solicitation agent (if other than us) shall have no obligation to determine the trading price per \$1,000 principal amount of notes unless we have requested such determination; and we shall have no obligation to make such request (or, if we are acting as bid solicitation agent, we shall have no obligation to determine the trading price) unless a holder of a note provides us with reasonable evidence that the trading price per \$1,000 principal amount of notes would be less than 98% of the product of the last reported sale price of our common stock and the conversion rate. At such time, we shall instruct the bid solicitation agent (if other than us) to determine, or if we are acting as bid solicitation agent, we shall determine, the trading price per \$1,000 principal amount of notes beginning on the next trading day and on each successive trading day until the trading price per \$1,000 principal amount of notes is greater than or equal to 98% of the product of the last reported sale price of our common stock and the conversion rate. If the trading price condition has been met, we will so notify the holders, the trustee and the conversion agent (if other than the trustee). If, at any time after the trading price condition has been met, the trading price per \$1,000 principal amount of notes is greater than or equal to 98% of the product of the last reported sale price of our common stock and the conversion rate for such date, we will so notify the holders, the trustee and the conversion agent (if other than the trustee).

We will initially act as the bid solicitation agent.

Conversion upon specified corporate events

Certain distributions

If, prior to the close of business on the business day immediately preceding April 1, 2023, we elect to:

- issue to all or substantially all holders of our common stock any rights, options or warrants entitling them, for a period of not more than 45 calendar days after the announcement date of such issuance, to subscribe for or purchase shares of our common stock at a price per share that is less than the average of the last reported sale prices of our common stock for the 10 consecutive trading day period ending on, and including, the trading day immediately preceding the date of announcement of such issuance; or
- distribute to all or substantially all holders of our common stock our assets, securities or rights to purchase our securities, which distribution has a per share value, as reasonably determined by our board of directors or a committee thereof, exceeding 10% of the last reported sale price of our common stock on the trading day preceding the date of announcement for such distribution,

then, in either case, we must notify the holders of the notes at least 40 scheduled trading days prior to the ex-dividend date for such issuance or distribution. Once we have given such notice, holders may surrender all or any portion of their notes for conversion at any time until the earlier of the close of business on the business day immediately preceding the ex-dividend date for such issuance or distribution and our announcement that such issuance or distribution will not take place, even if the notes are not otherwise convertible at such time.

Certain corporate events

If a transaction or event that constitutes a “fundamental change” (as defined under “—Fundamental change permits holders to require us to repurchase notes”) or a “make-whole fundamental change” (as defined under “—Increase in conversion rate upon conversion upon a make-whole fundamental change”) occurs prior to the close of business on the business day immediately preceding April 1, 2023, regardless of whether a holder has the right to require us to repurchase the notes as described under “—Fundamental change permits holders to

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require us to repurchase notes,” or if we are a party to a consolidation, merger, binding share exchange, or transfer or lease of all or substantially all of our assets that occurs prior to the close of business on the business day immediately preceding April 1, 2023, in each case, pursuant to which our common stock would be converted into cash, securities or other assets, all or any portion of a holder’s notes may be surrendered for conversion at any time from or after the date that is 40 scheduled trading days prior to the anticipated effective date of the transaction (or, if later, the earlier of (x) the business day after we give notice of such transaction and (y) the actual effective date of such transaction) until 35 trading days after the actual effective date of such transaction or, if such transaction also constitutes a fundamental change, until the related fundamental change repurchase date. We will notify holders, the trustee and the conversion agent (if other than the trustee) (i) as promptly as practicable following the date we publicly announce such transaction but in no event less than 40 scheduled trading days prior to the anticipated effective date of such transaction; or (ii) if we do not have knowledge of such transaction at least 40 scheduled trading days prior to the anticipated effective date of such transaction, within one business day of the date upon which we receive notice, or otherwise become aware, of such transaction, but in no event later than the actual effective date of such transaction.

Conversions on or after April 1, 2023

On or after April 1, 2023, a holder may convert all or any portion of its notes at any time prior to the close of business on the business day immediately preceding the maturity date regardless of the foregoing conditions.

Conversion procedures

If you hold a beneficial interest in a global note, to convert you must comply with DTC’s procedures for converting a beneficial interest in a global note and, if required, pay funds equal to interest payable on the next interest payment date to which you are not entitled. As such, if you are a beneficial owner of the notes, you must allow for sufficient time to comply with DTC’s procedures if you wish to exercise your conversion rights.

If you hold a certificated note, to convert you must:

- complete and manually sign the conversion notice on the back of the note, or a facsimile of the conversion notice;
- deliver the conversion notice, which is irrevocable, and the note to the conversion agent;
- if required, furnish appropriate endorsements and transfer documents; and
- if required, pay funds equal to interest payable on the next interest payment date to which you are not entitled.

We will pay any documentary, stamp or similar issue or transfer tax on the issuance of any shares of our common stock upon conversion of the notes, unless the tax is due because the holder requests such shares to be issued in a name other than the holder’s name, in which case the holder will pay the tax.

We refer to the date you comply with the relevant procedures for conversion described above as the “conversion date.”

If a holder has already delivered a repurchase notice as described under “—Fundamental change permits holders to require us to repurchase notes” with respect to a note, the holder may not surrender that note for conversion until the holder has withdrawn the repurchase notice in accordance with the relevant provisions of the indenture. If a holder submits its notes for required repurchase, the holder’s right to withdraw the repurchase notice and convert the notes that are subject to repurchase will terminate at the close of business on the business day immediately preceding the relevant fundamental change repurchase date.

Settlement upon conversion

Upon conversion, we may choose to pay or deliver, as the case may be, either cash (“cash settlement”), shares of our common stock (“physical settlement”) or a combination of cash and shares of our common stock (“combination settlement”), as described below. We refer to each of these settlement methods as a “settlement method.”

All conversions for which the relevant conversion date occurs on or after April 1, 2023 will be settled using the same settlement method. Except for any conversions for which the relevant conversion date occurs on or after April 1, 2023, we will use the same settlement method for all conversions with the same conversion date, but we will not have any obligation to use the same settlement method with respect to conversions with different conversion dates. That is, we may choose for notes converted on one conversion date to settle conversions in physical settlement, and choose for notes converted on another conversion date cash settlement or combination settlement.

If we elect a settlement method, we will inform holders so converting through the conversion agent of the settlement method we have selected no later than the close of business on the trading day immediately following the related conversion date (or in the case of any conversions for which the relevant conversion date occurs on or after April 1, 2023, no later than April 1, 2023). If we do not timely elect a settlement method, we will no longer have the right to elect cash settlement or physical settlement and we will be deemed to have elected combination settlement in respect of our conversion obligation, as described below, and the specified dollar amount (as defined below) per \$1,000 principal amount of notes will be equal to \$1,000. If we elect combination settlement, but we do not timely notify converting holders of the specified dollar amount per \$1,000 principal amount of notes, such specified dollar amount will be deemed to be \$1,000.

Settlement amounts will be computed as follows:

- if we elect physical settlement, we will deliver to the converting holder in respect of each \$1,000 principal amount of notes being converted a number of shares of common stock equal to the conversion rate;
- if we elect cash settlement, we will pay to the converting holder in respect of each \$1,000 principal amount of notes being converted cash in an amount equal to the sum of the daily conversion values for each of the 30 consecutive trading days during the related observation period; and
- if we elect (or are deemed to have elected) combination settlement, we will pay or deliver, as the case may be, to the converting holder in respect of each \$1,000 principal amount of notes being converted a “settlement amount” equal to the sum of the daily settlement amounts for each of the 30 consecutive trading days during the related observation period.

The “daily settlement amount,” for each of the 30 consecutive trading days during the observation period, shall consist of:

- cash equal to the lesser of (i) the maximum cash amount per \$1,000 principal amount of notes to be received upon conversion as specified in the notice specifying our chosen settlement method (the “specified dollar amount”), if any, divided by 30 (such quotient, the “daily measurement value”) and (ii) the daily conversion value; and
- if the daily conversion value exceeds the daily measurement value, a number of shares equal to (i) the difference between the daily conversion value and the daily measurement value, divided by (ii) the daily VWAP for such trading day.

The “daily conversion value” means, for each of the 30 consecutive trading days during the observation period, one-thirtieth of the product of (1) the conversion rate on such trading day and (2) the daily VWAP for such trading day.

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The “daily VWAP” means, for each of the 30 consecutive trading days during the relevant observation period, the per share volume-weighted average price as displayed under the heading “Bloomberg VWAP” on Bloomberg page “XON <equity> AQR” (or its equivalent successor if such page is not available) in respect of the period from the scheduled open of trading until the scheduled close of trading of the primary trading session on such trading day (or if such volume-weighted average price is unavailable, the market value of one share of our common stock on such trading day determined, using a volume-weighted average method, by a nationally recognized independent investment banking firm retained for this purpose by us). The “daily VWAP” will be determined without regard to after-hours trading or any other trading outside of the regular trading session trading hours.

The “observation period” with respect to any note surrendered for conversion means:

- if the relevant conversion date occurs prior to April 1, 2023, the 30 consecutive trading day period beginning on, and including, the second trading day immediately succeeding such conversion date; and
- if the relevant conversion date occurs on or after April 1, 2023, the 30 consecutive trading days beginning on, and including, the 31st scheduled trading day immediately preceding the maturity date.

For the purposes of determining amounts due upon conversion only, “trading day” means a day on which (i) there is no “market disruption event” (as defined below) and (ii) trading in our common stock generally occurs on The New York Stock Exchange or, if our common stock is not then listed on The New York Stock Exchange, on the principal other U.S. national or regional securities exchange on which our common stock is then listed or, if our common stock is not then listed on a U.S. national or regional securities exchange, on the principal other market on which our common stock is then listed or admitted for trading. If our common stock is not so listed or admitted for trading, “trading day” means a “business day.”

“Scheduled trading day” means a day that is scheduled to be a trading day on the principal U.S. national or regional securities exchange or market on which our common stock is listed or admitted for trading. If our common stock is not so listed or admitted for trading, “scheduled trading day” means a “business day.”

For the purposes of determining amounts due upon conversion, “market disruption event” means (i) a failure by the primary U.S. national or regional securities exchange or market on which our common stock is listed or admitted for trading to open for trading during its regular trading session or (ii) the occurrence or existence prior to 1:00 p.m., New York City time, on any scheduled trading day for our common stock for more than one half-hour period in the aggregate during regular trading hours of any suspension or limitation imposed on trading (by reason of movements in price exceeding limits permitted by the relevant stock exchange or otherwise) in our common stock or in any options contracts or futures contracts relating to our common stock.

Except as described under “—Increase in conversion rate upon conversion upon a make-whole fundamental change” and “—Recapitalizations, reclassifications and changes of our common stock,” we will deliver the consideration due in respect of conversion on the second business day immediately following the relevant conversion date, if we elect physical settlement, or on the second business day immediately following the last trading day of the relevant observation period, in the case of any other settlement method.

We will pay cash in lieu of delivering any fractional share of common stock issuable upon conversion based on the daily VWAP for the relevant conversion date (in the case of physical settlement) or based on the daily VWAP for the last trading day of the relevant observation period (in the case of combination settlement).

Each conversion will be deemed to have been effected as to any notes surrendered for conversion on the conversion date; *provided, however*, that the person in whose name any shares of our common stock shall be issuable upon such conversion will be treated as the holder of record of such shares as of the close of business

on the conversion date (in the case of physical settlement) or the last trading day of the relevant observation period (in the case of combination settlement).

Conversion rate adjustments

The conversion rate will be adjusted as described below, except that we will not make any adjustments to the conversion rate if holders of the notes participate (other than in the case of (x) a share split or share combination or (y) a tender or exchange offer), at the same time and upon the same terms as holders of our common stock and solely as a result of holding the notes, in any of the transactions described below without having to convert their notes as if they held a number of shares of common stock equal to the conversion rate, *multiplied by* the principal amount (expressed in thousands) of notes held by such holder.

- (1) If we exclusively issue shares of our common stock as a dividend or distribution on shares of our common stock, or if we effect a share split or share combination, the conversion rate will be adjusted based on the following formula:

$$CR_1 = CR_0 \times \frac{OS_1}{OS_0}$$

where,

CR₀ = the conversion rate in effect immediately prior to the open of business on the ex-dividend date of such dividend or distribution, or immediately prior to the open of business on the effective date of such share split or share combination, as applicable;

CR₁ = the conversion rate in effect immediately after the open of business on such ex-dividend date or effective date;

OS₀ = the number of shares of our common stock outstanding immediately prior to the open of business on such ex-dividend date or effective date (before giving effect to any such dividend, distribution, split or combination); and

OS₁ = the number of shares of our common stock outstanding immediately after giving effect to such dividend, distribution, share split or share combination.

Any adjustment made under this clause (1) shall become effective immediately after the open of business on the ex-dividend date for such dividend or distribution, or immediately after the open of business on the effective date for such share split or share combination, as applicable. If any dividend or distribution of the type described in this clause (1) is declared but not so paid or made, the conversion rate shall be immediately readjusted, effective as of the date our board of directors or a committee thereof determines not to pay such dividend or distribution, to the conversion rate that would then be in effect if such dividend or distribution had not been declared.

- (2) If we issue to all or substantially all holders of our common stock any rights, options or warrants entitling them, for a period of not more than 45 calendar days after the announcement date of such issuance, to subscribe for or purchase shares of our common stock at a price per share that is less than the average of the last reported sale prices of our common stock for the 10 consecutive trading day period ending on, and including, the trading day immediately preceding the date of announcement of such issuance, the conversion rate will be increased based on the following formula:

$$CR_1 = CR_0 \times \frac{OS_0 + X}{OS_0 + Y}$$

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where,

CR₀ = the conversion rate in effect immediately prior to the open of business on the ex-dividend date for such issuance;

CR₁ = the conversion rate in effect immediately after the open of business on such ex-dividend date;

OS₀ = the number of shares of our common stock outstanding immediately prior to the open of business on such ex-dividend date;

X = the total number of shares of our common stock issuable pursuant to such rights, options or warrants; and

Y = the number of shares of our common stock equal to the aggregate price payable to exercise such rights, options or warrants, *divided by* the average of the last reported sale prices of our common stock over the 10 consecutive trading day period ending on, and including, the trading day immediately preceding the date of announcement of the issuance of such rights, options or warrants.

Any increase made under this clause (2) will be made successively whenever any such rights, options or warrants are issued and shall become effective immediately after the open of business on the ex-dividend date for such issuance. To the extent that shares of common stock are not delivered after the expiration of such rights, options or warrants, the conversion rate shall be decreased to the conversion rate that would then be in effect had the increase with respect to the issuance of such rights, options or warrants been made on the basis of delivery of only the number of shares of common stock actually delivered. If such rights, options or warrants are not so issued, the conversion rate shall be decreased to the conversion rate that would then be in effect if such ex-dividend date for such issuance had not occurred.

For the purpose of this clause (2), and for the purpose of the first bullet point under “—Conversion upon specified corporate events—Certain distributions,” in determining whether any rights, options or warrants entitle the holders to subscribe for or purchase shares of the common stock at less than such average of the last reported sale prices for the 10 consecutive trading day period ending on, and including, the trading day immediately preceding the date of announcement of such issuance, and in determining the aggregate offering price of such shares of common stock, there shall be taken into account any consideration received by us for such rights, options or warrants and any amount payable on exercise or conversion thereof, the value of such consideration, if other than cash, to be determined by our board of directors or a committee thereof.

(3) If we distribute shares of our capital stock, evidences of our indebtedness, other assets or property of ours or rights, options or warrants to acquire our capital stock or other securities, to all or substantially all holders of our common stock, excluding:

- dividends, distributions or issuances as to which an adjustment was effected pursuant to clause (1) or (2) above;
- dividends or distributions paid exclusively in cash as to which the provisions set forth in clause (4) below shall apply; and
- spin-offs as to which the provisions set forth below in this clause (3) shall apply;

then the conversion rate will be increased based on the following formula:

$$CR_1 = CR_0 \times \frac{SP_0}{SP_0 - FMV}$$

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where,

- CR₀ = the conversion rate in effect immediately prior to the open of business on the ex-dividend date for such distribution;
- CR₁ = the conversion rate in effect immediately after the open of business on such ex-dividend date;
- SP₀ = the average of the last reported sale prices of our common stock over the 10 consecutive trading day period ending on, and including, the trading day immediately preceding the ex-dividend date for such distribution; and
- FMV = the fair market value (as determined by our board of directors or a committee thereof) of the shares of capital stock, evidences of indebtedness, assets, property, rights, options or warrants distributed with respect to each outstanding share of our common stock on the ex-dividend date for such distribution.

Any increase made under the portion of this clause (3) above will become effective immediately after the open of business on the ex-dividend date for such distribution. If such distribution is not so paid or made, the conversion rate shall be decreased to be the conversion rate that would then be in effect if such distribution had not been declared. Notwithstanding the foregoing, if "FMV" (as defined above) is equal to or greater than "SP₀" (as defined above), in lieu of the foregoing increase, each holder of a note shall receive, in respect of each \$1,000 principal amount thereof, at the same time and upon the same terms as holders of our common stock, the amount and kind of our capital stock, evidences of our indebtedness, other assets or property of ours or rights, options or warrants to acquire our capital stock or other securities that such holder would have received if such holder owned a number of shares of common stock equal to the conversion rate in effect on the ex-dividend date for the distribution.

With respect to an adjustment pursuant to this clause (3) where there has been a payment of a dividend or other distribution on our common stock of shares of capital stock of any class or series, or similar equity interest, of or relating to a subsidiary or other business unit, that are, or, when issued, will be, listed or admitted for trading on a U.S. national securities exchange, which we refer to as a "spin-off," the conversion rate will be increased based on the following formula:

$$CR_1 = CR_0 \times \frac{FMV_0 + MP_0}{MP_0}$$

where,

- CR₀ = the conversion rate in effect immediately prior to the end of the valuation period (as defined below);
- CR₁ = the conversion rate in effect immediately after the end of the valuation period;
- FMV₀ = the average of the last reported sale prices of the capital stock or similar equity interest distributed to holders of our common stock applicable to one share of our common stock (determined by reference to the definition of last reported sale price set forth under "—Conversion upon satisfaction of sale price condition" as if references therein to our common stock were to such capital stock or similar equity interest) over the first 10 consecutive trading day period after, and including, the ex-dividend date of the spin-off (the "valuation period"); and
- MP₀ = the average of the last reported sale prices of our common stock over the valuation period.

The increase to the conversion rate under the preceding paragraph will occur at the close of business on the last trading day of the valuation period; *provided* that (x) in respect of any conversion of notes for which physical settlement is applicable, if the relevant conversion date occurs during the valuation period, the reference to "10" in the preceding paragraph shall be deemed replaced with such lesser number of trading days

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as have elapsed between the ex-dividend date for such spin-off and such conversion date in determining the conversion rate and (y) in respect of any conversion of notes for which cash settlement or combination settlement is applicable, for any trading day that falls within the relevant observation period for such conversion and within the valuation period, the reference to "10" in the preceding paragraph shall be deemed replaced with such lesser number of trading days as have elapsed between the ex-dividend date for such spin-off and such trading day in determining the conversion rate as of such trading day.

- (4) If any cash dividend or distribution is made to all or substantially all holders of our common stock, the conversion rate will be adjusted based on the following formula:

$$CR_1 = CR_0 \times \frac{SP_0}{SP_0 - C}$$

where,

- CR₀ = the conversion rate in effect immediately prior to the open of business on the ex-dividend date for such dividend or distribution;
CR₁ = the conversion rate in effect immediately after the open of business on the ex-dividend date for such dividend or distribution;
SP₀ = the last reported sale price of our common stock on the trading day immediately preceding the ex-dividend date for such dividend or distribution; and
C = the amount in cash per share we distribute to all or substantially all holders of our common stock.

Any increase made under this clause (4) shall become effective immediately after the open of business on the ex-dividend date for such dividend or distribution. If such dividend or distribution is not so paid, the conversion rate shall be decreased, effective as of the date our board of directors or a committee thereof determines not to make or pay such dividend or distribution, to be the conversion rate that would then be in effect if such dividend or distribution had not been declared. Notwithstanding the foregoing, if "C" (as defined above) is equal to or greater than "SP₀" (as defined above), in lieu of the foregoing increase, each holder of a note shall receive, for each \$1,000 principal amount of notes, at the same time and upon the same terms as holders of shares of our common stock, the amount of cash that such holder would have received if such holder owned a number of shares of our common stock equal to the conversion rate on the ex-dividend date for such cash dividend or distribution.

- (5) If we or any of our subsidiaries make a payment in respect of a tender or exchange offer for our common stock, to the extent that the cash and value of any other consideration included in the payment per share of common stock exceeds the average of the last reported sale prices of our common stock over the 10 consecutive trading day period commencing on, and including, the trading day next succeeding the last date on which tenders or exchanges may be made pursuant to such tender or exchange offer, the conversion rate will be increased based on the following formula:

$$CR_1 = CR_0 \times \frac{AC + (SP_1 \times OS_1)}{OS_0 \times SP_1}$$

where,

- CR₀ = the conversion rate in effect immediately prior to the close of business on the 10th trading day immediately following, and including, the trading day next succeeding the date such tender or exchange offer expires;

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- CR₁ = the conversion rate in effect immediately after the close of business on the 10th trading day immediately following, and including, the trading day next succeeding the date such tender or exchange offer expires;
- AC = the aggregate value of all cash and any other consideration (as determined by our board of directors or a committee thereof) paid or payable for shares purchased in such tender or exchange offer;
- OS₀ = the number of shares of our common stock outstanding immediately prior to the date such tender or exchange offer expires (prior to giving effect to the purchase of all shares accepted for purchase or exchange in such tender or exchange offer);
- OS₁ = the number of shares of our common stock outstanding immediately after the date such tender or exchange offer expires (after giving effect to the purchase of all shares accepted for purchase or exchange in such tender or exchange offer); and
- SP₁ = the average of the last reported sale prices of our common stock over the 10 consecutive trading day period commencing on, and including, the trading day next succeeding the date such tender or exchange offer expires.

The increase to the conversion rate under the preceding paragraph will occur at the close of business on the 10th trading day immediately following, and including, the trading day next succeeding the date such tender or exchange offer expires; *provided* that (x) in respect of any conversion of notes for which physical settlement is applicable, if the relevant conversion date occurs during the 10 trading days immediately following, and including, the trading day next succeeding the expiration date of any tender or exchange offer, references to “10” or “10th” in the preceding paragraph shall be deemed replaced with such lesser number of trading days as have elapsed between the expiration date of such tender or exchange offer and such conversion date in determining the conversion rate and (y) in respect of any conversion of notes for which cash settlement or combination settlement is applicable, for any trading day that falls within the relevant observation period for such conversion and within the 10 trading days immediately following, and including, the trading day next succeeding the expiration date of any tender or exchange offer, references to “10” or “10th” in the preceding paragraph shall be deemed replaced with such lesser number of trading days as have elapsed between the expiration date of such tender or exchange offer and such trading day in determining the conversion rate as of such trading day.

Notwithstanding the foregoing, if a conversion rate adjustment becomes effective on any ex-dividend date as described above, and a holder that has converted its notes on or after such ex-dividend date and on or prior to the related record date would be treated as the record holder of shares of our common stock as of the related conversion date as described under “—Settlement upon conversion” based on an adjusted conversion rate for such ex-dividend date, then, notwithstanding the foregoing conversion rate adjustment provisions, the conversion rate adjustment relating to such ex-dividend date will not be made for such converting holder. Instead, such holder will be treated as if such holder were the record owner of the shares of our common stock on an unadjusted basis and participate in the related dividend, distribution or other event giving rise to such adjustment.

Except as stated herein, we will not adjust the conversion rate for the issuance of shares of our common stock or any securities convertible into or exchangeable for shares of our common stock or the right to purchase shares of our common stock or such convertible or exchangeable securities.

As used in this section, “ex-dividend date” means the first date on which the shares of our common stock trade on the applicable exchange or in the applicable market, regular way, without the right to receive the issuance, dividend or distribution in question, from us or, if applicable, from the seller of our common stock on such exchange or market (in the form of due bills or otherwise) as determined by such exchange or market, and

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“effective date” means the first date on which the shares of our common stock trade on the applicable exchange or in the applicable market, regular way, reflecting the relevant share split or share combination, as applicable.

As used in this section, “record date” means, with respect to any dividend, distribution or other transaction or event in which the holders of our common stock (or other applicable security) have the right to receive any cash, securities or other property or in which our common stock (or such other security) is exchanged for or converted into any combination of cash, securities or other property, the date fixed for determination of holders of our common stock (or such other security) entitled to receive such cash, securities or other property (whether such date is fixed by our board of directors or a duly authorized committee thereof, statute, contract or otherwise).

We are permitted to increase the conversion rate of the notes by any amount for a period of at least 20 business days if our board of directors or a committee thereof determines that such increase would be in our best interest. We may also (but are not required to) increase the conversion rate to avoid or diminish income tax to holders of our common stock or rights to purchase shares of our common stock in connection with a dividend or distribution of shares (or rights to acquire shares) or similar event.

A holder may, in some circumstances, including a distribution of cash dividends to holders of our shares of common stock, be deemed to have received a distribution subject to U.S. federal income tax as a result of an adjustment or the nonoccurrence of an adjustment to the conversion rate. For a discussion of the U.S. federal income tax treatment of an adjustment to the conversion rate, see “Material U.S. Federal Tax Considerations.”

If we have a rights plan in effect upon conversion of the notes into common stock, you will receive, in addition to any shares of common stock received in connection with such conversion, the rights under the rights plan. However, if, prior to any conversion, the rights have separated from the shares of common stock in accordance with the provisions of the applicable rights plan, the conversion rate will be adjusted at the time of separation as if we distributed to all or substantially all holders of our common stock, shares of our capital stock, evidences of indebtedness, assets, property, rights, options or warrants as described in clause (3) above, subject to readjustment in the event of the expiration, termination or redemption of such rights.

Notwithstanding any of the foregoing, the conversion rate will not be adjusted:

- upon the issuance of any shares of our common stock pursuant to any present or future plan providing for the reinvestment of dividends or interest payable on our securities and the investment of additional optional amounts in shares of our common stock under any plan;
- upon the issuance of any shares of our common stock or options or rights to purchase those shares pursuant to any present or future employee, director or consultant benefit plan or program of or assumed by us or any of our subsidiaries;
- upon the issuance of any shares of our common stock pursuant to any option, warrant, right or exercisable, exchangeable or convertible security not described in the preceding bullet and outstanding as of the date the notes were first issued;
- solely for a change in the par value of the common stock; or
- for accrued and unpaid interest, if any.

Adjustments to the conversion rate will be calculated to the nearest 1/10,000th of a share.

Recapitalizations, reclassifications and changes of our common stock

In the case of:

- any recapitalization, reclassification or change of our common stock (other than changes resulting from a subdivision or combination),
- any consolidation, merger or combination involving us,
- any sale, lease or other transfer to a third party of the consolidated assets of ours and our subsidiaries substantially as an entirety, or
- any statutory share exchange,

in each case, as a result of which our common stock would be converted into, or exchanged for, stock, other securities, other property or assets (including cash or any combination thereof), then, at and after the effective time of the transaction, the right to convert each \$1,000 principal amount of notes will be changed into a right to convert such principal amount of notes into the kind and amount of shares of stock, other securities or other property or assets (including cash or any combination thereof) that a holder of a number of shares of common stock equal to the conversion rate immediately prior to such transaction would have owned or been entitled to receive (the “reference property”) upon such transaction. However, at and after the effective time of the transaction, (i) we will continue to have the right to determine the form of consideration to be paid or delivered, as the case may be, upon conversion of notes, as set forth under “—Settlement upon conversion” and (ii) (x) any amount payable in cash upon conversion of the notes as set forth under “—Settlement upon conversion” will continue to be payable in cash, (y) any shares of our common stock that we would have been required to deliver upon conversion of the notes as set forth under “—Settlement upon conversion” will instead be deliverable in the amount and type of reference property that a holder of that number of shares of our common stock would have received in such transaction and (z) the daily VWAP will be calculated based on the value of a unit of reference property that a holder of one share of our common stock would have received in such transaction. If the transaction causes our common stock to be converted into, or exchanged for, the right to receive more than a single type of consideration (determined based in part upon any form of shareholder election), the reference property into which the notes will be convertible will be deemed to be the weighted average of the types and amounts of consideration actually received by the holders of our common stock. If the holders of our common stock receive only cash in such transaction, then for all conversions that occur after the effective date of such transaction (i) the consideration due upon conversion of each \$1,000 principal amount of notes shall be solely cash in an amount equal to the conversion rate in effect on the conversion date (as may be increased as described under “—Increase in conversion rate upon conversion upon a make-whole fundamental change”), *multiplied by* the price paid per share of common stock in such transaction and (ii) we will satisfy our conversion obligation by paying cash to converting holders on the second business day immediately following the conversion date. We will notify holders, the trustee and the conversion agent (if other than the trustee) of the weighted average as soon as practicable after such determination is made.

The supplemental indenture providing that the notes will be convertible into reference property will also provide for anti-dilution and other adjustments that are as nearly equivalent as possible to the adjustments described under “—Conversion rate adjustments” above. If the reference property in respect of any such transaction includes shares of stock, securities or other property or assets of a company other than us or the successor or purchasing corporation, as the case may be, in such transaction, such other company will also execute such supplemental indenture, and such supplemental indenture will contain such additional provisions to protect the interests of the holders, including the right of holders to require us to repurchase their notes upon a fundamental change as described under “—Fundamental change permits holders to require us to

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repurchase notes” below, as the board of directors reasonably considers necessary by reason of the foregoing. We will agree in the indenture not to become a party to any such transaction unless its terms are consistent with the foregoing.

Adjustments of prices

Whenever any provision of the indenture requires us to calculate the last reported sale prices, the daily VWAPs, the daily conversion values or the daily settlement amounts over a span of multiple days (including, without limitation, an observation period and the period, if any, for determining “stock price” for purposes of a make-whole fundamental change), our board of directors or a committee thereof will make appropriate adjustments to each to account for any adjustment to the conversion rate that becomes effective, or any event requiring an adjustment to the conversion rate where the ex-dividend date, effective date or expiration date of the event occurs, at any time during the period when the last reported sale prices, the daily VWAPs, the daily conversion values or the daily settlement amounts are to be calculated.

Increase in conversion rate upon conversion upon a make-whole fundamental change

If the “effective date” (as defined below) of a “fundamental change” (as defined below and determined after giving effect to any exceptions to or exclusions from such definition, but without regard to the *proviso* in clause (2) of the definition thereof, a “make-whole fundamental change”) occurs prior to the maturity date of the notes and a holder elects to convert its notes in connection with such make-whole fundamental change, we will, under certain circumstances, increase the conversion rate for the notes so surrendered for conversion by a number of additional shares of common stock (the “additional shares”), as described below. A conversion of notes will be deemed for these purposes to be “in connection with” such make-whole fundamental change if the relevant notice of conversion of the notes is received by the conversion agent from, and including, the effective date of the make-whole fundamental change up to, and including, the business day immediately prior to the related fundamental change repurchase date (or, in the case of a make-whole fundamental change that would have been a fundamental change but for the *proviso* in clause (2) of the definition thereof, the 35th trading day immediately following the effective date of such make-whole fundamental change) (such period, the “make-whole fundamental change period”).

Upon surrender of notes for conversion in connection with a make-whole fundamental change, we will, at our option, satisfy our conversion obligation by physical settlement, cash settlement or combination settlement, as described under “—Conversion rights—Settlement upon conversion.” However, if the consideration for our common stock in any make-whole fundamental change described in clause (2) of the definition of fundamental change is composed entirely of cash, for any conversion of notes following the effective date of such make-whole fundamental change, the conversion obligation will be calculated based solely on the “stock price” (as defined below) for the transaction and will be deemed to be an amount of cash per \$1,000 principal amount of converted notes equal to the conversion rate (including any increase to reflect the additional shares as described in this section), *multiplied by* such stock price. In such event, the conversion obligation will be determined and paid to holders in cash on the second business day following the conversion date. We will notify holders of the effective date of any make-whole fundamental change and issue a press release announcing such effective date no later than five business days after such effective date.

The number of additional shares, if any, by which the conversion rate will be increased will be determined by reference to the table below, based on the date on which the make-whole fundamental change occurs or becomes effective (the “effective date”) and the price (the “stock price”) paid (or deemed to be paid) per share of our common stock in the make-whole fundamental change. If the holders of our common stock receive in exchange for their common stock only cash in a make-whole fundamental change described in clause (2) of the

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definition of fundamental change, the stock price will be the cash amount paid per share. Otherwise, the stock price will be the average of the last reported sale prices of our common stock over the five-trading day period ending on, and including, the trading day immediately preceding the effective date of the make-whole fundamental change.

The stock prices set forth in the column headings of the table below will be adjusted as of any date on which the conversion rate of the notes is otherwise adjusted. The adjusted stock prices will equal the stock prices immediately prior to such adjustment, *multiplied by* a fraction, the numerator of which is the conversion rate immediately prior to the adjustment giving rise to the stock price adjustment and the denominator of which is the conversion rate as so adjusted. The number of additional shares as set forth in the table below will be adjusted in the same manner and at the same time as the conversion rate as set forth under “—Conversion rate adjustments.”

The following table sets forth the number of additional shares by which the conversion rate will be increased per \$1,000 principal amount of notes for each stock price and effective date set forth below:

Effective Date	Stock Price											
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
, 2018												
July 1, 2019												
July 1, 2020												
July 1, 2021												
July 1, 2022												
July 1, 2023												

The exact stock prices and effective dates may not be set forth in the table above, in which case

- If the stock price is between two stock prices in the table or the effective date is between two effective dates in the table, the number of additional shares by which the conversion rate will be increased will be determined by a straight-line interpolation between the number of additional shares set forth for the higher and lower stock prices and the earlier and later effective dates, as applicable, based on a 365-day year.
- If the stock price is greater than \$ per share (subject to adjustment in the same manner as the stock prices set forth in the column headings of the table above), no additional shares will be added to the conversion rate.
- If the stock price is less than \$ per share (subject to adjustment in the same manner as the stock prices set forth in the column headings of the table above), no additional shares will be added to the conversion rate.

Notwithstanding the foregoing, in no event will the conversion rate per \$1,000 principal amount of notes exceed shares of common stock, subject to adjustment in the same manner as the conversion rate as set forth under “—Conversion rate adjustments.”

Our obligation to increase the conversion rate for notes converted in connection with a make-whole fundamental change could be considered a penalty, in which case the enforceability thereof would be subject to general principles of reasonableness and equitable remedies.

Fundamental change permits holders to require us to repurchase notes

If a “fundamental change” (as defined below in this section) occurs at any time, holders will have the right, at their option, to require us to repurchase for cash all of their notes, or any portion of the principal thereof that is equal to \$1,000 or a multiple of \$1,000. The fundamental change repurchase date will be a date specified by us that is not less than 20 or more than 35 calendar days following the date of our fundamental change notice as described below.

The fundamental change repurchase price we are required to pay will be equal to 100% of the principal amount of the notes to be repurchased, plus accrued and unpaid interest to, but excluding, the fundamental change repurchase date (unless the fundamental change repurchase date falls after a regular record date but on or prior to the interest payment date to which such regular record date relates, in which case we will instead pay the full amount of accrued and unpaid interest to the holder of record on such regular record date, and the fundamental change repurchase price will be equal to 100% of the principal amount of the notes to be repurchased).

A “fundamental change” will be deemed to have occurred at the time after the notes are originally issued if any of the following occurs:

- (1) except as described in clause (2) below, a “person” or “group” within the meaning of Section 13(d) of the Exchange Act, other than us, our wholly owned subsidiaries and our and their employee benefit plans, has become the direct or indirect “beneficial owner,” as defined in Rule 13d-3 under the Exchange Act, of our common stock representing (A) in the case of any such person or group, other than any permitted holder (as defined below) or any group that includes any permitted holder, more than 50% of the voting power of our common stock or (B) in the case of any permitted holder or any group that includes any permitted holder, more than 60% of the voting power of our common stock; *provided* that, solely for purposes of this clause (B), the permitted holders shall be deemed not to beneficially own any shares of our common stock purchased (or underlying or acquired upon conversion or exchange of any convertible or exchangeable securities purchased) by a permitted holder directly from us (or from an investment bank in an offering by us) for cash after the closing date of the initial issuance of the notes and any such shares of our common stock shall be deemed not to be outstanding;
- (2) the consummation of (A) any recapitalization, reclassification or change of our common stock (other than changes resulting from a subdivision or combination) as a result of which our common stock would be converted into, or exchanged for, stock, other securities, other property or assets; (B) any share exchange, consolidation or merger of us pursuant to which our common stock will be converted into cash, securities or other property or assets; or (C) any sale, lease or other transfer in one transaction or a series of transactions of all or substantially all of the consolidated assets of us and our subsidiaries, taken as a whole, to any person other than one of our wholly owned subsidiaries; *provided, however*, that a transaction described in clause (B) in which the holders of all classes of our common equity immediately prior to such transaction own, directly or indirectly, more than 50% of all classes of common equity of the continuing or surviving corporation or transferee or the parent thereof immediately after such transaction in substantially the same proportions as such ownership immediately prior to such transaction shall not be a fundamental change pursuant to this clause (2);
- (3) our shareholders approve any plan or proposal for the liquidation or dissolution of us; or
- (4) our common stock (or other common stock underlying the notes) ceases to be listed or quoted on any of The New York Stock Exchange, The NASDAQ Global Select Market or The NASDAQ Global Market (or any of their respective successors).

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A transaction or transactions described in clause (2) above will not constitute a fundamental change, however, if at least 90% of the consideration received or to be received by our common shareholders, excluding cash payments for fractional shares, in connection with such transaction or transactions consists of shares of common stock that are listed or quoted on any of The New York Stock Exchange, The NASDAQ Global Select Market or The NASDAQ Global Market (or any of their respective successors) or will be so listed or quoted when issued or exchanged in connection with such transaction or transactions and as a result of such transaction or transactions the notes become convertible into such consideration, excluding cash payments for fractional shares (subject to the provisions set forth above under “—Conversion rights—Settlement upon conversion”).

If any transaction in which our common stock is replaced by the securities of another entity occurs, following completion of any related make-whole fundamental change period (or, in the case of a transaction that would have been a fundamental change or a make-whole fundamental change but for the immediately preceding paragraph, following the effective date of such transaction), references to us in the definition of “fundamental change” above shall instead be references to such other entity.

A “permitted holder” means (i) Randal J. Kirk, (ii) the spouse and lineal descendants and spouses of lineal descendants of Randal J. Kirk, (iii) the estates or legal representatives of any person named in clauses (i) or (ii), (iv) trusts established for the benefit of any person named in clauses (i) or (ii) and (v) any entity solely owned or controlled, directly or indirectly, by one or more of the foregoing; *provided* that the foregoing persons shall be “permitted holders” only so long as such persons shall collectively be “beneficial owners”, as defined in Rule 13d-3 under the Exchange Act, of more than 40% of the voting power of our common stock. For the avoidance of doubt, at any time when the foregoing persons are not collectively beneficial owners of more than 40% of the voting power of our common stock, there shall be no permitted holders; provided that at any time that the foregoing persons collectively beneficially own more than 40% of the voting power of our common stock then such persons shall be “permitted holders.”

On or before the 20th day after the occurrence of a fundamental change, we will provide to all holders of the notes and the trustee and paying agent a notice of the occurrence of the fundamental change and of the resulting repurchase right. Such notice shall state, among other things:

- the events causing a fundamental change;
- the date of the fundamental change;
- the last date on which a holder may exercise the repurchase right;
- the fundamental change repurchase price;
- the fundamental change repurchase date;
- the name and address of the paying agent and the conversion agent, if applicable;
- if applicable, the conversion rate and any adjustments to the conversion rate;
- that the notes with respect to which a fundamental change repurchase notice has been delivered by a holder may be converted only if the holder withdraws the fundamental change repurchase notice in accordance with the terms of the indenture; and
- the procedures that holders must follow to require us to repurchase their notes.

Simultaneously with providing such notice, we will publish a notice containing this information in a newspaper of general circulation in The City of New York, issue a press release containing this information, or publish the information on our website or through such other public medium as we may use at that time.

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To exercise the fundamental change repurchase right, you must deliver, on or before the business day immediately preceding the fundamental change repurchase date, the notes to be repurchased, duly endorsed for transfer, together with a written repurchase notice, to the trustee. Each repurchase notice must state:

- if certificated, the certificate numbers of your notes to be delivered for repurchase;
- the portion of the principal amount of notes to be repurchased, which must be \$1,000 or an integral multiple thereof; and
- that the notes are to be repurchased by us pursuant to the applicable provisions of the notes and the indenture.

If the notes are not in certificated form, such repurchase notice must comply with appropriate DTC procedures.

Holder may withdraw any repurchase notice (in whole or in part) by a written notice of withdrawal delivered to the paying agent prior to the close of business on the business day immediately preceding the fundamental change repurchase date. The notice of withdrawal shall state:

- the principal amount of the withdrawn notes;
- if certificated notes have been issued, the certificate numbers of the withdrawn notes; and
- the principal amount, if any, which remains subject to the repurchase notice.

If the notes are not in certificated form, such notice of withdrawal must comply with appropriate DTC procedures.

We will be required to repurchase the notes on the fundamental change repurchase date. Holders who have exercised the repurchase right will receive payment of the fundamental change repurchase price on the later of (i) the fundamental change repurchase date and (ii) the time of book-entry transfer or the delivery of the notes. If the paying agent holds money sufficient to pay the fundamental change repurchase price of the notes on the fundamental change repurchase date, then, with respect to the notes that have been properly surrendered for repurchase and have not been validly withdrawn:

- the notes will cease to be outstanding and interest will cease to accrue (whether or not book-entry transfer of the notes is made or whether or not the notes are delivered to the paying agent); and
- all other rights of the holder will terminate (other than the right to receive the fundamental change repurchase price).

In connection with any repurchase offer pursuant to a fundamental change repurchase notice, we will, if required:

- comply with the provisions of Rule 13e-4, Rule 14e-1 and any other tender offer rules under the Exchange Act that may then be applicable;
- file a Schedule TO or any other required schedule under the Exchange Act; and
- otherwise comply with all federal and state securities laws in connection with any offer by us to repurchase the notes;

in each case, so as to permit the rights and obligations under this “—Fundamental change permits holders to require us to repurchase notes” to be exercised in the time and in the manner specified in the indenture.

No notes may be repurchased on any date at the option of holders upon a fundamental change if the principal amount of the notes has been accelerated, and such acceleration has not been rescinded, on or prior to such

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date (except in the case of an acceleration resulting from a default by us in the payment of the fundamental change repurchase price with respect to such notes).

The repurchase rights of the holders could discourage a potential acquirer of us. The fundamental change repurchase feature, however, is not the result of management's knowledge of any specific effort to obtain control of us by any means or part of a plan by management to adopt a series of anti-takeover provisions.

The term fundamental change is limited to specified transactions and may not include other events that might adversely affect our financial condition. In addition, the requirement that we offer to repurchase the notes upon a fundamental change may not protect holders in the event of a highly leveraged transaction, reorganization, merger or similar transaction involving us.

The definition of fundamental change includes a phrase relating to the sale, lease or other transfer of "all or substantially all" of our consolidated assets. There is no precise, established definition of the phrase "substantially all" under applicable law. Accordingly, the ability of a holder of the notes to require us to repurchase its notes as a result of the sale, lease or other transfer of less than all of our assets may be uncertain.

If a fundamental change were to occur, we may not have enough funds to pay the fundamental change repurchase price. Our ability to repurchase the notes for cash may be limited by restrictions on our ability to obtain funds for such repurchase through dividends from our subsidiaries, the terms of our then existing borrowing arrangements or otherwise. See "Risk Factors—Risks related to the notes—We may not have the ability to raise the funds necessary to settle conversions of the notes in cash or to repurchase the notes upon a fundamental change, and our future debt may contain limitations on our ability to pay cash upon conversion or repurchase of the notes." If we fail to repurchase the notes when required following a fundamental change, we will be in default under the indenture. In addition, we have, and may in the future incur, other indebtedness with similar change in control provisions permitting our holders to accelerate or to require us to repurchase our indebtedness upon the occurrence of similar events or on some specific dates.

Consolidation, merger and sale of assets

This "—Consolidation, merger and sale of assets" section replaces the section of the accompanying prospectus entitled "Description of Debt Securities—Certain Terms of the Senior Debt Securities—Consolidation, Merger and Sale of Assets" in its entirety.

The indenture will provide that we shall not consolidate with or merge with or into, or sell, convey, transfer or lease all or substantially all of our properties and assets to, another person, unless (i) the resulting, surviving or transferee person (if not us) is a corporation organized and existing under the laws of the United States of America, any State thereof or the District of Columbia, and such corporation (if not us) expressly assumes by supplemental indenture all of our obligations under the notes and the indenture; and (ii) immediately after giving effect to such transaction, no default or event of default has occurred and is continuing under the indenture. Upon any such consolidation, merger or sale, conveyance, transfer or lease, the resulting, surviving or transferee person (if not us) shall succeed to, and may exercise every right and power of, ours under the indenture, and we shall be discharged from our obligations under the notes and the indenture except in the case of any such lease.

Although these types of transactions will be permitted under the indenture, certain of the foregoing transactions could constitute a fundamental change permitting each holder to require us to repurchase the notes of such holder as described above.

Events of default

This “—Events of default” section replaces the section of the accompanying prospectus entitled “Description of Debt Securities—Certain Terms of the Senior Debt Securities—Events of Default” in its entirety.

Each of the following is an event of default with respect to the notes:

- (1) default in any payment of interest on any note when due and payable and the default continues for a period of 30 days;
- (2) default in the payment of principal of any note when due and payable at its stated maturity, upon any required repurchase, upon declaration of acceleration or otherwise;
- (3) our failure to comply with our obligation to convert the notes in accordance with the indenture upon exercise of a holder’s conversion right;
- (4) our failure to give a fundamental change notice as described under “—Fundamental change permits holders to require us to repurchase notes,” notice of a make-whole fundamental change as described under “—Increase in conversion rate upon conversion upon a make-whole fundamental change,” or notice of a specified corporate transaction as described under “—Conversion rights—Conversion upon specified corporate events,” in each case when due;
- (5) our failure to comply with our obligations under “—Consolidation, merger and sale of assets”;
- (6) our failure for 60 days after written notice from the trustee or the holders of at least 25% in principal amount of the notes then outstanding has been received to comply with any of our other agreements contained in the notes or indenture;
- (7) default by us or any of our subsidiaries with respect to any mortgage, agreement or other instrument under which there may be outstanding, or by which there may be secured or evidenced, any indebtedness for money borrowed in excess of \$30,000,000 (or its foreign currency equivalent) in the aggregate of us and/or any such subsidiary, whether such indebtedness now exists or shall hereafter be created (i) resulting in such indebtedness becoming or being declared due and payable or (ii) constituting a failure to pay the principal or interest of any such debt when due and payable at its stated maturity, upon required repurchase, upon declaration of acceleration or otherwise;
- (8) certain events of bankruptcy, insolvency, or reorganization under any applicable bankruptcy, insolvency or similar laws of us or any of our significant subsidiaries, as defined in Article 1, Rule 1-02 of Regulation S-X; or
- (9) a final judgment or judgments for the payment of \$30,000,000 (or its foreign currency equivalent) or more (excluding any amounts covered by insurance) in the aggregate rendered against us or any of our subsidiaries, which judgment is not discharged, bonded, paid, waived or stayed within 60 days after (i) the date on which the right to appeal thereof has expired if no such appeal has commenced, or (ii) the date on which all rights to appeal have been extinguished.

If an event of default occurs and is continuing, the trustee by notice to us, or the holders of at least 25% in principal amount of the outstanding notes by notice to us and the trustee, may, and the trustee at the request of such holders shall, declare 100% of the principal of and accrued and unpaid interest, if any, on all the notes to be due and payable. In case of certain events of bankruptcy, insolvency or reorganization, involving us or a significant subsidiary, 100% of the principal of and accrued and unpaid interest on the notes will automatically become due and payable. Upon such a declaration of acceleration, such principal and accrued and unpaid interest, if any, will be due and payable immediately.

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Notwithstanding the foregoing, the indenture will provide that, to the extent we elect, the sole remedy for an event of default relating to (i) our failure to file with the trustee pursuant to Section 314(a)(1) of the Trust Indenture Act any documents or reports that we are required to file with the SEC pursuant to Section 13 or 15(d) of the Exchange Act or (ii) our failure to comply with our obligations as set forth under “—Reports” below, will after the occurrence of such an event of default consist exclusively of the right to receive additional interest on the notes at a rate equal to 0.25% per annum of the principal amount of the notes outstanding for each day during the 60-day period on which such event of default is continuing beginning on, and including, the date on which such an event of default first occurs.

If we so elect, such additional interest will be payable in the same manner and on the same dates as the stated interest payable on the notes. On the 61st day after such event of default (if the event of default relating to the reporting obligations is not cured or waived prior to such 61st day), the notes will be subject to acceleration as provided above. The provisions of the indenture described in this paragraph will not affect the rights of holders of notes in the event of the occurrence of any other event of default. In the event we do not elect to pay the additional interest following an event of default in accordance with this paragraph or we elected to make such payment but do not pay the additional interest when due, the notes will be immediately subject to acceleration as provided above.

In order to elect to pay the additional interest as the sole remedy during the first 60 days after the occurrence of an event of default relating to the failure to comply with the reporting obligations in accordance with the immediately preceding paragraph, we must notify all holders of notes, the trustee and the paying agent of such election prior to the beginning of such 60-day period. Upon our failure to timely give such notice, the notes will be immediately subject to acceleration as provided above.

If any portion of the amount payable on the notes upon acceleration is considered by a court to be unearned interest (through the allocation of the value of the instrument to the embedded warrant or otherwise), the court could disallow recovery of any such portion.

The holders of a majority in principal amount of the outstanding notes may waive all past defaults (except with respect to nonpayment of principal or interest or with respect to the failure to deliver the consideration due upon conversion) and rescind any such acceleration with respect to the notes and its consequences if (i) rescission would not conflict with any judgment or decree of a court of competent jurisdiction and (ii) all existing events of default, other than the nonpayment of the principal of and interest on the notes that have become due solely by such declaration of acceleration, have been cured or waived.

Each holder shall have the right to receive payment or delivery, as the case may be, of:

- the principal (including the fundamental change repurchase price, if applicable) of;
- accrued and unpaid interest, if any, on; and
- the consideration due upon conversion of,

its notes, on or after the respective due dates expressed or provided for in the indenture, or to institute suit for the enforcement of any such payment or delivery, as the case may be.

Subject to the provisions of the indenture relating to the duties of the trustee, if an event of default occurs and is continuing, the trustee will be under no obligation to exercise any of the rights or powers under the indenture at the request or direction of any of the holders unless such holders have offered to the trustee indemnity and/or security reasonably satisfactory to it against any loss, liability or expense. Except to enforce the right to receive payment of principal or interest when due, or the right to receive payment or delivery of the

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consideration due upon conversion, no holder may pursue any remedy with respect to the indenture or the notes unless:

- (1) such holder has previously given the trustee notice that an event of default is continuing;
- (2) holders of at least 25% in principal amount of the outstanding notes have requested the trustee to pursue the remedy;
- (3) such holders have offered the trustee security and/or indemnity reasonably satisfactory to it against any loss, liability or expense;
- (4) the trustee has not complied with such request within 60 days after the receipt of the request and the offer of such security or indemnity; and
- (5) the holders of a majority in principal amount of the outstanding notes have not given the trustee a direction that, in the opinion of the trustee, is inconsistent with such request within such 60-day period.

Subject to certain restrictions, the holders of a majority in principal amount of the outstanding notes are given the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee or of exercising any trust or power conferred on the trustee.

The indenture will provide that in the event an event of default has occurred and is continuing, the trustee will be required in the exercise of its powers to use the degree of care that a prudent person would use in the conduct of its own affairs. The trustee, however, may refuse to follow any direction that conflicts with law or the indenture or that the trustee determines is unduly prejudicial to the rights of any other holder or that would involve the trustee in personal liability. Prior to taking any action under the indenture, the trustee will be entitled to indemnification reasonably satisfactory to it against any loss, liability or expense caused by taking or not taking such action.

The indenture will provide that if a default occurs and is continuing of which the trustee has received written notice, the trustee must deliver to each holder notice of the default within 90 days after it occurs. Except in the case of a default in the payment of principal or interest on any note or a default in the payment or delivery of the consideration due upon conversion, the trustee may withhold notice if and so long as a trust officer in good faith determines that withholding notice is in the interests of the holders. In addition, we are required to deliver to the trustee, within 120 days after the end of each fiscal year, a certificate indicating whether the signers thereof know of any default that occurred during the previous year. We are also required to deliver to the trustee, within 30 days after the occurrence thereof, written notice of any events which would constitute certain defaults, their status and what action we are taking or proposing to take in respect thereof.

Payments of the fundamental change repurchase price, principal and interest that are not made when due will accrue interest per annum at the then-applicable interest rate *plus* one percent from the required payment date.

Modification and amendment

This “—Modification and amendment” section replaces the section of the accompanying prospectus entitled “Description of Debt Securities—Certain Terms of the Senior Debt Securities—Modification and Waiver” in its entirety.

Subject to certain exceptions, the indenture or the notes may be amended with the consent of the holders of at least a majority in principal amount of the notes then outstanding (including without limitation, consents obtained in connection with a repurchase of, or tender or exchange offer for, notes) and, subject to certain

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exceptions, any past default or compliance with any provisions may be waived with the consent of the holders of a majority in principal amount of the notes then outstanding (including, without limitation, consents obtained in connection with a repurchase of, or tender or exchange offer for, notes). However, without the consent of each holder of an outstanding note affected, no amendment may, among other things:

- (1) reduce the amount of notes whose holders must consent to an amendment;
- (2) reduce the rate of or extend the stated time for payment of interest on any note;
- (3) reduce the principal of or extend the stated maturity of any note;
- (4) make any change that adversely affects the conversion rights of any notes;
- (5) reduce the fundamental change repurchase price of any note or amend or modify in any manner adverse to the holders of notes our obligation to make such payments, whether through an amendment or waiver of provisions in the covenants, definitions or otherwise;
- (6) make any note payable in money, or at a place of payment, other than that stated in the note;
- (7) change the ranking of the notes; or
- (8) make any change in the amendment provisions that require each holder's consent or in the waiver provisions.

Without the consent of any holder, we and the trustee may amend the indenture to:

- (1) cure any ambiguity, omission, defect or inconsistency;
- (2) provide for the assumption by a successor corporation of our obligations under the indenture;
- (3) add guarantees with respect to the notes;
- (4) secure the notes;
- (5) add to our covenants or events of default for the benefit of the holders or surrender any right or power conferred upon us;
- (6) make any change that does not adversely affect the rights of any holder;
- (7) in connection with any transaction described under “—Conversion rights—Recapitalizations, reclassifications and changes of our common stock” above, provide that the notes are convertible into reference property, subject to the provisions described under “—Conversion rights—Settlement upon conversion” above, and make certain related changes to the terms of the notes to the extent expressly required by the indenture;
- (8) comply with any requirement of the SEC in connection with the qualification of the indenture under the Trust Indenture Act; or
- (9) conform the provisions of the indenture to the “Description of notes” section in the preliminary prospectus supplement, as supplemented by the related pricing term sheet.

Holders do not need to approve the particular form of any proposed amendment. It will be sufficient if such holders approve the substance of the proposed amendment. After an amendment under the indenture becomes effective, we are required to deliver to the holders a notice briefly describing such amendment. However, the failure to give such notice to all the holders, or any defect in the notice, will not impair or affect the validity of the amendment.

Discharge

This “Discharge” section replaces the sections of the accompanying prospectus entitled “Description of Debt Securities—Certain Terms of the Senior Debt Securities—Satisfaction and Discharge,” “—Defeasance,” “—Legal Defeasance” and “—Covenant Defeasance in their entirety.

We may satisfy and discharge our obligations under the indenture by delivering to the securities registrar for cancellation all outstanding notes or by depositing with the trustee or delivering to the holders, as applicable, after the notes have become due and payable, whether at maturity, at any fundamental change repurchase date, upon conversion or otherwise, cash or cash and/or shares of common stock, solely to satisfy outstanding conversions, as applicable, sufficient to pay all of the outstanding notes and paying all other sums payable under the indenture by us. Such discharge is subject to terms contained in the indenture.

Calculations in respect of notes

Except as otherwise provided above, we will be responsible for making all calculations called for under the notes. These calculations include, but are not limited to, determinations of the stock price, the last reported sale prices of our common stock, the daily VWAPs, the daily conversion values, the daily settlement amounts, accrued interest payable on the notes and the conversion rate of the notes. We will make all these calculations in good faith and, absent manifest error, our calculations will be final and binding on holders of notes. We will provide a schedule of our calculations to each of the trustee and the conversion agent, and each of the trustee and the conversion agent is entitled to rely conclusively upon the accuracy of our calculations without independent verification. The trustee will forward our calculations to any holder of notes upon the request of that holder.

Reports

The indenture will provide that any documents or reports that we are required to file with the SEC pursuant to Section 13 or 15(d) of the Exchange Act must be filed by us with the trustee within 15 days after the same are required to be filed with the SEC (giving effect to any grace period provided by Rule 12b-25 under the Exchange Act). Documents filed by us with the SEC via the EDGAR system will be deemed to be filed with the trustee as of the time such documents are filed via EDGAR.

Trustee

The Bank of New York Mellon Trust Company, N.A. is the trustee, security registrar, paying agent and conversion agent. The Bank of New York Mellon Trust Company, N.A., in each of its capacities, including without limitation as trustee, security registrar, paying agent and conversion agent, assumes no responsibility for the accuracy or completeness of the information concerning us or our affiliates or any other party contained in this document or the related documents or for any failure by us or any other party to disclose events that may have occurred and may affect the significance or accuracy of such information.

We maintain banking relationships in the ordinary course of business with the trustee and its affiliates.

Governing law

The indenture will provide that it and the notes, and any claim, controversy or dispute arising under or related to the indenture or the notes, will be governed by and construed in accordance with the laws of the State of New York.

Book-entry, settlement and clearance

The global notes

The notes will be initially issued in the form of one or more registered notes in global form, without interest coupons (the “global notes”). Upon issuance, each of the global notes will be deposited with the trustee as custodian for DTC and registered in the name of Cede & Co., as nominee of DTC.

Ownership of beneficial interests in a global note will be limited to persons who have accounts with DTC (“DTC participants”) or persons who hold interests through DTC participants. We expect that under procedures established by DTC:

- upon deposit of a global note with DTC’s custodian, DTC will credit portions of the principal amount of the global note to the accounts of the DTC participants designated by the underwriters; and
- ownership of beneficial interests in a global note will be shown on, and transfer of ownership of those interests will be effected only through, records maintained by DTC (with respect to interests of DTC participants) and the records of DTC participants (with respect to other owners of beneficial interests in the global note).

Beneficial interests in global notes may not be exchanged for notes in physical, certificated form except in the limited circumstances described below.

Book-entry procedures for the global notes

All interests in the global notes will be subject to the operations and procedures of DTC and, therefore, you must allow for sufficient time in order to comply with these procedures if you wish to exercise any of your rights with respect to the notes. We provide the following summary of those operations and procedures solely for the convenience of investors. The operations and procedures of DTC are controlled by that settlement system and may be changed at any time. Neither we, the trustee nor the underwriters are responsible for those operations or procedures.

DTC has advised us that it is:

- a limited purpose trust company organized under the laws of the State of New York;
- a “banking organization” within the meaning of the New York State Banking Law;
- a member of the Federal Reserve System;
- a “clearing corporation” within the meaning of the Uniform Commercial Code; and
- a “clearing agency” registered under Section 17A of the Exchange Act.

DTC was created to hold securities for its participants and to facilitate the clearance and settlement of securities transactions between its participants through electronic book-entry changes to the accounts of its participants. DTC’s participants include securities brokers and dealers, including the underwriters; banks and trust companies; clearing corporations and other organizations. Indirect access to DTC’s system is also available to others such as banks, brokers, dealers and trust companies; these indirect participants clear through or maintain a custodial relationship with a DTC participant, either directly or indirectly. Investors who are not DTC participants may beneficially own securities held by or on behalf of DTC only through DTC participants or indirect participants in DTC.

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So long as DTC's nominee is the registered owner of a global note, that nominee will be considered the sole owner or holder of the notes represented by that global note for all purposes under the indenture. Except as provided below, owners of beneficial interests in a global note:

- will not be entitled to have notes represented by the global note registered in their names;
- will not receive or be entitled to receive physical, certificated notes; and
- will not be considered the owners or holders of the notes under the indenture for any purpose, including with respect to the giving of any direction, instruction or approval to the trustee under the indenture.

As a result, each investor who owns a beneficial interest in a global note must rely on the procedures of DTC to exercise any rights of a holder of notes under the indenture (and, if the investor is not a participant or an indirect participant in DTC, on the procedures of the DTC participant through which the investor owns its interest).

Payments of principal and interest with respect to the notes represented by a global note will be made by the trustee to DTC's nominee as the registered holder of the global note. Neither we nor the trustee will have any responsibility or liability for the payment of amounts to owners of beneficial interests in a global note, for any aspect of the records relating to or payments made on account of those interests by DTC, or for maintaining, supervising or reviewing any records of DTC relating to those interests.

Payments by participants and indirect participants in DTC to the owners of beneficial interests in a global note will be governed by standing instructions and customary industry practice and will be the responsibility of those participants or indirect participants and DTC.

Transfers between participants in DTC will be effected under DTC's procedures and will be settled in same-day funds.

Certificated notes

Notes in physical, certificated form will be issued and delivered to each person that DTC identifies as a beneficial owner of the related notes only if:

- DTC notifies us at any time that it is unwilling or unable to continue as depository for the global notes and a successor depository is not appointed within 90 days;
- DTC ceases to be registered as a clearing agency under the Exchange Act and a successor depository is not appointed within 90 days; or
- an event of default with respect to the notes has occurred and is continuing and such beneficial owner requests that its notes be issued in physical, certificated form.

Description of capital stock

The following description summarizes information about our capital stock. This information does not purport to be complete and is subject to, and qualified in its entirety by reference to, the terms of our amended and restated articles of incorporation and amended and restated bylaws, which are included as exhibits to the registration statement of which this prospectus supplement forms a part, and the applicable provisions of Virginia law, the state in which we are incorporated.

As of March 31, 2018, our authorized capital stock consisted of 200,000,000 shares of common stock, no par value per share, and 25,000,000 shares of preferred stock, no par value per share.

As of March 31, 2018, there were 129,239,376 shares of common stock outstanding and held of record by approximately 281 shareholders. The actual number of shareholders is greater than this number of record holders and includes shareholders who are beneficial owners but whose shares are held in street name by brokers and other nominees. This number of holders of record also does not include shareholders whose shares may be held in trust by other entities. All outstanding shares of common stock are fully paid and nonassessable. There are no shares of preferred stock outstanding.

Common stock

Shares of our common stock have the following rights, preferences and privileges:

Voting rights

Each outstanding share of common stock is entitled to one vote on all matters submitted to a vote of our shareholders, including the election of directors. Holders of our common stock do not have cumulative voting rights in the election of directors, and therefore the holders of a plurality of the shares of common stock voting for the election of directors may elect all of our directors standing for election.

Dividends

Holders of common stock are entitled to receive dividends if and when dividends are declared by our board of directors out of assets legally available for the payment of dividends, subject to preferential rights of outstanding shares of preferred stock, if any.

Liquidation

In the event of a liquidation, dissolution or winding up of the affairs of our Company, whether voluntary or involuntary, after payment of our debts and other liabilities and making provision for the holders of outstanding shares of preferred stock, if any, we will distribute the remainder of our assets ratably among the holders of shares of common stock.

Rights and preferences

The common stock has no preemptive, redemption, conversion or subscription rights. The rights, powers, preferences and privileges of holders of common stock are subject to, and may be impaired by, the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future.

Stock options and restricted stock units

As of March 31, 2018, options to purchase 11,546,434 shares of our common stock were outstanding, of which options to purchase 6,533,996 shares of our common stock were exercisable. As of March 31, 2018, there were 1,052,182 restricted stock units outstanding.

Warrants

As of March 31, 2018, we had outstanding warrants to purchase shares of our common stock that will be exercisable for an aggregate of 133,264 shares of our common stock. Each of these warrants was and remains exercisable in full.

Registration rights

We have entered into an investors' rights agreement with certain of our shareholders who will have the right to require us to register their shares under the Securities Act under specified circumstances and will have incidental registration rights as described below. After registration pursuant to these rights, these shares will become freely tradable without restriction under the Securities Act.

Certain holders who were issued shares of our common stock upon the consummation of our acquisition of Trans Ova Genetics, L.C. will have the right to require us to register these shares under the Securities Act under specified circumstances. After registration pursuant to these rights, these shares will become freely tradable without restriction under the Securities Act.

Demand registration rights

Certain holders, or Demand Holders, have demand registration rights. Beginning on February 4, 2014, subject to specified limitations set forth in the investor rights agreement, at any time the Demand Holders who are holders of at least 75 percent of the then-outstanding registrable securities, as defined in the investor rights agreement, of all Demand Holders as a class, acting together, may demand in writing that we register their registrable securities under the Securities Act. We are not obligated to file a registration statement pursuant to this demand provision on more than two occasions, subject to specified exceptions.

In addition, subject to specified limitations, the holders of registrable securities may demand in writing that we register on Form S-3 the registrable securities held by them so long as the total amount of registrable securities being registered has an aggregate offering price of at least \$500,000. We are not obligated to file a Form S-3 pursuant to this provision within 12 months of the effective date of any other Form S-3 registration statement that we may file.

In addition, certain holders who entered into securities purchase agreements with us on March 26, 2014, or March 2014 Investors, have demand registration rights. Any March 2014 Investor who purchased at least \$10.0 million of our common stock in the March 2014 private placement has the right to require us to register such shares of our common stock on a registration statement on Form S-3, if available for use.

Incidental registration rights

If we propose to file a registration statement to register any of our securities under the Securities Act for our own account, other than pursuant to a Form S-4 or Form S-8, the holders of our registrable securities are entitled to notice of registration and, subject to specified exceptions, we will be required to register the registrable securities then held by them that they request that we register. The holders of these registrable securities may be deemed to have such rights with respect to offerings under any prospectus supplement.

Expenses

Pursuant to the investor rights agreement, we are required to pay all registration expenses, including all registration, filing and qualification fees, printers' and accounting fees, fees and expenses incurred in connection with complying with state securities or "blue sky" laws, fees and expenses of listing registrable securities on any securities exchange on which shares of our common stock are then listed, fees and disbursements of our counsel, but excluding any underwriting discounts and commissions, related to any demand or incidental registration. The investor rights agreement contains customary cross-indemnification provisions, pursuant to which we are obligated to indemnify the selling shareholders in the event of material misstatements or omissions in the registration statement attributable to us, and they are obligated to indemnify us for material misstatements or omissions in the registration statement attributable to them.

Preferred stock

As of March 31, 2018, we have no shares of preferred stock issued or outstanding. Our amended and restated articles of incorporation authorize our board to designate and issue from time to time one or more series of preferred stock without shareholder approval. Our board may fix and determine the preferences, limitations and relative rights of each series of preferred stock issued. Because our board has the power to establish the preferences and rights of each series of preferred stock, it may afford the holders of any series of preferred stock preferences and rights, voting or otherwise, senior to the rights of holders of our common stock. It is not possible to state the actual effect of the issuance of any shares of preferred stock upon the rights of holders of common stock until our board determines the specific rights of the holders of preferred stock. However, the effects might include:

- restricting dividends on our common stock;
- diluting the voting power of our common stock;
- impairing liquidation rights of our common stock; or
- delaying or preventing a change in control of us without further action by our shareholders.

We have no present plans to issue any shares of preferred stock, except as described under "—Series A Preferred Stock".

Series A Preferred Stock

On October 16, 2017, we entered into a Preferred Stock Equity Facility Agreement with Kapital Joe, LLC, an entity managed by Third Security, LLC, pursuant to which we may, at our sole and exclusive option, issue and sell to Kapital Joe, from time to time, and Kapital Joe, LLC is required to purchase, up to \$100 million of our Series A Redeemable Preferred Stock, no par value per share (the "Series A Preferred Stock"), at a purchase price per share of Series A Preferred Stock of \$100.00, as may be adjusted for Preferred Stock splits and similar events (the "Preferred Stock Facility"). Randal J. Kirk our Chairman and Chief Executive Officer, serves as the Senior Managing Director and Chief Executive Officer and owns all of the outstanding equity interests of Third Security, LLC.

The Series A Preferred Stock is non-voting, accrues dividends of 8% per annum and, subject to limited exceptions, upon issuance will be senior to our common stock with respect to the rights to the payment of dividends and on parity with our common stock with respect to the distribution of assets in the event of any liquidation, dissolution or winding up or change of control of the Company.

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The Series A Preferred Stock will be convertible into shares of our common stock following the approval of our shareholders, including a majority of the shares voted by shareholders unaffiliated with Mr. Kirk and, to the extent applicable to Kapital Joe, LLC, approval under the Hart-Scot-Rodino Antitrust Improvements Act of 1976, as amended. The Series A Preferred Stock will convert at a conversion price equal to the 20-day volume-weighted average market price of our common stock as of the market close on the fifth business day prior to the mailing of the proxy statement soliciting such shareholder approval, subject to adjustment for certain stock splits and similar events. We have agreed to take all reasonable steps necessary to seek such shareholder approval on or before the date of our annual meeting of shareholders in 2019. The Series A Preferred Stock will automatically convert after receipt of such shareholder approval, subject to receiving any required regulatory approvals. In addition, prior to conversion, in the event of any voluntary or involuntary liquidation, dissolution or winding up or change of control of the Company, the holders of the Series A Preferred Stock will be entitled to participate with the holders of our common stock on a *pro rata*, as-converted basis, based on a deemed conversion rate of \$18.96, which was calculated using the 20-day volume-weighted average market price of our common stock as of market closing on October 13, 2017, subject to adjustment for certain stock splits and similar events.

The Series A Preferred Stock is redeemable at our election at any time, or at the election of Kapital Joe, LLC after December 31, 2020.

The Preferred Stock Facility will expire on the earliest to occur of: (i) the date on which Kapital Joe has purchased shares of Series A Preferred Stock in the aggregate amount of \$100 million, (ii) April 30, 2019, (iii) the date of shareholder approval and (iv) the mutual agreement of the parties.

No shares of Series A Preferred Stock are currently outstanding and the Company intends to terminate the Preferred Stock Facility upon the closing of this offering.

Anti-takeover effects of provisions of our charter and bylaws and of Virginia law

Our amended and restated articles of incorporation, bylaws and Virginia law contain provisions that may have the effect of impeding the acquisition of control of us by means of a tender offer, a proxy contest, open market purchases or otherwise in a transaction not approved by our board of directors. These provisions are designed to reduce, or have the effect of reducing, our vulnerability to coercive takeover practices and inadequate takeover bids. The existence of these provisions could limit the price that investors might otherwise pay in the future for shares of common stock. In addition, these provisions make it more difficult for our shareholders to remove our board of directors or management, should they choose to do so.

Articles of incorporation and bylaws

Preferred stock

Our amended and restated articles of incorporation authorize our board to establish one or more series of preferred stock and to determine, with respect to any series of preferred stock, the preferences, rights and other terms of such series. See "Preferred Stock" above for additional information. Under this authority, our board could create and issue a series of preferred stock with rights, preferences or restrictions that have the effect of discriminating against an existing or prospective holder of our capital stock as a result of such holder beneficially owning or commencing a tender offer for a substantial amount of our common stock. One of the effects of authorized but unissued and unreserved shares of preferred stock may be to render it more difficult for, or to discourage an attempt by, a potential acquiror to obtain control of us by means of a merger, tender offer, proxy contest or otherwise, and thereby protect the continuity of our management. The issuance of shares of preferred stock may have the effect of delaying, deferring or preventing a change in control of our Company without any action by our shareholders.

Qualification and election of directors

Our bylaws provide that to be eligible to be a nominee for election to our board of directors, a person must submit a written questionnaire regarding his or her background and qualifications and must agree to other representations as set forth in our bylaws. In addition, we have adopted a director resignation policy. The director resignation policy is incorporated into our bylaws and Corporate Governance Guidelines and provides that any nominee for director in an uncontested election who receives a greater number of votes “withheld” from his or her election than votes “for” his or her election must tender his or her resignation to the board of directors for consideration in accordance with the procedures set forth in our Corporate Governance Guidelines. The Nominating and Governance Committee will then evaluate the best interests of us and our shareholders and will recommend to the board of directors the action to be taken with respect to the tendered resignation. Following the board of directors’ determination, we will promptly publicly disclose the board of directors’ decision of whether or not to accept the resignation and an explanation of how the decision was reached, including, if applicable, the reasons for rejecting the resignation.

Board vacancies; removal

Our amended and restated articles of incorporation provide that any vacancy occurring on our board of directors may be filled by a majority of directors then in office, even if less than a quorum.

Special meetings of shareholder

Our bylaws provide that the vote of 25 percent of our shareholders is required to call a special meeting, and that shareholders may only conduct business at special meetings of shareholders that was specified in the notice of the meeting.

Advance notification of shareholder nominations and proposals

Our amended and restated bylaws establish advance notice procedures with respect to shareholder proposals and the nomination of persons for election as directors, other than nominations made by or at the direction of our board.

Virginia anti-takeover statutes

Affiliated transactions statute

Virginia law contains provisions governing affiliated transactions. In general, these provisions prohibit a Virginia corporation from engaging in affiliated transactions with any holder of more than 10 percent of any class of its outstanding voting shares, or an interested shareholder, for a period of three years following the date that such person became an interested shareholder unless:

- a majority of (but not fewer than two) disinterested directors of the corporation and the holders of two-thirds of the voting shares, other than the shares beneficially owned by the interested shareholder, approve the affiliated transaction; or
- before or on the date the person became an interested shareholder, a majority of disinterested directors approved the transaction that resulted in the shareholder becoming an interested shareholder.

Affiliated transactions subject to this approval requirement include mergers, share exchanges, material dispositions of corporate assets not in the ordinary course of business, any dissolution of the corporation

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proposed by or on behalf of an interested shareholder or any reclassification, including reverse stock splits, recapitalizations or mergers of the corporation with its subsidiaries, which increases the percentage of voting shares owned beneficially by an interested shareholder by more than five percent.

Virginia law permits a corporation to exempt itself from this statutory provision by placing a statement to that effect in its articles of incorporation. Our amended and restated articles of incorporation do not specifically address the Virginia statute regarding affiliated transactions; therefore, we are subject to this provision.

Control share acquisitions statute

Virginia law also contains provisions relating to control share acquisitions, which are transactions causing the voting strength of any person acquiring beneficial ownership of shares of a Virginia public corporation to meet or exceed certain threshold percentages (20 percent, 33¹/₃ percent or 50 percent) of the total votes entitled to be cast for the election of directors. Shares acquired in a control share acquisition have no voting rights unless:

- the voting rights are granted by a majority vote of all outstanding shares other than those held by the acquiring person or any officer or employee director of the corporation; or
- the articles of incorporation or bylaws of the corporation provide that these Virginia law provisions do not apply to acquisitions of its shares.

The acquiring person may require that a special meeting of the shareholders be held within 50 days of the acquiring person's request to consider the grant of voting rights to the shares acquired in the control share acquisition. If voting rights are not granted and the corporation's articles of incorporation or bylaws permit, the acquiring person's shares may be repurchased by the corporation, at its option, at a price per share equal to the acquiring person's cost. Virginia law grants dissenters' rights to any shareholder who objects to a control share acquisition that is approved by a vote of disinterested shareholders and that gives the acquiring person control of a majority of the corporation's voting shares.

Our amended and restated articles of incorporation provide that this second statutory provision does not apply to our Company; therefore, we are not subject to this provision.

Indemnification and limitation of directors' and officers' liability

The Virginia Stock Corporation Act and our articles of incorporation provide for indemnification of our directors and officers in a variety of circumstances, which may include liabilities under the Securities Act. Virginia law provides that, unless limited by its articles of incorporation, a corporation must indemnify a director or officer who entirely prevails in the defense of any proceeding to which he was a party because he is or was a director or officer of the corporation against reasonable expenses incurred by him in connection with the proceeding. Virginia law permits a corporation to indemnify, after a determination has been made that indemnification of the director is permissible in the circumstances because he has met the following standard of conduct, an individual made a party to a proceeding because he is or was a director against liability incurred in the proceeding if:

- he conducted himself in good faith;
- he believed in the case of conduct in his official capacity with the corporation, that his conduct was in its best interests and in all other cases that his conduct was at least not opposed to its best interests; and
- in the case of any criminal proceeding, he had no reasonable cause to believe his conduct was unlawful.

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A Virginia corporation may not indemnify a director in connection with a proceeding by or in the right of the corporation in which the director was adjudged liable to the corporation or in connection with any other proceeding charging improper personal benefit to him, whether or not involving action in his official capacity, in which he was adjudged liable on the basis that personal benefit was improperly received by him, unless in either case a court orders indemnification and then only for expenses. In addition, the Virginia Stock Corporation Act permits a corporation to advance reasonable expenses to a director or officer, and our articles of incorporation provide that we will advance such expenses upon the corporation's receipt of:

- a written affirmation by the director or officer of his good faith belief that he has met the standard of conduct necessary for indemnification by the company; and
- a written undertaking by the director or on the director's behalf to repay the amount paid or reimbursed by the corporation if it is ultimately determined that the director is not entitled to indemnification and did not meet the relevant standard of conduct.

In addition, Virginia law permits a corporation to make any further indemnity, including indemnity with respect to a proceeding by or in the right of the corporation, and to make additional provision for advances and reimbursement of expenses, to any director or officer that may be authorized by the articles of incorporation or any bylaw made by the shareholders or any resolution adopted by the shareholders, except an indemnity against his willful misconduct or a knowing violation of the criminal law.

In addition, the Virginia Stock Corporation Act permits a Virginia corporation to limit the personal liability of an officer or director in any proceeding brought by or in the name of the corporation or its shareholders, except if the director or officer engaged in willful misconduct or a knowing violation of the criminal law or any federal or state securities laws, including insider trading or market manipulation.

Our articles of incorporation require indemnification of directors and officers with respect to certain liabilities, expenses, and other amounts imposed on them by reason of having been a director or officer, except in the case of willful misconduct or a knowing violation of criminal law. Our articles of incorporation also limit the liability of our officers and directors to the extent not prohibited by Virginia law. We also carry insurance on behalf of directors, officers, employees or agents which may cover liabilities under the Securities Act.

Insofar as the foregoing provisions permit indemnification of directors, officers or persons controlling us for liability arising under the Securities Act, we have been informed that in the opinion of the SEC, this indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Listing on the New York Stock Exchange

Our common stock is listed on the New York Stock Exchange under the symbol "XON."

Authorized but unissued shares

The authorized but unissued shares of common stock and preferred stock are available for future issuance without shareholder approval, subject to any limitations imposed by the New York Stock Exchange listing rules. These additional shares may be used for a variety of corporate finance transactions, acquisitions and employee benefit plans. The existence of authorized but unissued and unreserved common stock and preferred stock could make it more difficult or discourage an attempt to obtain control of us by means of a proxy contest, tender offer, merger or otherwise.

Transfer agent and registrar

The transfer agent and registrar for the common stock is American Stock Transfer & Trust Company, LLC.

Description of share lending agreement

Concurrently with this offering, we are offering \$100,000,000 of shares of our common stock by means of a separate prospectus supplement and prospectus. Such shares, which we refer to as the “borrowed shares”, will be loaned by us to J.P. Morgan Securities LLC, the underwriter for the concurrent offering of the borrowed shares, which we refer to as the “share borrower”. The share borrower or its affiliates will receive all of the proceeds of the concurrent offering of borrowed shares and we will not receive any proceeds of that offering. The offering of the notes is contingent upon the closing of the concurrent offering of the borrowed shares, and the concurrent offering of the borrowed shares is contingent upon the closing of the offering of the notes.

To make the purchase of the notes more attractive to prospective investors, we expect to enter into a share lending agreement concurrently with the pricing of the notes with the share borrower under which we will loan to the share borrower \$100,000,000 of borrowed shares on the closing date for the initial issuance of the notes.

The share loan under the share lending agreement will terminate and the borrowed shares must be returned to us within five business days of such termination (subject to the share borrower’s right to extend the settlement due date of the borrowed shares in certain circumstances) under the following circumstances:

- the share borrower may terminate all or any portion of the loan at any time; and
- on the earliest to occur of (i) October 1, 2023 and (ii) the date, if any, on which the share lending agreement is terminated by the parties upon mutual agreement or by one party upon a default with respect to the other party.

All shares that we loan to the share borrower will be issued and outstanding for state corporate law purposes and, accordingly, the holders of the borrowed shares will have all of the rights of a holder of our outstanding shares, including the right to vote the shares on all matters submitted to a vote of our shareholders and the right to receive any dividends or other distributions that we may pay or make on our outstanding shares of common stock. However, under the share lending agreement, the share borrower will agree:

- to pay to us an amount equal to cash dividends, if any, that we pay on the borrowed shares; and
- in the event of any other distribution on the borrowed shares, other than in a liquidation or a reorganization in bankruptcy and other than shares of our common stock, to either (i) deliver such distribution to us in kind or (ii) elect that the number of loaned shares outstanding under the share lending agreement shall be deemed adjusted in the same manner as the conversion rate of the notes.

In view of the contractual undertakings of the share borrower in the share lending agreement, which have the effect of substantially eliminating the economic dilution that otherwise would result from the issuance of the borrowed shares, we believe that assuming that the borrowed shares issued pursuant to the share lending agreement are classified as equity, under U.S. GAAP currently in effect, the borrowed shares will not be considered outstanding for the purpose of computing and reporting our earnings per share.

Under the share lending agreement, the share borrower has agreed to post and maintain with JPMorgan Chase Bank, National Association, New York Branch, acting as collateral agent on our behalf, collateral in the form of cash or certain eligible non-cash collateral with a market value at least equal to the market value of the borrowed shares as security for the obligation of the share borrower to return the borrowed shares to us when required under the terms of the share lending agreement. In certain limited circumstances, primarily if the share borrower defaults under the share loan agreement and is prohibited by law or court order from returning the borrowed shares, we may elect to receive a distribution of the posted collateral in lieu of the delivery of the shares. If we default under the share lending agreement, the share borrower may elect to deliver the posted collateral to us in lieu of the delivery of the shares.

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The share borrower has informed us that it or one of its affiliates intends to use the short position created by the share loan and the short sales of the borrowed shares to facilitate transactions by which investors in the notes may hedge their respective investments through short sales or privately negotiated derivative transactions.

The existence of the share lending agreement and the short sales of our common stock effected in connection with the sale of the notes could cause the market price of our common stock to be lower over the term of the share lending agreement than it would have been had we not entered into that agreement. See “Risk Factors—Risks related to our common stock—The effect of the issuance and sale of our shares of common stock in the concurrent offering of borrowed shares, which issuance is being made to facilitate transactions by which investors in the notes may hedge their investments, may be to lower the market price of our common stock.” However, we have determined that the entry into the share lending agreement is in our best interests as a means to facilitate the offer and sale of the notes on terms more favorable to us than we could have otherwise obtained.

Randal J. Kirk, our Chairman, Chief Executive Officer and principal shareholder, has indicated that he or an entity with which he is affiliated may have interest in purchasing at the public offering price up to all of the borrowed shares offered in the concurrent offering. The ultimate allocation of the borrowed shares will be determined by the share borrower, and Mr. Kirk or such entity may or may not purchase some or all of the borrowed shares.

Material U.S. federal tax considerations

The following is a summary of the material U.S. federal income tax considerations of the purchase, ownership and disposition of notes and the shares of common stock into which the notes may be converted. This summary is based upon provisions of the Internal Revenue Code of 1986, as amended, or the Code, applicable Treasury Regulations, administrative rulings and judicial decisions in effect as of the date hereof, any of which may subsequently be changed, possibly retroactively, so as to result in U.S. federal income tax consequences different from those discussed below. This summary deals only with notes or shares of common stock held as capital assets by a beneficial owner who purchased the notes on original issuance at their "issue price" (the first price at which a substantial amount of the notes is sold to persons other than bond houses, brokers, or similar persons or organizations acting in the capacity of underwriters, placement agents or wholesalers). This summary is general in nature, does not address all aspects of U.S. federal income taxes, and does not address state, local, estate, gift or non-U.S. tax consequences. In addition, it does not deal with all tax consequences that may be relevant to beneficial owners in light of their personal circumstances or particular situations, such as:

- beneficial owners who may be subject to special tax treatment, including dealers in securities, or banks, financial institutions, regulated investment companies, real estate investment trusts, tax-exempt entities, insurance companies, or traders in securities that elect to use a mark-to-market method of tax accounting for their securities;
- persons holding notes or common stock as a part of an integrated or conversion transaction or a straddle or persons deemed to sell notes or common stock under the constructive sale provisions of the Code;
- U.S. holders (as defined below) whose "functional currency" is not the U.S. dollar;
- partnerships or other entities classified as partnerships for U.S. federal income tax purposes or other pass-through entities, or investors in such pass-through entities holding notes or our common stock;
- persons subject to special tax accounting rules under section 451(b) of the Code;
- persons subject to the alternative minimum tax; and
- persons subject to the Medicare net investment income tax.

If an entity or arrangement treated as a partnership holds notes or shares of common stock, the tax treatment of a partner generally will depend upon the status of the partner and the activities of the partnership. If you are a partner in a partnership holding the notes or shares of common stock, you should consult your tax adviser.

We have not sought, nor will we seek, a ruling from the Internal Revenue Service, or the IRS, with respect to the matters discussed below. There can be no assurance that the IRS will not take a different position concerning the tax consequences of the purchase, ownership or disposition of the notes or common stock or that any such position would not be sustained.

THIS SUMMARY OF CERTAIN U.S. FEDERAL INCOME TAX CONSIDERATIONS IS FOR GENERAL INFORMATION ONLY AND IS NOT TAX ADVICE. YOU SHOULD CONSULT YOUR TAX ADVISER WITH RESPECT TO THE APPLICATION OF U.S. FEDERAL INCOME TAX LAWS TO YOUR PARTICULAR SITUATION AS WELL AS ANY TAX CONSEQUENCES OF THE PURCHASE, OWNERSHIP, AND DISPOSITION OF THE NOTES OR THE SHARES OF OUR COMMON STOCK INTO WHICH THE NOTES ARE CONVERTIBLE ARISING UNDER U.S. FEDERAL ESTATE OR GIFT TAX RULES OR UNDER THE LAWS OF ANY STATE, LOCAL, NON-U.S. OR ANY OTHER TAXING JURISDICTION OR UNDER ANY APPLICABLE TAX TREATY. IN ADDITION, SIGNIFICANT CHANGES IN U.S. FEDERAL INCOME TAX LAWS WERE RECENTLY ENACTED. YOU SHOULD ALSO CONSULT WITH YOUR TAX ADVISER WITH RESPECT TO SUCH CHANGES IN U.S. TAX LAWS AS WELL AS POTENTIAL CONFORMING CHANGES IN STATE TAX LAWS.

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As used herein, the term “U.S. holder” means a beneficial owner of notes or shares of common stock received upon conversion of the notes that is, for U.S. federal income tax purposes:

- an individual who is a citizen or resident of the United States;
- a corporation created or organized in or under the laws of the United States, 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 (i) is subject to the primary supervision of a court within the United States and one or more U.S. persons have the authority to control all substantial decisions of the trust, or (ii) has a valid election in effect under applicable U.S. Treasury Regulations to be treated as a U.S. person.

If you are a partnership for U.S. federal income tax purposes and hold notes or common stock received on conversion thereof, the U.S. federal income tax treatment of your partners generally will depend on the status of the partners and upon your activities. If you are a partnership holding notes or common stock or a partner therein, you should consult your tax adviser as to your particular U.S. federal income tax consequences of holding and disposing of the notes or the common stock.

As used herein, the term “non-U.S. holder” is a beneficial owner (other than a partnership, or any entity or arrangement treated as a partnership for U.S. federal income tax purposes, or any investor in such partnership or other entity or arrangement) of notes or shares of common stock received upon conversion of the notes that is not a U.S. holder. Special rules may apply to certain non-U.S. holders such as corporations that accumulate earnings to avoid U.S. federal income tax or, in certain circumstances, former citizens or long-term residents of the United States. Consequently, non-U.S. holders should consult their tax advisors to determine the U.S. federal, state, local, non-U.S. and other tax consequences that may be relevant to them.

Consequences to U.S. holders

Interest

It is anticipated, and this discussion assumes, that the notes will be issued with less than a statutorily prescribed de minimis amount of original issue discount, if any. Stated interest on a note generally will be taxable to you as ordinary income at the time it is paid or accrued in accordance with your usual method of accounting for tax purposes.

Certain additional payments

As described under the heading “Description of Notes—Events of Default,” we may elect to pay or we may be required to pay additional interest on the notes in certain circumstances. We believe and intend to take the position that the possibility of such additional payments should not cause the notes to be treated as “contingent payment debt instruments.” This position is based in part on our assessment that the possibility, as of the date of issuance of the notes, that such additional amounts will be paid is remote. Assuming such position is respected, any additional interest paid to you as described under “Description of Notes—Events of Default” will be taxable as additional ordinary income when received or accrued, in accordance with your method of accounting for U.S. federal income tax purposes.

Our position that the notes are not contingent payment debt instruments is binding on you unless you disclose your contrary position to the IRS in the manner required by applicable Treasury Regulations. Our position that the notes are not contingent payment debt instruments is not, however, binding on the IRS. If the IRS

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successfully challenged this position, and the notes were treated as contingent payment debt instruments you would, among other things, be required to accrue interest income at a higher rate than the stated interest rate on the notes and to treat any gain recognized on the sale or other disposition of a note (including any gain realized on the conversion of a note) as ordinary income rather than as capital gain. The remainder of this discussion assumes that the notes are not treated as contingent payment debt instruments.

Sale, exchange, redemption, repurchase, retirement or other taxable disposition of notes

Except as provided below under “—Conversion of Notes,” you generally will recognize capital gain or loss upon the sale, exchange, redemption, repurchase, retirement or other taxable disposition of a note, equal to the difference between the sum of the cash plus the fair market value of any other property received upon such disposition (excluding any amount attributable to accrued but unpaid interest, which will be treated as described under “—Interest” above) and your adjusted tax basis in the note. Your adjusted tax basis in a note generally will be equal to the amount that you paid for the note, plus the amount, if any, included in income on an adjustment to the conversion rate of the notes, as described in “—Constructive Distributions” below. If, at the time of the sale, exchange, redemption, repurchase, retirement or other taxable disposition of the note, you held the note for more than one year, such gain or loss will be long-term capital gain or loss. Long-term capital gains recognized by certain non-corporate U.S. holders, including individuals, generally will be subject to a reduced rate of U.S. federal income tax. Your ability to deduct capital losses may be limited.

Conversion of notes

If you present a note for conversion, you may receive solely cash, solely common stock or a combination of cash and common stock in exchange for notes, depending upon our chosen settlement method.

If you receive solely cash in exchange for notes upon conversion, your gain or loss will be determined in the same manner as if you disposed of the notes in a taxable disposition (as described above under “—Sale, Exchange, Redemption, Repurchase, Retirement or Other Taxable Disposition of Notes”).

If you receive solely stock in exchange for notes upon conversion, you generally will not recognize any income, gain or loss on the conversion, except with respect to cash received in lieu of a fractional share of common stock and the fair market value of any common stock attributable to accrued and unpaid interest. Your aggregate tax basis in the common stock (including any fractional share for which cash is paid, but excluding shares attributable to accrued interest) will equal the your tax basis in the note. Your holding period in the common stock (other than shares attributable to accrued interest) will include the holding period in the note. Your tax basis in common stock attributable to accrued interest will equal its fair market value on the date of receipt and the holding period for such stock will commence on the day after the date of receipt.

The U.S. federal income tax treatment of the conversion of a note into cash and common stock is uncertain, and you should consult your tax adviser regarding the consequences of such a conversion. In general, the income tax treatment will depend on whether the conversion is treated as a recapitalization or alternatively as a conversion of a portion of the note for common stock and a taxable sale of a portion of the note for cash.

The conversion will be treated as a recapitalization if the notes are treated as “securities” for U.S. federal income tax purposes. An instrument is a “security” for these purposes if, based on all the facts and circumstances, the instrument constitutes a meaningful investment in the issuer of the instrument. Although there are a number of factors that may affect the determination of whether a debt instrument is a “security,” one of the most important factors is the original term of the instrument, or the length of time between the issuance of the instrument and its maturity. In general, instruments with an original term of more than ten years are likely to be treated as “securities,” and instruments with an original term of less than five years are

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less likely to be treated as “securities.” In addition, the convertibility of a debt instrument into stock of the issuer may argue in favor of “security” treatment because of the investor’s possible equity participation in the issuer. If recapitalization treatment applies, you will recognize gain, but not loss, in an amount equal to the lesser of (i) the excess of the sum of the cash and the fair market value of the common stock received (other than amounts attributable to accrued interest, which will be treated as described above under “—Interest”) over your adjusted tax basis in the notes converted and (ii) the amount of cash received (other than cash received in lieu of a fractional share or cash attributable to accrued interest). Any gain recognized on conversion generally will be capital gain and will be long-term capital gain if, at the time of the conversion, the note has been held for more than one year.

Cash received in lieu of a fractional share of our common stock upon a conversion of a note should be treated as a payment in exchange for the fractional share of our common stock. Accordingly, the receipt of cash in lieu of a fractional share of our common stock should generally result in capital gain or loss, if any, measured by the difference between the cash received for the fractional share of our common stock and the tax basis allocable to such fractional share of our common stock, as described below.

The tax basis of the shares of common stock received upon a conversion that is treated as a recapitalization (including any fractional share deemed to be received by you but excluding common stock attributable to accrued interest) generally will equal the tax basis of the note that was converted, reduced by the amount of any cash received (other than cash received in lieu of a fractional share or cash attributable to accrued interest), and increased by the amount of gain, if any, recognized (other than with respect to a fractional share). Your tax basis in a fractional share of our common stock will be determined by allocating such holder’s tax basis in the shares of our common stock, as determined in accordance with the previous sentence, between the shares of our common stock actually received and the fractional share of our common stock deemed received upon conversion, in accordance with their respective fair market values. Your holding period for shares of common stock (other than common stock attributable to accrued interest) will include the period during which you held the notes. Your tax basis in common stock attributable to accrued interest will equal its fair market value on the date of receipt and the holding period for such stock will commence on the day after the date of receipt.

If the conversion of a note into cash and common stock were not treated as a recapitalization, the cash payment received could be treated as proceeds from the sale of a portion of the note taxable in the manner described under “—Sale, Exchange, Redemption, Repurchase, Retirement or Other Taxable Disposition of Notes” above, and the common stock received on such a conversion (other than common stock attributable to accrued interest) may be treated as received upon a conversion of the other portion of the note, which generally would not be taxable to you. In that case, your tax basis in the note generally would be allocated pro rata among the common stock received and the portion of the note that is treated as sold for cash, in accordance with their respective fair market values. The holding period for the common stock received in the conversion (other than common stock attributable to accrued interest) would include the holding period for the notes. Your tax basis in common stock attributable to accrued interest will equal its fair market value on the date of receipt and the holding period for such stock will commence on the day after the date of receipt.

As described in “Description of Notes—Conversion Rights—General,” our delivery of cash, common stock or a combination of cash and shares of common stock will be deemed to satisfy our obligation with respect to accrued and unpaid interest on the notes. We intend to take the position that upon a conversion of notes, accrued and unpaid interest is paid first in the form of any cash paid upon such conversion (other than cash paid in lieu of a fractional share) and then by any shares of common stock.

If you surrender notes for conversion, we direct the notes to be offered to a financial institution for exchange in lieu of conversion, and the designated institution accepts the notes and delivers cash, common stock or a

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combination of cash and common stock in exchange for the notes, you will be taxed on the transfer as a sale or exchange of the notes, as described above under “—Sale, Exchange, Redemption, Repurchase, Retirement or Other Taxable Disposition of Notes.” In such case, your tax basis in the common stock received will equal the fair market value of the stock on the date of the exchange, and your holding period in the shares of common stock received will begin the day after the date of the exchange.

Possible effect of a merger or consolidation or a change in conversion consideration

In certain situations, we may consolidate or merge into another entity (as described under “Description of Notes—Consolidation, Merger and Sale of Assets”). Moreover, in the event we undergo certain of the events described under “Description of Notes—Conversion Rights—Recapitalizations, Reclassifications and Changes of Our Common Stock,” the conversion rate and the related conversion consideration may be adjusted such that you would be entitled to convert its notes into shares, property or assets described in such section. Depending on the facts and circumstances at the time of such event, such adjustment may result in a deemed exchange of the outstanding notes, which may be a taxable event for U.S. federal income tax purposes. Whether or not such an adjustment results in a deemed exchange of the outstanding notes, a subsequent conversion of the notes might be treated as a fully taxable disposition of the notes if the property into which the notes are convertible is no longer stock of the notes’ obligor. You should consult your tax adviser regarding the U.S. federal income tax consequences of such an adjustment.

Constructive distributions

The conversion rate of the notes will be adjusted in certain circumstances. Adjustments (or failures to make adjustments) that have the effect of increasing your proportionate interest in our assets or earnings may in some circumstances result in a deemed distribution to you for U.S. federal income tax purposes. Adjustments to the conversion rate made pursuant to a bona fide reasonable adjustment formula that has the effect of preventing the dilution of the interest of the holders of the notes, however, generally will not be considered to result in a deemed distribution to you. Certain of the possible conversion rate adjustments provided in the notes (including, without limitation, adjustments with respect to taxable dividends to holders of our common stock) will not qualify as being pursuant to a bona fide reasonable adjustment formula. If such adjustments are made, you will be deemed to have received a distribution even though you have not received any cash or property as a result of such adjustments. In addition, an adjustment to the conversion rate in connection with a make-whole fundamental change may be treated as a deemed distribution. Any deemed distributions will be taxable as a dividend, return of capital, or capital gain as described in “—Distributions” below. However, you should consult your tax adviser as to whether a constructive dividend deemed paid to a non-corporate U.S. holder would be eligible for the preferential rates of U.S. federal income tax applicable in respect of certain dividends received and whether corporate U.S. holders would be entitled to claim the dividends- received deduction with respect to any such constructive dividends. Because a constructive dividend deemed received by you would not give rise to any cash from which any applicable withholding could be satisfied, if backup withholding is paid on your behalf (because such U.S. holder failed to establish an exemption from backup withholding), such backup withholding may be withheld from payments of cash and common stock payable on the notes (or, in certain circumstances, from any payments on the common stock). Generally, your adjusted tax basis in a note will be increased to the extent any such constructive distribution is treated as a dividend. You should consult your tax adviser on the impact a constructive distribution may have on their holding period in the notes.

We are currently required to report the amount of any deemed distributions on our website or to the IRS and to holders of notes not exempt from reporting. On April 12, 2016, the IRS proposed regulations addressing the amount and timing of deemed distributions, obligations of withholding agents and filing and notice obligations

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of issuers. If adopted as proposed, the regulations would generally provide that (i) the amount of a deemed distribution is the excess of the fair market value of the right to acquire stock immediately after the conversion rate adjustment over the fair market value of the right to acquire stock without the adjustment (determined at the same time), (ii) the deemed distribution occurs at the earlier of the date the adjustment occurs under the terms of the note and the date of the actual distribution of cash or property that results in the deemed distribution and (iii) we are required to report the amount of any deemed distributions on our website or to the IRS and to all holders of notes (including holders of notes that would otherwise be exempt from reporting). The final regulations will be effective for deemed distributions occurring on or after the date of adoption, but holders of notes and withholding agents may rely on them prior to that date under certain circumstances.

Distributions on common stock

Distributions, if any, made on our common stock generally will be included in a U.S. holder's income as ordinary dividend income to the extent of our current or accumulated earnings and profits as determined for U.S. federal income tax purposes. However, with respect to dividends received by individuals, such dividends generally are taxed at the lower applicable to long-term capital gains rates, provided certain holding period and other requirements for treatment of such dividends as "qualified dividend income" are satisfied. Distributions in excess of our current and accumulated earnings and profits will be treated as a return of capital to the extent of a U.S. holder's tax basis in the common stock and thereafter as capital gain from the sale or exchange of such common stock. Dividends received by a corporation may be eligible for a dividends received deduction, subject to applicable limitations.

Sale or other taxable disposition of common stock

Upon the sale or other taxable disposition of our common stock, a U.S. holder generally will recognize capital gain or loss equal to the difference between (i) the amount of cash and the fair market value of all other property received upon such disposition and (ii) the U.S. holder's tax basis in the common stock. Such capital gain or loss will be long-term capital gain or loss if a U.S. holder's holding period in the common stock is more than one year at the time of the taxable disposition. Long-term capital gains recognized by certain non-corporate U.S. holders (including individuals) generally will be subject to reduced rates of U.S. federal income tax. A U.S. holder's ability to deduct capital losses may be limited.

Information reporting and backup withholding

Information reporting requirements generally will apply to payments of interest on the notes (including additional interest that we may be required to pay under circumstances described above under "Description of Notes—Events of Default") and dividends on shares of common stock (including constructive dividends deemed paid) and to the proceeds of a sale of a note or share of common stock paid to a U.S. holder unless the U.S. holder is an exempt recipient (such as a corporation). Backup withholding (currently at a 24% rate) will apply to those payments if the U.S. holder fails to provide its correct taxpayer identification number, or certification of exempt status, or if the U.S. holder is notified by the IRS that it has failed to report in full payments of interest and dividend income. Any amounts withheld under the backup withholding rules will be allowed as a refund or a credit against a U.S. holder's U.S. federal income tax liability provided the required information is furnished timely to the IRS.

Consequences to non-U.S. holders

Payments of interest

U.S. federal income tax and the 30% U.S. federal withholding tax will not be applied to any payment of interest on a note to you provided that:

- such interest is not effectively connected with the your conduct of a trade or business in the United States;
- you do not actually or constructively own 10% or more of the total combined voting power of all classes of our stock that are entitled to vote within the meaning of section 871(h)(3) of the Code;
- you are not a controlled foreign corporation that is related to us (actually or constructively) through stock ownership; and
- you provide your name and address, and certify, under penalties of perjury, that you are not a U.S. person (which certification may be made on an IRS Form W-8BEN or W-8BEN-E (or other applicable form)) or you hold the notes through certain foreign intermediaries, and you and the foreign intermediaries satisfy the certification requirements of applicable Treasury Regulations.

If you cannot satisfy the requirements described above, payments of interest generally will be subject to the 30% U.S. federal withholding tax, unless you provide the applicable withholding agent with a properly executed (1) IRS Form W-8BEN or IRS Form W-8BEN-E (or other applicable form) claiming an exemption from or reduction in withholding under the benefit of an applicable income tax treaty or (2) IRS Form W-8ECI (or other applicable form) stating that interest paid on the notes is not subject to withholding tax because it is effectively connected with your conduct of a trade or business in the United States and includible in your gross income. If you are engaged in a trade or business in the United States and interest on the notes is effectively connected with the conduct of that trade or business and, if required by an applicable income tax treaty, is attributable to a U.S. permanent establishment or a U.S. fixed base, then (although you will be exempt from the 30% withholding tax provided the certification requirements discussed above are satisfied) you will be subject to U.S. federal income tax on that interest on a net income basis generally in the same manner as if you were a U.S. holder. In addition, if you are a foreign corporation, it may be subject to a branch profits tax equal to 30% (or lesser rate under an applicable income tax treaty) of its earnings and profits for the taxable year, subject to adjustments, that are effectively connected with its conduct of a trade or business in the United States.

Dividends and constructive distributions

Any dividends paid to you with respect to the shares of common stock (and any deemed dividends resulting from certain adjustments, or failure to make adjustments, to the conversion rate, see “—Consequences to U.S. Holders—Constructive Distributions” above) will be subject to withholding tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty. However, dividends that are effectively connected with your conduct of a trade or business within the United States and, if required by an applicable income tax treaty, are attributable to a U.S. permanent establishment or a U.S. fixed base are not subject to the withholding tax, but instead are subject to U.S. federal income tax on a net-income basis at applicable graduated individual or corporate rates. You must provide the applicable withholding agent with a properly executed IRS Form W-8ECI (or other applicable form) in order for effectively connected income to be exempt from withholding. Any such effectively connected income received by a foreign corporation may, under certain circumstances, be subject to an additional branch profits tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty.

Because a constructive dividend deemed received by you would not give rise to any cash from which any applicable withholding tax could be satisfied, if withholding taxes are paid on your behalf, those withholding

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taxes may be withheld from payments of cash and common stock payable on the notes (or, in certain circumstances, from any payments on the common stock).

If you wish to claim the benefit of an applicable income tax treaty rate, you will be required to satisfy applicable certification and other requirements, generally by providing IRS Form W-8BEN or W-8BEN-E to the applicable withholding agent. If you are eligible for a reduced rate of U.S. withholding tax pursuant to an income tax treaty, you may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS.

Sale, exchange, redemption, repurchase, retirement or other taxable disposition of notes or shares of common stock

Subject to the discussion of backup withholding and foreign accounts below, any gain realized by a non-U.S. holder on the sale, exchange or other taxable disposition of a note or common stock (as well as upon the conversion of a note into cash and an exchange in lieu of conversion) will not be subject to U.S. federal income tax unless:

- that gain is effectively connected with your conduct of a trade or business in the United States (and, if required by an applicable income tax treaty, is attributable to a U.S. permanent establishment or a U.S. fixed base);
- you are an individual who is present in the United States for 183 days or more in the taxable year of that disposition, and certain other conditions are met; or
- we are or have been a “U.S. real property holding corporation,” or a “USRPHC,” for U.S. federal income tax purposes during the shorter of your holding period or the five-year period ending on the date of disposition of the notes or common stock, as the case may be, unless an exception applies.

If your gain is described in the first bullet point above, you will be subject to tax at regular graduated U.S. federal income tax rates on the net gain derived from the sale, exchange, redemption, repurchase, retirement, conversion or other taxable disposition of a note or common stock, generally in the same manner as if you were a U.S. holder. If you are a foreign corporation that recognizes gain described in the first bullet point above, you may also be subject to the branch profits tax equal to 30% (or such lower rate as may be prescribed under an applicable U.S. income tax treaty) of its effectively connected earnings and profits. If you are described in the second bullet point above, you will be subject to a flat 30% tax on the gain recognized on the sale, exchange, redemption, repurchase, retirement, conversion or other taxable disposition of a note or common stock (which gain may be offset by certain U.S.-source capital losses), even though you are not considered a resident of the United States. Any amounts (including common stock) which you receive on a sale, exchange, redemption, repurchase, retirement, conversion or other taxable disposition of a note that are attributable to accrued interest will be taxable as interest and may be subject to the rules described above under “—Payments of Interest.”

In general, we would be a USRPHC if the fair market value of our U.S. real property interests equaled or exceeded 50% of the sum of the fair market value of our worldwide real property interests plus our other assets used or held for use in a trade or business. We believe that we are not, and we do not anticipate becoming, a USRPHC for U.S. federal income tax purposes. However, there can be no assurance that we will not become a USRPHC in the future.

Conversion of notes

Your conversion of a note into common stock or a combination of common stock and cash will be treated for U.S. federal income tax purposes as a non-taxable exchange or give rise to gain realized on the disposition of a

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note or a fractional share or interest, as described under “Consequences to U.S. Holders—Conversion of Notes.” To the extent you realize gain, such gain will be treated as described under “—Sale, Exchange, Redemption, Repurchase, Retirement or Other Taxable Disposition of Notes or Shares of Common Stock” above. To the extent you receive amounts attributable to accrued interest, such amounts will be taxed in the manner described above under “—Payments of Interest.”

Information reporting and backup withholding

Generally, we or an applicable withholding agent must report annually to the IRS and to you the amount of interest (including additional interest that we may be required to pay under circumstances described above under “Description of Notes—Events of Default”) and dividends paid to you (including constructive dividends deemed paid as described above under “—Dividends and Constructive Distributions”) and the amount of tax, if any, withheld with respect to those payments. Copies of the information returns reporting such interest, dividends and withholding may also be made available to the tax authorities in the country in which you reside under the provisions of an applicable income tax treaty. In general, you will not be subject to backup withholding with respect to payments of interest or dividends that we make, provided the statement described above in the last bullet point under “—Payments of Interest” has been received (and we or an applicable withholding agent does not have actual knowledge or reason to know that you are a U.S. person, as defined under the Code, that is not an exempt recipient). In addition, you will be subject to information reporting and, depending on the circumstances, backup withholding with respect to payments of the proceeds of the sale of a note or share of common stock within the United States or conducted through certain U.S.-related financial intermediaries, unless the statement described above has been received (and the payer does not have actual knowledge or reason to know that you are a U.S. person, as defined under the Code, that is not an exempt recipient) or the you otherwise establish an exemption. Any amounts withheld under the backup withholding rules will be allowed as a refund or a credit against your U.S. federal income tax liability provided the required information is furnished timely to the IRS.

Withholding on foreign accounts

Provisions common known as the “Foreign Account Tax Compliance Act,” or FATCA, impose withholding at a 30% rate on certain types of “withholdable payments” (including interest or constructive dividends paid on, and the gross proceeds from the sale or other disposition of, certain debt instruments, and dividends paid on, and the gross proceeds from the sale or other disposition of, stock in a U.S. corporation) made to a “foreign financial institution” or to a “non-financial foreign entity” (all as defined in the Code) (whether such foreign financial institution or non-financial foreign entity is the beneficial owner or an intermediary), unless (1) the foreign financial institution undertakes certain diligence and reporting obligations, (2) the non-financial foreign entity either certifies it does not have any “substantial United States owners” (as defined in the Code) or furnishes identifying information regarding each substantial United States owner or (3) the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from these rules. If the payee is a foreign financial institution and is subject to the diligence and reporting requirements in (1) above, it must enter into an agreement with the U.S. Department of the Treasury requiring, among other things, that it undertake to identify accounts held by certain U.S. persons or U.S.-owned foreign entities (as defined in applicable Treasury Regulations), annually report certain information about such accounts and withhold 30% on payments to noncompliant foreign financial institutions and certain other account holders. Foreign governments may enter into an agreement with the IRS to implement FATCA in a different manner.

Under Treasury Regulations and official guidance, FATCA withholding currently applies to payments of interest on the notes and dividends on our common stock and will apply to payments of gross proceeds from the sale or

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other disposition of the notes or our common stock on or after January 1, 2019. You should consult your tax adviser regarding the application of FATCA to the notes and our common stock.

Dividend equivalents

Section 871(m) of the Code requires withholding (of up to 30%, depending on whether a treaty applies) on certain financial instruments to the extent that the payments or deemed payments on the financial instruments are treated as being contingent upon or determined by reference to U.S.-source dividends. Under Treasury Regulations and other guidance issued in connection with Section 871(m), Section 871(m) will apply to financial instruments issued in 2018 only if they are “delta-one.” A “delta-one” instrument is one in which the ratio of the change in the fair market value of the instrument to a small change in the fair market value of the property referenced by the instrument is equal to 1.00. We do not believe that the notes are delta-one instruments. Accordingly, you should not be subject to tax under Section 871(m). You should consult with your tax adviser regarding the application of Section 871(m) and the regulations thereunder in respect of your acquisition and ownership of the notes.

Underwriting

We are offering the notes described in this prospectus through a number of underwriters. J.P. Morgan Securities LLC is acting as book-running manager of the offering and as representative of the underwriters. We have entered into an underwriting agreement with the underwriters. Subject to the terms and conditions of the underwriting agreement, we have agreed to sell to the underwriters, and each underwriter has severally agreed to purchase, at the public offering price less the underwriting discounts and commissions set forth on the cover page of this prospectus, the principal amount of notes listed next to its name in the following table:

Name	Principal amount of notes
J.P. Morgan Securities LLC	
Total	\$ 200,000,000

The underwriters are committed to purchase all the notes offered by us if they purchase any notes. The underwriting agreement also provides that if an underwriter defaults, the purchase commitments of non-defaulting underwriters may also be increased or the offering may be terminated.

The underwriters propose to offer the notes directly to the public at the initial public offering price set forth on the cover page of this prospectus. After the initial offering of the notes to the public, if all of the notes are not sold at the initial public offering price, the underwriters may change the offering price and the other selling terms. Sales of notes made outside of the United States may be made by affiliates of the underwriters.

The underwriters have an option to buy up to an additional \$30,000,000 principal amount of notes from us to cover sales of notes by the underwriters which exceed the principal amount of notes specified in the table above. The underwriters have 30 days from the date of this prospectus to exercise this option to purchase additional notes. If any notes are purchased with this option to purchase additional notes, the underwriters will purchase notes in approximately the same proportion as shown in the table above. If any additional notes are purchased, the underwriters will offer the additional notes on the same terms as those on which the notes are being offered.

The underwriting fee is equal to the public offering price per \$1,000 principal amount of notes less the amount paid by the underwriters to us per \$1,000 principal amount of notes. The underwriting fee is \$ per \$1,000 principal amount of notes. The following table shows the per \$1,000 principal amount of notes and total underwriting discounts and commissions to be paid to the underwriters assuming both no exercise and full exercise of the underwriters' option to purchase additional notes.

	Without option to purchase additional notes exercise	With full option to purchase additional notes exercise
Per \$1,000 principal amount of notes	\$	\$
Total	\$	\$

We estimate that the total expenses of this offering, including registration, filing and listing fees, printing fees and legal and accounting expenses, but excluding the underwriting discounts and commissions, will be

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approximately \$350,000. We have agreed to reimburse the underwriters for all expenses incurred in connection with the registration or qualification of the notes issued in this offering under state or foreign or blue sky laws (in an amount not to exceed \$30,000).

A prospectus in electronic format may be made available on the web sites maintained by one or more underwriters, or selling group members, if any, participating in the offering. The underwriters may agree to allocate notes to underwriters and selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the representative to underwriters and selling group members that may make Internet distributions on the same basis as other allocations.

We have agreed that we will not (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, or file with the SEC a registration statement under the Securities Act relating to, any shares of our common stock or securities convertible into or exchangeable or exercisable for any shares of our common stock, or publicly disclose the intention to make any offer, sale, pledge, disposition or filing (other than filings on Form S-8 relating to outstanding company stock plans that are disclosed in the Prospectus), or (ii) enter into any swap or other arrangement that transfers all or a portion of the economic consequences associated with the ownership of any shares of common stock or any such other securities (regardless of whether any such transaction described in (i) or (ii) is to be settled by the delivery of shares of common stock or such other securities, in cash or otherwise), in each case without the prior written consent of J.P. Morgan Securities LLC for a period of 90 days after the date of this prospectus, other than the notes to be sold hereunder or shares of common stock issuable upon conversion of the notes; any equity awards granted under company stock plans in the ordinary course of business consistent with past practice; any shares of our common stock issued upon the exercise of options granted under company stock plans or outstanding warrants; the issuance of a limited number of shares of our common stock in connection with mergers or acquisitions of businesses, entities, property or other assets, joint ventures or strategic alliances; and the issuance of our common stock in the concurrent offering of our borrowed shares or otherwise pursuant to the share lending agreement.

Our directors and executive officers, and all affiliates of Mr. Kirk holding our common stock have entered into lock-up agreements with the underwriters prior to the commencement of this offering pursuant to which each of these persons or entities, with limited exceptions, for a period of 90 days after the date of this prospectus, may not, without the prior written consent of J.P. Morgan Securities LLC, (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, any shares of our common stock or any securities convertible into or exercisable or exchangeable for our common stock (including, without limitation, common stock or such other securities which may be deemed to be beneficially owned by such directors, executive officers, shareholders, managers and members in accordance with the rules and regulations of the SEC and securities which may be issued upon exercise of a stock option or warrant), or publicly disclose the intention to make any offer, sale, pledge or disposition, (ii) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the common stock or such other securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of common stock or such other securities, in cash or otherwise, or (iii) make any demand for or exercise any right with respect to the registration of any shares of our common stock or any security convertible into or exercisable or exchangeable for our common stock. These lock-up restrictions are subject to limited exceptions that are specified in the lock-up agreements.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act of 1933.

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The notes are a new issue of securities, and there is currently no established trading market for such notes. We do not intend to apply for the notes to be listed on any securities exchange or to arrange for the notes to be quoted on any quotation system.

The underwriters have advised us that they intend to make a market in the notes, but they are not obligated to do so. The underwriters may discontinue any market-making in the notes at any time in their sole discretion without notice. Accordingly, we cannot assure you that a liquid trading market will develop for the notes. If an active trading market for the notes does not develop, the market price and liquidity of the notes may be adversely affected. If the notes are traded, they may trade at a discount from their initial public offering price depending on prevailing interest rates, the market for similar securities, our performance and other factors.

In connection with this offering, the underwriters may engage in stabilizing transactions, which involve making bids for, purchasing and selling notes and/or shares of common stock in the open market for the purpose of preventing or retarding a decline in the market price of the notes and/or the common stock while this offering is in progress. These stabilizing transactions may include making short sales of the notes, which involve the sale by the underwriters of a greater principal amount of notes than they are required to purchase in this offering, and purchasing notes on the open market to cover positions created by short sales. Short sales may be "covered" shorts, which are short positions in a principal amount not greater than the underwriters' option to purchase additional notes referred to above, or may be "naked" shorts, which are short positions in excess of that amount. The underwriters may close out any covered short position either by exercising their option to purchase additional notes, in whole or in part, or by purchasing notes in the open market. In making this determination, the underwriters will consider, among other things, the price of notes available for purchase in the open market compared to the price at which the underwriters may purchase notes through the option to purchase additional notes. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the notes in the open market that could adversely affect investors who purchase in this offering. To the extent that the underwriters create a naked short position, they will purchase notes in the open market to cover the position.

The underwriters have advised us that, pursuant to Regulation M of the Securities Act of 1933, they may also engage in other activities that stabilize, maintain or otherwise affect the price of the notes and the common stock, including the imposition of penalty bids. This means that if the representative of the underwriters purchase notes in the open market in stabilizing transactions or to cover short sales, the representatives can require the underwriters that sold those notes as part of this offering to repay the underwriting discount received by them.

These activities may have the effect of raising or maintaining the market price of the notes and/or the common stock or preventing or retarding a decline in the market price of the notes and/or the common stock, and, as a result, the price of notes and/or the common stock may be higher than the price that otherwise might exist in the open market. If the underwriters commence these activities, they may discontinue them at any time. The underwriters may carry out these transactions on the New York Stock Exchange, in the over-the-counter market or otherwise.

Certain relationships

The underwriter and its affiliates have provided in the past to us and our affiliates and may provide from time to time in the future certain commercial banking, financial advisory, investment banking and other services for us and such affiliates in the ordinary course of their business, for which they have received and may continue to receive customary fees and commissions. In addition, from time to time, the underwriter and its affiliates may effect transactions for their own account or the account of customers, and hold on behalf of themselves or their customers, long or short positions in our debt or equity securities or loans, and may do so in the future.

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Concurrently with this offering, we are offering \$100,000,000 of shares of our common stock by means of a separate prospectus supplement and prospectus. Such shares, which we refer to as the “borrowed shares”, will be loaned by us to J.P. Morgan Securities LLC, the underwriter for the concurrent offering of the borrowed shares, which we refer to as the “share borrower”, pursuant to a share lending agreement. The share borrower or its affiliates will receive all of the proceeds of the concurrent offering of borrowed shares and we will not receive any proceeds of that offering. The share borrower has informed us that it, or one of its affiliates, intends to use the short position created by the share loan and the short sales of the borrowed shares to facilitate transactions by which investors in the notes may hedge their respective investments through short sales or privately negotiated derivative transactions. In connection with facilitating those transactions, the share borrower or such affiliate expects to receive customary negotiated fees from investors. See “Description of share lending agreement.”

Steven Frank, one of our directors, currently serves as Chairman of Global Healthcare Investment Banking at J.P. Morgan Securities LLC.

Selling restrictions

Other than in the United States, no action has been taken by us or the underwriters that would permit a public offering of the securities offered by this prospectus supplement and the accompanying prospectus in any jurisdiction where action for that purpose is required. The securities offered by this prospectus supplement and the accompanying prospectus may not be offered or sold, directly or indirectly, nor may this prospectus supplement and the accompanying prospectus or any other offering material or advertisements in connection with the offer and sale of any such securities be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons into whose possession this prospectus supplement and the accompanying prospectus come are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus supplement and the accompanying prospectus. This prospectus supplement and the accompanying prospectus do not constitute an offer to sell or a solicitation of an offer to buy any securities offered by this prospectus supplement and the accompanying prospectus in any jurisdiction in which such an offer or a solicitation is unlawful.

Notice to prospective investors in the european economic area

In relation to each Member State of the European Economic Area (each, a “Relevant Member State”), no offer of notes may be made to the public in that Relevant Member State other than:

- A. to any legal entity which is a qualified investor as defined in the Prospectus Directive;
- B. to fewer than 100 or, if the Relevant Member State has implemented the relevant provision of the 2010 PD Amending Directive, 150, natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the representative; or
- C. in any other circumstances falling within Article 3(2) of the Prospectus Directive, provided that no such offer of notes shall require the Company or the representative to publish a prospectus pursuant to Article 3 of the Prospectus Directive or supplement a prospectus pursuant to Article 16 of the Prospectus Directive.

Each person in a Relevant Member State who initially acquires any notes or to whom any offer is made will be deemed to have represented, acknowledged and agreed that it is a “qualified investor” within the meaning of

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the law in that Relevant Member State implementing Article 2(1)(e) of the Prospectus Directive. In the case of any notes being offered to a financial intermediary as that term is used in Article 3(2) of the Prospectus Directive, each such financial intermediary will be deemed to have represented, acknowledged and agreed that the notes acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer of any notes to the public other than their offer or resale in a Relevant Member State to qualified investors as so defined or in circumstances in which the prior consent of the representative has been obtained to each such proposed offer or resale.

The Company, the representative and their affiliates will rely upon the truth and accuracy of the foregoing representations, acknowledgements and agreements.

This prospectus has been prepared on the basis that any offer of notes in any Relevant Member State will be made pursuant to an exemption under the Prospectus Directive from the requirement to publish a prospectus for offers of notes. Accordingly any person making or intending to make an offer in that Relevant Member State of notes which are the subject of the offering contemplated in this prospectus may only do so in circumstances in which no obligation arises for the Company or any of the underwriters to publish a prospectus pursuant to Article 3 of the Prospectus Directive in relation to such offer. Neither the Company nor the underwriters have authorized, nor do they authorize, the making of any offer of notes in circumstances in which an obligation arises for the Company or the underwriters to publish a prospectus for such offer.

For the purpose of the above provisions, the expression “an offer to the public” in relation to any notes in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the notes to be offered so as to enable an investor to decide to purchase or subscribe in the notes, as the same may be varied in the Relevant Member State by any measure implementing the Prospectus Directive in the Relevant Member State and the expression “Prospectus Directive” means Directive 2003/71/EC (including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member States) and includes any relevant implementing measure in the Relevant Member State and the expression “2010 PD Amending Directive” means Directive 2010/73/EU.

Notice to prospective investors in the United Kingdom

In the United Kingdom, this document is being distributed only to, and is directed only at, and any offer subsequently made may only be directed at persons who are “qualified investors” (as defined in the Prospectus Directive) (i) who have professional experience in matters relating to investments falling within Article 19 (5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended (the “Order”) and/or (ii) who are high net worth companies (or persons to whom it may otherwise be lawfully communicated) falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as “relevant persons”).

Any person in the United Kingdom that is not a relevant person should not act or rely on the information included in this document or use it as basis for taking any action. In the United Kingdom, any investment or investment activity that this document relates to may be made or taken exclusively by relevant persons. Any person in the United Kingdom that is not a relevant person should not act or rely on this document or any of its contents.

Notice to prospective investors in Canada

The notes may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of

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the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the notes must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

Notice to prospective investors in Switzerland

The notes may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange ("SIX") or on any other stock exchange or regulated trading facility in Switzerland. This document does not constitute a prospectus within the meaning of, and has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to the notes or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the offering, the Company, the notes have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of notes will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA (FINMA), and the offer of notes has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes ("CISA"). The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of notes.

Notice to prospective investors in Japan

The notes have not been and will not be registered pursuant to Article 4, Paragraph 1 of the Financial Instruments and Exchange Act. Accordingly, none of the notes nor any interest therein may be offered or sold, directly or indirectly, in Japan or to, or for the benefit of, any "resident" of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan or to or for the benefit of a resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Act and any other applicable laws, regulations and ministerial guidelines of Japan in effect at the relevant time.

Notice to prospective investors in Hong Kong

The notes have not been offered or sold and will not be offered or sold in Hong Kong, by means of any document, other than (a) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance; or (b) in other circumstances which do not result

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in the document being a “prospectus” as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of that Ordinance. No advertisement, invitation or document relating to the notes has been or may be issued or has been or may be in the possession of any person for the purposes of issue, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to notes which are or are intended to be disposed of only to persons outside Hong Kong or only to “professional investors” as defined in the Securities and Futures Ordinance and any rules made under that Ordinance

Notice to prospective investors in Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of notes may not be circulated or distributed, nor may the notes be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the “SFA”), (ii) to a relevant person pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section 275 of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the notes are subscribed or purchased under Section 275 of the SFA by a relevant person which is: (a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or (b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor, securities (as defined in Section 239(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the notes pursuant to an offer made under Section 275 of the SFA except:

- to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;
- where no consideration is or will be given for the transfer;
- where the transfer is by operation of law;
- as specified in Section 276(7) of the SFA; or
- as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore.

Legal matters

The validity of the notes being offered will be passed upon for us by Troutman Sanders LLP, Richmond, Virginia. Goodwin Procter LLP, New York, New York, is counsel for the underwriters and Davis Polk & Wardwell LLP, New York, New York, is special products counsel to the underwriters in connection with this offering.

Experts

The consolidated financial statements of Intrexon Corporation and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Report on Internal Control over Financial Reporting) incorporated in this prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2017 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

The financial statements of ZIOPHARM Oncology, Inc. for the year ended December 31, 2015, incorporated in this preliminary prospectus supplement by reference from the Intrexon Corporation Annual Report on Form 10-K for the year ended December 31, 2017, have been audited by RSM US LLP, an independent registered public accounting firm, as stated in their report thereon, incorporated herein by reference, and have been incorporated in this preliminary prospectus supplement in reliance upon such report and upon the authority of such firm as experts in accounting and auditing.

Where you can find more information

We file annual, quarterly and current reports, proxy statements and other information with the SEC. You can inspect and copy these reports, proxy statements and other information at the public reference facilities of the SEC at the SEC's Public Reference Room located at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room. The SEC also maintains an internet web site that contains reports, proxy and information statements and other information regarding registrants that file electronically with the SEC (www.sec.gov). Our internet address is www.dna.com. However, the information contained on, or that can be accessed through, our website is not a part of this prospectus supplement or the accompanying prospectus. We have included our website address in this prospectus supplement solely as an inactive textual reference. In addition, you can inspect reports and other information we file at the office of the NYSE, 11 Wall Street, New York, New York 10005.

Statements contained in this prospectus supplement, the accompanying prospectus and any free writing prospectus that we have authorized, or that are incorporated by reference into this prospectus supplement or the accompanying prospectus, about the provisions or contents of any agreement or other document are not necessarily complete. If SEC rules and regulations require that any agreement or document be filed as an exhibit to the registration statement and we file the agreement or document, you should refer to that agreement or document for a complete description of these matters.

We have filed with the SEC a registration statement under the Securities Act with respect to the notes and the underlying common stock offered with this prospectus. This prospectus supplement and the accompanying prospectus do not contain all of the information in the registration statement, parts of which we have omitted, as allowed under the rules and regulations of the SEC. You should refer to the registration statement for further information with respect to us and the common stock. You may inspect the registration statement and exhibits without charge at the office of the SEC at 100 F Street, N.E., Washington, D.C. 20549, and you may obtain copies from the SEC at prescribed rates.

Incorporation of certain information by reference

We are incorporating information into this prospectus supplement and the accompanying prospectus by reference, which means that we are disclosing important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is deemed to be part of this prospectus supplement, except to the extent superseded by information contained in this prospectus supplement.

This prospectus supplement incorporates by reference the documents set forth below that have been previously filed with the SEC and any additional documents that we may file with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the termination of the offering covered by this prospectus supplement, other than those documents or portions of those documents that are deemed not filed, such as information furnished under Items 2.02 and 7.01 of any Current Report on Form 8-K, including related exhibits:

- our Annual Report on Form 10-K for the year ended December 31, 2017, filed on March 1, 2018;
- our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, filed on May 10, 2018;
- our Definitive Proxy Statement on Schedule 14A filed on April 27, 2018 to the extent incorporated in our Annual Report on Form 10-K for the year ended December 31, 2017;
- our Current Reports on Form 8-K filed on January 2, 2018 (other than matters furnished under Item 7.01), January 19, 2018, April 5, 2018, and June 8, 2018; and
- the description of our common stock, no par value, contained in our Form 8-A filed on August 5, 2013, including any amendment or report filed for the purpose of updating such description.

Statements contained in this prospectus supplement, the accompanying prospectus and any document incorporated by reference as to the contents of any contract, agreement or other document referred to are not necessarily complete, and in each instance reference is made to the copy of the contract, agreement or other document filed as an exhibit to the registration statement or any incorporated document, each statement being so qualified by this reference.

You may obtain copies of any of these filings by contacting us at the address and telephone number indicated below or by contacting the SEC as described above under the section entitled "Where You Can Find More Information." Documents incorporated by reference are available from us without charge, including any exhibits that are specifically incorporated by reference into this prospectus supplement, by requesting them in writing or by telephone at:

Corporate Secretary
Intrexon Corporation
20374 Seneca Meadows Parkway
Germantown, Maryland 20876
(301) 556-9900



INTREXON CORPORATION

DEBT SECURITIES COMMON STOCK PREFERRED STOCK WARRANTS RIGHTS STOCK PURCHASE CONTRACTS STOCK PURCHASE UNITS

We or any selling securityholder may, from time to time, offer and sell in one or more offerings:

- senior or subordinated debt securities;
- shares of our common stock;
- shares of our preferred stock;
- warrants to purchase our debt securities or shares of our common stock or preferred stock, or other securities;
- rights to purchase our debt securities or shares of our common stock or preferred stock, or other securities;
- stock purchase contracts to purchase shares of our common stock or our preferred stock;
- stock purchase units, each representing ownership of a stock purchase contract and any of our debt securities, shares of our common stock or preferred stock, or preferred securities or debt obligations of third parties, including U.S. Treasury securities, any other securities described in the applicable prospectus supplement, or any combination of the foregoing, securing the holder's obligation to purchase shares of our common stock or preferred stock under the stock purchase contracts; or
- any combination thereof.

The debt securities may consist of debentures, notes, bonds or other types of indebtedness. The debt securities, preferred stock, warrants, rights, stock purchase contracts and stock purchase units may be convertible or exercisable or exchangeable for common or preferred stock or other securities of ours.

Our common stock is listed on the New York Stock Exchange under the symbol "XON." If we decide to seek a listing of any securities offered by this prospectus, the applicable prospectus supplement will disclose the exchange or market on which such securities will be listed, if any, or where we have made an application for listing, if any.

We or any selling securityholder may offer and sell our securities to or through one or more underwriters, dealers, agents or other third parties, or directly to one or more purchasers, on a continuous or delayed basis. These securities also may be resold by securityholders, if so provided in a prospectus supplement hereto. We will provide specific terms of any securities to be offered, including the amount, prices and other terms of the securities and information about any selling securityholders, in one or more supplements to this prospectus. The prospectus supplement may also add, update or change information contained in this prospectus. You should read this prospectus and any applicable prospectus supplement carefully before you invest. **This prospectus may not be used to sell securities unless accompanied by a prospectus supplement and/or free writing prospectus.**

INVESTING IN OUR SECURITIES INVOLVES A HIGH DEGREE OF RISK. YOU SHOULD REVIEW CAREFULLY THE RISKS AND UNCERTAINTIES REFERENCED UNDER THE HEADING "[RISK FACTORS](#)" ON PAGE 7 OF THIS PROSPECTUS AS WELL AS THOSE CONTAINED IN THE APPLICABLE PROSPECTUS SUPPLEMENT AND ANY RELATED FREE WRITING PROSPECTUS, AND IN THE OTHER DOCUMENTS THAT ARE INCORPORATED BY REFERENCE INTO THIS PROSPECTUS OR THE APPLICABLE PROSPECTUS SUPPLEMENT.

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

The date of this prospectus is September 1, 2017.

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We are responsible for the information contained and incorporated by reference in this prospectus, in any accompanying prospectus supplement, and in any related free writing prospectus we prepare or authorize. We have not authorized anyone to give you any other information, and we take no responsibility for any other information that others may give you. If you are in a jurisdiction where offers to sell, or solicitations of offers to purchase, the securities offered by this documentation are unlawful, or if you are a person to whom it is unlawful to direct these types of activities, then the offer presented in this document does not extend to you. The information contained in this document speaks only as of the date of this document, unless the information specifically indicates that another date applies. Our business, financial condition, results of operations and prospectus may have changed since those dates.

ABOUT THIS PROSPECTUS

This prospectus is part of an automatic shelf registration statement on Form S-3 that we filed with the Securities and Exchange Commission (the “SEC”), as a “well-known seasoned issuer” as defined in Rule 405 under the Securities Act of 1933, as amended (the “Securities Act”). By using a shelf registration statement, we and/or selling securityholders may offer and sell, at any time and from time to time, in one or more offerings, any combination of the securities described in this prospectus. As allowed by the SEC rules, this prospectus and any prospectus supplement or other offering materials do not contain all of the information included in the registration statement. For further information, we refer you to the registration statement, including its exhibits. Statements contained in this prospectus and any prospectus supplement or other offering materials about the provisions or contents of any agreement or other document are not necessarily complete. If the SEC’s rules and regulations require that an agreement or document be filed as an exhibit to the registration statement, please see that agreement or document for a complete description of these matters.

This prospectus provides you with a general description of the securities that we and/or selling securityholders may offer. Each time we and/or selling securityholders sell securities, we will provide a prospectus supplement that contains specific information about the terms of that offering, including the specific amounts, prices and terms of the securities offered. The prospectus supplement may also add information to this prospectus or update or change information in this prospectus. To the extent that this prospectus is used by any securityholder to resell any securities, information with respect to the securityholder and the terms of the securities being offered will be contained in a prospectus supplement. You should read this prospectus and any prospectus supplement together with any additional information you may need to make your investment decision. You should also read and carefully consider the information in the documents we have referred you to in “Where You Can Find More Information” and “Incorporation by Reference” below. Information incorporated by reference after the date of this prospectus is considered a part of this prospectus and may add, update or change information contained in this prospectus. Any information in such subsequent filings that is inconsistent with this prospectus will supersede the information in this prospectus or any earlier prospectus supplement. You should rely only on the information incorporated by reference or provided in this prospectus and any supplement. We have not authorized anyone else to provide you with other information.

You should not assume that the information in this prospectus, any prospectus supplement or any other offering materials is accurate as of any date other than the date on the front of each document. Our business, financial condition, results of operations and prospects may have changed since then.

When used in this prospectus, the terms “Intrexon,” “the Company,” “we,” “our” and “us” refer to Intrexon Corporation and its subsidiaries, unless otherwise specified or the context otherwise requires. Intrexon® is our registered trademark in the United States. This prospectus and the information incorporated herein by reference contain references to trademarks, service marks and trade names owned by us or other companies. Solely for convenience, trademarks, service marks and trade names referred to in this prospectus and the information incorporated herein, 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, service marks and trade names. We do not intend our use or display of other companies’ trade names, service marks or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other companies. Other trademarks, trade names and service marks appearing in this prospectus and any accompanying prospectus supplement or any related free writing prospectus are the property of their respective owners.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. You can inspect and copy these reports, proxy statements and other information at the public reference facilities of the SEC at the SEC's Public Reference Room located at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room. The SEC also maintains an internet web site that contains reports, proxy and information statements and other information regarding registrants that file electronically with the SEC (www.sec.gov). Our internet address is www.dna.com. However, the information contained on, or that can be accessed through, our website is not a part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference. In addition, you can inspect reports and other information we file at the office of the New York Stock Exchange, Inc., 20 Broad Street, New York, New York 10005.

We have the authority to designate and issue more than one class or series of stock having various preferences, conversion and other rights, voting powers, restrictions, limitations as to dividends, qualifications, and terms and conditions of redemption. See "Description of Capital Stock — Preferred Stock." We will furnish a full statement of the relative rights and preferences of each class or series of our stock which has been so designated and any restrictions on the ownership or transfer of our stock to any shareholder upon request and without charge. Written requests for such copies should be directed to 20374 Seneca Meadows Parkway, Germantown, Maryland 20876, Attention: Chief Legal Officer, or by telephone request to (301) 556-9900.

We have filed a registration statement and related exhibits with the SEC under the Securities Act. The registration statement contains additional information about us and the securities we may issue. You may inspect the registration statement and exhibits without charge at the office of the SEC at 100 F Street, N.E., Washington, D.C. 20549, and you may obtain copies from the SEC at prescribed rates.

INCORPORATION BY REFERENCE

The SEC allows us to "incorporate by reference" information and reports we file with the SEC into this prospectus, which means that we can disclose important information to you by referring to those documents. We hereby "incorporate by reference" the documents listed below, which means that we are disclosing important information to you by referring you to those documents. The information that we file later with the SEC will automatically update and in some cases supersede this information (other than portions of these documents that are either (1) described in paragraph (e) of Item 201 of Registration S-K or paragraphs (d)(1)-(3) and (e)(5) of Item 407 of Regulation S-K promulgated by the SEC or (2) furnished under Item 2.02 or Item 7.01 of a Current Report on Form 8-K). Specifically, we incorporate by reference the following documents or information filed with the SEC (other than, in each case, documents or information deemed to have been furnished and not filed in accordance with SEC rules, unless otherwise indicated):

- Our Annual Report on Form 10-K for the year ended December 31, 2016, filed on March 1, 2017;
- Our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2017 and June 30, 2017, filed on May 10, 2017 and August 9, 2017, respectively;
- Our Current Reports on Form 8-K filed on March 10, 2017 (other than matters furnished under Item 7.01), March 31, 2017, April 27, 2017 and June 30, 2017;
- The description of our common stock, no par value, contained in our Form 8-A filed on August 5, 2013, including any amendment or report filed for the purpose of updating such description; and
- Future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") on or after the date of this prospectus, until we have sold all of the offered securities to which this prospectus relates or the offering is otherwise terminated.

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

Corporate Secretary
Intrexon Corporation
20374 Seneca Meadows Parkway
Germantown, Maryland 20876
(301) 556-9900

This prospectus is part of a registration statement we filed with the SEC. We have incorporated exhibits into this registration statement. You should read the exhibits carefully for provisions that may be important to you.

Neither we nor any selling securityholder have authorized anyone to provide you with information other than what is incorporated by reference or provided in this prospectus, any prospectus supplement or any free writing prospectus. Neither we nor any selling securityholder are making an offer of these securities in any state where the offer is not permitted. You should not assume that the information in this prospectus or in the documents incorporated by reference is accurate as of any date other than the date on the front of this prospectus or those documents.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, the documents incorporated by reference into this prospectus and our future oral and written statements, may contain “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995 concerning our business, consolidated financial condition and results of operations. All statements other than statements of historical facts included or incorporated by reference into this prospectus regarding our strategies, prospects, financial condition, costs, plans and objectives are forward-looking statements. The SEC encourages companies to disclose forward-looking statements so that investors can better understand a company’s future prospects and make informed investment decisions. These forward-looking statements reflect our beliefs and expectations as to future events and trends affecting our business, our consolidated financial condition and results of operations. These forward-looking statements are based upon our current expectations concerning future events and discuss, among other things, anticipated future financial performance and future business plans. Forward-looking statements are necessarily subject to risks and uncertainties, many of which are outside our control, that could cause actual results to differ materially from these statements. Forward-looking statements can be identified by such words as “anticipates,” “believes,” “plan,” “assumes,” “could,” “should,” “estimates,” “expects,” “intends,” “potential,” “seek,” “predict,” “may,” “will” and similar expressions.

These forward-looking statements include, among other things, statements about:

- our current and future exclusive channel collaborations (“ECCs”), license agreements and other collaborations;
- developments concerning our collaborators and licensees;
- our ability to successfully enter new markets or develop additional products, whether with our collaborators or independently;
- competition from existing technologies and products or new technologies and products that may emerge;
- actual or anticipated variations in our operating results;
- actual or anticipated fluctuations in our competitors’ or our collaborators’ and licensees’ operating results or changes in their respective growth rates;
- our cash position;

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- market conditions in our industry;
- our ability, and the ability of our collaborators and licensees, to protect our intellectual property and other proprietary rights and technologies;
- our ability, and the ability of our collaborators and licensees, to adapt to changes in laws or regulations and policies;
- the ability of our collaborators and licensees to secure any necessary regulatory approvals to commercialize any products developed under the ECCs, license agreements and joint ventures;
- the ability of our collaborators and licensees to develop and successfully commercialize products enabled by our technologies;
- the rate and degree of market acceptance of any products developed by a collaborator under an ECC or through a joint venture or license under a license agreement;
- our ability to retain and recruit key personnel;
- the result of litigation proceedings that we face currently or may face in the future;
- our expectations related to the use of proceeds from our public offerings and other financing efforts; and
- our estimates regarding expenses, future revenue, capital requirements and needs for additional financing.

We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Item 1A, “Risk Factors” in our Annual Report on Form 10-K, and Item 1A, “Risk Factors” in our Quarterly Reports on Form 10-Q, which are incorporated by reference into this prospectus, includes factors that could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments that we may make. Forward-looking statements may also concern our expectations relating to our subsidiaries and other affiliates. We caution you that the foregoing list may not contain all of the forward-looking statements made in this prospectus.

We do not assume any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

OVERVIEW

We believe we are a leader in the field of synthetic biology, an emerging and rapidly evolving discipline that applies engineering principles to biological systems to enable rational, design-based control of cellular function for a specific purpose. Using our suite of proprietary and complementary technologies, we design, build and regulate gene programs, which are DNA sequences that consist of key genetic components. A single gene program or a complex, multi-genic program are fabricated and stored within a DNA vector. Vectors are segments of DNA used as a vehicle to transmit genetic information. DNA vectors can, in turn, be introduced into cells in order to generate a simple or complex cellular system, which are the basic and complex cellular activities that take place within a cell and the interaction of those systems in the greater cellular environment. It is these genetically modified cell systems that can be used to produce biological effector molecules, or be employed directly to enable the development of new and improved products and manufacturing processes across a variety of end markets, including health, food, energy, environment, and consumer. Our synthetic biology capabilities include the ability to precisely control the amount, location and modification of biological molecules to control the function and output of living cells and optimize for desired results at an industrial scale.

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We believe that because synthetic biology has applicability across many diverse end markets, we cannot take full advantage of synthetic biology with internal development programs alone. To address this, we have devised our business model to allow us to focus on our core expertise in synthetic biology while bringing many different commercial products to market via collaborations in a broad range of industries or end markets, thus minimizing and leveraging the use of our own capital.

Our business model is built primarily around the formation of exclusive channel collaborations, or ECCs. An ECC is an agreement with a collaborator to develop products based on technologies in a specifically defined field. We seek collaborators that have expertise within a specific industry sector and the commitment to provide resources for the commercialization of products within that industry sector. In our ECCs, we provide expertise in the engineering of gene programs and cellular systems, and our collaborators are responsible for providing market and product development expertise, as well as sales and marketing capabilities.

This business model allows us to leverage our capabilities and capital across numerous product development programs and a broader landscape of end markets than we would be capable of addressing on our own. Our ECC business model also allows us to participate in the potential upside from products that are enabled by our technologies across an extensive range of industries, without the need for us to invest considerable resources in bringing individual products to market. Additionally, the flexibility of the business model allows us to collaborate with a range of counterparts, from small innovative companies to global multinational conglomerates.

Alternatively, we may execute a research collaboration to develop an early-stage program pursuant to which we receive reimbursement for our development costs but the exclusive commercial rights, and related access fees, are deferred until completion of an initial research program.

In certain strategic circumstances, we may enter into a joint venture, or JV, with a third party collaborator whereby we may contribute access to our technology, cash or both into the JV which we will jointly control with our collaborator. Pursuant to a JV agreement, we may be required to contribute additional capital to the JV, and we may be able to receive a higher financial return than we would normally receive from an ECC to the extent that we and our collaborator are successful in developing one or more products.

As we consider the broad potential applications of our synthetic biology technologies, we have identified a number of ventures that are already enabling products that benefit from the application of such technology. We believe that the strategic acquisition of certain such companies will allow us to develop and commercialize innovative products and create significant value for us. Our business model therefore includes the acquisition of certain product-focused companies that may leverage our technologies and expertise in order to expand their respective product applications.

As a means to further the development of our business model, in June 2015, we entered into an agreement with Harvest Intrexon Enterprise Fund I, LP, or Harvest, an investment fund sponsored by Harvest Capital Strategies, LLC, and a related party based on ownership in the fund by affiliates of Third Security, LLC or Third Security. Harvest was established to invest in life science research and development opportunities that we offer to Harvest. These are investment proposals that are suitable for pursuit by a start-up venture, characterized by the agreement as “start-up opportunities.” For such start-up opportunities, we provide Harvest with exclusive rights of first-look and first negotiation. For any opportunities it decides to pursue, Harvest establishes new collaboration entities which enter into an ECC with us in a designated field. The terms of such ECCs are negotiated between us and Harvest. In addition, the agreement provides us the right to present to Harvest the opportunity to invest in other ventures, including investment opportunities with respect to our existing collaborations. Any such opportunities are presented at our discretion on a non-exclusive basis. The agreement with Harvest does not limit our ability to execute other collaborations and JVs with third parties. As consideration for providing exclusive rights of first-look and first negotiation for start-up opportunities, we receive a portion of the management fee collected by the fund sponsor of Harvest.

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Pursuant to our business model, we may receive equity in lieu of cash for technology access fees and milestones and also may participate in capital raises to allow earlier-stage collaborators to focus their resources on product development. However, when such a collaborator develops greater operational or financial resources, its shares become a financial asset within Intrexon that is independent of our operational or collaborative purposes.

We may augment our suite of proprietary technologies through mergers or acquisitions of technologies which then become available to new or existing collaborators. Among other things, we pursue technologies that we believe will be generally complementary to our existing technologies and also meet our desired return on investment and other economic criteria. In certain cases, such technologies may already be applied in the production of products or services and in these cases we may seek to expand the breadth or efficacy of such products or services through the use of our technologies.

We have and may continue to engage in a variety of transactions, including ECCs and JVs, with companies in which Randal J. Kirk, our Chairman of the Board and Chief Executive Officer, and affiliates of Mr. Kirk, have a direct or indirect interest. For example, we are party to a services agreement with Third Security, under which Third Security provides certain services to us in return for a monthly fee of shares of our common stock. Mr. Kirk serves as the Senior Managing Director and Chief Executive Officer of Third Security and owns 100 percent of the equity interests of Third Security. We believe that each of these transactions was on terms no less favorable to us than terms we could have obtained from unaffiliated third parties, and each of these transactions was approved by at least a majority of the disinterested members of the audit committee of our board of directors. In addition, subsequent to our consummation of ECCs with certain companies, Mr. Kirk and his affiliates invested in these companies. Furthermore, as we execute on these ECCs or JVs going forward, a conflict may arise between our interests and those of Mr. Kirk and his affiliates. We will continue to ensure that all future transactions, if any, between us and our officers, directors, principal shareholders and their affiliates, are approved by the audit committee or a majority of the independent and disinterested members of the board of directors in accordance with our written related person transaction policy, and are on terms no less favorable to us than those that we could obtain from unaffiliated third parties.

We were founded by Thomas D. Reed, Ph.D., in 1998, as an Ohio limited liability company under the name Genomatix LTD. We were reincorporated as a Virginia corporation in 2004 and changed our name to Intrexon Corporation in 2005. The principal executive offices of Intrexon are located at 20374 Seneca Meadows Parkway, Germantown, Maryland 20876, and our telephone number is (301) 556-9900. Our website is www.dna.com. The information on, or that can be accessed through, our website does not constitute part of this prospectus, and you should not rely on any such information in making the decision whether to purchase our common stock. Our common stock is traded on the NYSE under the symbol "XON."

For more information regarding our business, see Item 1 of our Annual Report on Form 10-K for the year ended December 31, 2016, and the other documents incorporated by reference into this prospectus. For information on how you can view our Annual Report on Form 10-K for the year ended December 31, 2016, and other documents incorporated by reference into this prospectus, see the section entitled "Where You Can Find More Information."

RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the risks described in the documents incorporated by reference in this prospectus and any prospectus supplement, as well as other information we include or incorporate by reference into this prospectus and any applicable prospectus supplement, before making an investment decision. Our business, financial condition or results of operations could be materially adversely affected by the materialization of any of these risks. The trading price of our securities could decline due to the materialization of any of these risks, and you may lose all or part of your investment. This prospectus and the documents incorporated herein by reference also contain forward-looking statements that involve risks and uncertainties. Actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks described in the documents incorporated herein by reference, including (i) our most recent annual report on Form 10-K which is on file with the SEC and is incorporated herein by reference, (ii) our most recent quarterly report on Form 10-Q, which is on file with the SEC and is incorporated by reference into this prospectus, and (iii) other documents we file with the SEC that are deemed incorporated by reference into this prospectus. These risk factors may be amended, supplemented or superseded from time to time by risk factors contained in other Exchange Act reports that we file with the SEC, which will be subsequently incorporated herein by reference; by any prospectus supplement accompanying this prospectus; or by a post-effective amendment to the registration statement of which this prospectus forms a part. In addition, new risks may emerge at any time and we cannot predict such risks or estimate the extent to which they may affect our financial performance. For more information, see “Where You Can Find More Information,” “Incorporation By Reference” and “Cautionary Statement Regarding Forward-Looking Statements.”

RATIO OF EARNINGS TO FIXED CHARGES AND RATIO OF EARNINGS TO COMBINED FIXED CHARGES AND PREFERRED STOCK DIVIDENDS

The following table sets forth our historical ratio of earnings to fixed charges and ratio of earnings to combined fixed charges and preferred stock dividends for each of the periods indicated. You should read this table in conjunction with our consolidated financial statements and related notes and Management's Discussion and Analysis of Financial Condition and Results of Operations, which are incorporated by reference in this prospectus. For further information, see Exhibit 12.1 (Computation of Ratio of Earnings to Fixed Charges and Ratio of Earnings to Combined Fixed Charges and Preferred Stock Dividends) to the registration statement of which this prospectus forms a part.

	<u>Six Months Ended</u> <u>June 30, 2017</u>	<u>2016</u>	<u>2015</u>	<u>Year Ended</u> <u>December 31,</u>		
				<u>2014</u>	<u>2013</u>	<u>2012</u>
Ratio of earnings (loss) to fixed charges	—	—	—	—	—	—
Ratio of earnings (loss) to combined fixed charges and preferred stock dividends ⁽²⁾	—	—	—	—	—	—

The historical ratios were prepared on a consolidated basis using amounts calculated in accordance with U.S. generally accepted accounting principles, or U.S. GAAP, and, therefore, reflect all consolidated earnings, fixed charges and preferred stock dividends. For purposes of calculating the ratios for the six months ended June 30, 2017 and years ended December 31, 2016, 2015, 2014, 2013 and 2012 above, earnings consist of pre-tax loss from continuing operations before adjustment for loss from equity method investment plus fixed charges. Fixed charges for the six months ended June 30, 2017 and years ended December 31, 2016, 2015, 2014, 2013 and 2012 include interest expense and an estimate of interest expense within rental expense. Preferred stock dividends for the years ended December 31, 2013 and 2012 include the accretion of dividends on our redeemable convertible preferred stock outstanding during those periods. All outstanding shares of redeemable convertible preferred stock along with cumulative dividends that existed prior to our initial public offering in August 2013 were converted into shares of common stock in connection with our initial public offering. As of the date hereof, no shares of preferred stock are outstanding.

We did not record earnings for the six months ended June 30, 2017 and the years ended December 31, 2016, 2015, 2014, 2013 and 2012. Accordingly, during those periods our earnings were insufficient to cover fixed charges in such periods and we are unable to disclose a ratio of earnings to fixed charges for such periods. Due to our losses for the six months ended June 30, 2017 and the years ended December 31, 2016, 2015, 2014, 2013 and 2012, the ratio coverage was less than 1:1. For the six months ended June 30, 2017 and the years ended December 31, 2016, 2015, 2014, 2013 and 2012, we would have needed to generate additional earnings of \$45.1 million, \$173.0 million, \$78.0 million, \$80.5 million, \$40.3 million and \$81.6 million, respectively, to achieve an earnings to fixed charges coverage ratio of 1:1.

During the six months ended June 30, 2017 and the years ended December 31, 2016, 2015, 2014, 2013 and 2012, our earnings were insufficient to cover fixed charges and preferred stock dividends in such periods and we are unable to disclose a ratio of earnings to combined fixed charges and preferred stock dividends for such periods. Due to our losses for the six months ended June 30, 2017 and the years ended December 31, 2016, 2015, 2014, 2013 and 2012, the ratio coverage was less than 1:1. For the six months ended June 30, 2017 and the years ended December 31, 2016, 2015, 2014, 2013 and 2012, we would have needed to generate additional earnings of \$45.1 million, \$173.0 million, \$78.0 million, \$80.5 million, \$58.7 million and \$103.6 million, respectively, to achieve an earnings to combined fixed charges and preferred stock dividends coverage ratio of 1:1. We had no preferred stock outstanding during the six months ended June 30, 2017 and the years ended December 31, 2016, 2015 and 2014.

USE OF PROCEEDS

The securities that may, from time to time, be listed under this prospectus may be sold by us or by selling securityholders

Unless we state otherwise in the accompanying prospectus supplement, we intend to use the net proceeds from the sale of the securities offered by us pursuant to this prospectus for general corporate purposes. General corporate purposes may include additions to working capital, financing of capital expenditures, repayment or redemption of existing indebtedness, and future acquisitions and strategic investment opportunities. We have not determined the amount of net proceeds to be used specifically for such purposes. As a result, management will retain broad discretion over the allocation of net proceeds. Additional information on the use of net proceeds from any sale of securities offered under this prospectus may be set forth in the prospectus supplement or in any related free writing prospectus relating to a specific offering. Pending the application of net proceeds, we expect to invest the net proceeds in investment grade, interest-bearing securities. From time to time, we may engage in additional public or private financings of a character and amount which we may deem appropriate.

We may file prospectus supplements allowing selling securityholders to sell securities received from us in connection with acquisition transactions, private offerings or other transactions. Unless otherwise set forth in a prospectus supplement, we will not receive any proceeds from sales by selling securityholders.

DESCRIPTION OF DEBT SECURITIES

We may offer debt securities which may be senior or subordinated. We refer to the senior debt securities and the subordinated debt securities collectively as debt securities. The following description summarizes the general terms and provisions of the debt securities. We will describe the specific terms of the debt securities and the extent, if any, to which the general provisions summarized below apply to any series of debt securities in the prospectus supplement relating to the series and any applicable free writing prospectus that we authorize to be delivered. When we refer to “the Company,” “we,” “our,” and “us” in this section, we mean Intrexon Corporation, a Virginia corporation, excluding, unless the context otherwise requires or as otherwise expressly stated, our subsidiaries.

We may issue senior debt securities from time to time, in one or more series under a senior indenture to be entered into between us and a senior trustee to be named in a prospectus supplement, which we refer to as the senior trustee. We may issue subordinated debt securities from time to time, in one or more series under a subordinated indenture to be entered into between us and a subordinated trustee to be named in a prospectus supplement, which we refer to as the subordinated trustee. The forms of senior indenture and subordinated indenture are filed as exhibits to the registration statement of which this prospectus forms a part. Together, the senior indenture and the subordinated indenture are referred to as the indentures and, together, the senior trustee and the subordinated trustee are referred to as the trustees. This prospectus briefly outlines some of the provisions of the indentures. The following summary of the material provisions of the indentures is qualified in its entirety by the provisions of the indentures, including definitions of certain terms used in the indentures. Wherever we refer to particular sections or defined terms of the indentures, those sections or defined terms are incorporated by reference in this prospectus or the applicable prospectus supplement. You should review the indentures that are filed as exhibits to the registration statement of which this prospectus forms a part for additional information.

None of the indentures will limit the amount of debt securities that we may issue. The applicable indenture will provide that debt securities may be issued up to an aggregate principal amount authorized from time to time by us and may be payable in any currency or currency unit designated by us or in amounts determined by reference to an index.

General

The senior debt securities will constitute our unsecured and unsubordinated general obligations and will rank *pari passu* with our other unsecured and unsubordinated obligations. The subordinated debt securities will constitute our unsecured and subordinated general obligations and will be junior in right of payment to our senior indebtedness (including senior debt securities), as described under the heading “—Certain Terms of the Subordinated Debt Securities—Subordination.”

The debt securities will be our unsecured obligations. Any secured debt or other secured obligations will be effectively senior to the debt securities of any series to the extent of the value of the assets securing such debt or other obligations.

The applicable prospectus supplement and/or free writing prospectus will include any additional or different terms of the debt securities being offered, including the following terms:

- the title and type of the debt securities;
- whether the debt securities will be senior or subordinated debt securities, and, with respect to debt securities issued under the subordinated indenture, the terms on which they are subordinated;
- the aggregate principal amount of the debt securities;
- the price or prices at which we will sell the debt securities;
- the maturity date or dates of the debt securities and the right, if any, to extend such date or dates;

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- the rate or rates, if any, per year, at which the debt securities will bear interest, or the method of determining such rate or rates;
- the date or dates from which such interest will accrue, the interest payment dates on which such interest will be payable or the manner of determination of such interest payment dates and the related record dates;
- the right, if any, to extend the interest payment periods and the duration of that extension;
- the manner of paying principal and interest and the place or places where principal and interest will be payable;
- provisions for a sinking fund, purchase fund or other analogous fund, if any;
- any redemption dates, prices, obligations and restrictions on the debt securities;
- the currency, currencies or currency units in which the debt securities will be denominated and the currency, currencies or currency units in which principal and interest, if any, on the debt securities may be payable;
- any conversion or exchange features of the debt securities;
- whether and upon what terms the debt securities may be defeased;
- any events of default or covenants in addition to or in lieu of those set forth in the indenture;
- whether the debt securities will be issued in definitive or global form or in definitive form only upon satisfaction of certain conditions;
- whether the debt securities will be guaranteed as to payment or performance;
- any special tax implications of the debt securities; and
- any other material terms of the debt securities.

When we refer to “principal” in this section with reference to the debt securities, we are also referring to “premium, if any.”

We may from time to time, without notice to or the consent of the holders of any series of debt securities, create and issue further debt securities of any such series ranking equally with the debt securities of such series in all respects (or in all respects other than (1) the payment of interest accruing prior to the issue date of such further debt securities or (2) the first payment of interest following the issue date of such further debt securities). Such further debt securities may be consolidated and form a single series with the debt securities of such series and have the same terms as to status, redemption or otherwise as the debt securities of such series.

A holder may present debt securities for exchange and may present debt securities for transfer in the manner, at the places and subject to the restrictions set forth in the debt securities and the applicable prospectus supplement. We will provide those services to the holders without charge, although the holder may have to pay any tax or other governmental charge payable in connection with any exchange or transfer, as set forth in the indenture.

Debt securities may bear interest at a fixed rate or a floating rate. Debt securities bearing no interest or interest at a rate that at the time of issuance is below the prevailing market rate (original issue discount securities) may be sold at a discount below their stated principal amount. U.S. federal income tax considerations applicable to any such discounted debt securities or to certain debt securities issued at par that are treated as having been issued at a discount for U.S. federal income tax purposes will be described in the applicable prospectus supplement.

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We may issue debt securities with the principal amount payable on any principal payment date, or the amount of interest payable on any interest payment date, to be determined by reference to one or more currency exchange rates, securities or baskets of securities, commodity prices or indices. The holder may receive a payment of principal on any principal payment date, or a payment of interest on any interest payment date, that is greater than or less than the amount of principal or interest otherwise payable on such dates, depending on the value on such dates of the applicable currency, security or basket of securities, commodity or index. Information as to the methods for determining the amount of principal or interest payable on any date, the currencies, securities or baskets of securities, commodities or indices to which the amount payable on such date is linked and certain related tax considerations will be set forth in the applicable prospectus supplement.

Certain Terms of the Senior Debt Securities

Covenants. Unless we indicate otherwise in a prospectus supplement, the senior debt securities will not contain any financial or restrictive covenants, including covenants restricting either us or any of our subsidiaries from incurring, issuing, assuming or guaranteeing any indebtedness secured by a lien on any of our or our subsidiaries' property or capital stock, or restricting either us or any of our subsidiaries from entering into sale and leaseback transactions.

Consolidation, Merger and Sale of Assets. Unless we indicate otherwise in a prospectus supplement, we may not consolidate with or merge into any other person in a transaction in which we are not the surviving corporation, or convey, transfer or lease our properties and assets substantially as an entirety to any person, in either case, unless:

- the successor entity, if any, is a U.S. corporation, limited liability company, partnership or trust (subject to certain exceptions provided for in the senior indenture);
- the successor entity assumes our obligations on the senior debt securities and under the senior indenture;
- immediately after giving effect to the transaction, no default or event of default shall have occurred and be continuing; and
- certain other conditions are met.

No Protection in the Event of a Change in Control. Unless we indicate otherwise in a prospectus supplement with respect to a particular series of senior debt securities, the senior debt securities will not contain any provisions that may afford holders of the senior debt securities protection in the event we have a change in control or in the event of a highly leveraged transaction (whether or not such transaction results in a change in control).

Events of Default. The following are events of default under the senior indenture for any series of senior debt securities:

- failure to pay interest on any senior debt securities of such series when due and payable, if that default continues for a period of 90 days (or such other period as may be specified for such series);
- failure to pay principal on the senior debt securities of such series when due and payable whether at maturity, upon redemption, by declaration or otherwise (and, if specified for such series, the continuance of such failure for a specified period);
- default in the performance of or breach of any of our covenants or agreements in the senior indenture applicable to senior debt securities of such series, other than a covenant breach which is specifically dealt with elsewhere in the senior indenture, and that default or breach continues for a period of 90 days after we receive written notice from the trustee or from the holders of 25% or more in aggregate principal amount of the senior debt securities of such series;

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- certain events of bankruptcy or insolvency, whether or not voluntary; and
- any other event of default provided for in such series of senior debt securities as may be specified in the applicable prospectus supplement.

The default by us under any other debt, including any other series of debt securities, is not a default under the senior indenture.

If an event of default other than an event of default specified in the fourth bullet point immediately above occurs with respect to a series of senior debt securities and is continuing under the senior indenture, then, and in each such case, either the trustee or the holders of not less than 25% in aggregate principal amount of such series then outstanding under the senior indenture (each such series voting as a separate class) by written notice to us and to the trustee, if such notice is given by the holders, may, and the trustee at the request of such holders shall, declare the principal amount of and accrued interest on such series of senior debt securities to be immediately due and payable, and upon this declaration, the same shall become immediately due and payable.

If an event of default specified in the fourth bullet point immediately above occurs and is continuing, the entire principal amount of and accrued interest on each series of senior debt securities then outstanding shall become immediately due and payable.

Unless otherwise specified in the prospectus supplement relating to a series of senior debt securities originally issued at a discount, the amount due upon acceleration shall include only the original issue price of the senior debt securities, the amount of original issue discount accrued to the date of acceleration and accrued interest, if any.

Upon certain conditions, declarations of acceleration may be rescinded and annulled and past defaults may be waived by the holders of a majority in aggregate principal amount of all the senior debt securities of such series affected by the default, each series voting as a separate class. Furthermore, prior to a declaration of acceleration and subject to various provisions in the senior indenture, the holders of a majority in aggregate principal amount of a series of senior debt securities, by notice to the trustee, may waive an existing default or event of default with respect to such senior debt securities and its consequences, except a default in the payment of principal of or interest on such senior debt securities or in respect of a covenant or provision of the senior indenture which cannot be modified or amended without the consent of the holders of each such senior debt security. Upon any such waiver, such default shall cease to exist, and any event of default with respect to such senior debt securities shall be deemed to have been cured, for every purpose of the senior indenture; but no such waiver shall extend to any subsequent or other default or event of default or impair any right consequent thereto.

The holders of a majority in aggregate principal amount of a series of senior debt securities may direct the time, method and place of conducting any proceeding for any remedy available to the trustee or exercising any trust or power conferred on the trustee with respect to such senior debt securities. However, the trustee may refuse to follow any direction that conflicts with law or the senior indenture, that may involve the trustee in personal liability or that the trustee determines in good faith may be unduly prejudicial to the rights of holders of such series of senior debt securities not joining in the giving of such direction and may take any other action it deems proper that is not inconsistent with any such direction received from holders of such series of senior debt securities. A holder may not pursue any remedy with respect to the senior indenture or any series of senior debt securities unless:

- the holder gives the trustee written notice of a continuing event of default;
- the holders of at least 25% in aggregate principal amount of such series of senior debt securities make a written request to the trustee to pursue the remedy in respect of such event of default;
- the requesting holder or holders offer the trustee indemnity satisfactory to the trustee against any costs, liability or expense;

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- the trustee does not comply with the request within 60 days after receipt of the request and the offer of indemnity; and
- during such 60-day period, the holders of a majority in aggregate principal amount of such series of senior debt securities do not give the trustee a direction that is inconsistent with the request.

These limitations, however, do not apply to the right of any holder of a senior debt security to receive payment of the principal of and interest on such senior debt security in accordance with the terms of such debt security, or to bring suit for the enforcement of any such payment in accordance with the terms of such debt security, on or after the due date for the senior debt securities, which right shall not be impaired or affected without the consent of the holder.

The senior indenture requires certain of our officers to certify, on or before a fixed date in each year in which any senior debt security is outstanding, as to their knowledge of our compliance with all covenants, agreements and conditions under the senior indenture.

Satisfaction and Discharge. We can satisfy and discharge our obligations to holders of any series of debt securities if:

- we pay or cause to be paid, as and when due and payable, the principal of and any interest on all senior debt securities of such series outstanding under the senior indenture; or
- all senior debt securities of such series have become due and payable or will become due and payable within one year (or are to be called for redemption within one year) and we deposit in trust a combination of cash and U.S. government or U.S. government agency obligations that will generate enough cash to make interest, principal and any other payments on the debt securities of that series on their various due dates.

Under current U.S. federal income tax law, the deposit and our legal release from the debt securities would be treated as though we took back the debt securities and gave the holder their share of the cash and debt securities or bonds deposited in trust. In that event, the holder could recognize gain or loss on the debt securities such holder gives back to us. Purchasers of the debt securities should consult their own advisers with respect to the tax consequences to them of such deposit and discharge, including the applicability and effect of tax laws other than the U.S. federal income tax law.

Defeasance. Unless the applicable prospectus supplement provides otherwise, the following discussion of legal defeasance and discharge and covenant defeasance will apply to any series of debt securities issued under the indentures.

Legal Defeasance. We can legally release ourselves from any payment or other obligations on the debt securities of any series (called “legal defeasance”) if certain conditions are met, including the following:

- We deposit in trust for the benefit of all direct holders of the debt securities of the same series a combination of cash and U.S. government or U.S. government agency obligations that will generate enough cash to make interest, principal and any other payments on the debt securities of that series on their various due dates.
- There is a change in current U.S. federal income tax law or an IRS ruling that lets us make the above deposit without causing the holder to be taxed on the debt securities any differently than if we did not make the deposit and instead repaid the debt securities ourselves when due. Under current U.S. federal income tax law, the deposit and our legal release from the debt securities would be treated as though we took back the debt securities and gave the holder their share of the cash and debt securities or bonds deposited in trust. In that event, the holder could recognize gain or loss on the debt securities such holder gives back to us.

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- We deliver to the trustee a legal opinion of our counsel confirming the tax law change or ruling described above.

If we ever did accomplish legal defeasance, as described above, holders would have to rely solely on the trust deposit for repayment of the debt securities. The holders could not look to us for repayment in the event of any shortfall.

Covenant Defeasance. Without any change of current U.S. federal tax law, we can make the same type of deposit described above and be released from some of the covenants in the debt securities (called “covenant defeasance”). In that event, the holder would lose the protection of those covenants but would gain the protection of having money and securities set aside in trust to repay the debt securities. In order to achieve covenant defeasance, we must do the following (among other things):

- We must deposit in trust for the benefit of all direct holders of the debt securities of the same series a combination of cash and U.S. government or U.S. government agency obligations that will generate enough cash to make interest, principal and any other payments on the debt securities of that series on their various due dates.
- We must deliver to the trustee a legal opinion of our counsel confirming that under current U.S. federal income tax law we may make the above deposit without causing the holders to be taxed on the debt securities any differently than if we did not make the deposit and instead repaid the debt securities ourselves when due.

If we accomplish covenant defeasance, the holders can still look to us for repayment of the debt securities if there were a shortfall in the trust deposit. In fact, if one of the Events of Default occurred (such as our bankruptcy) and the debt securities become immediately due and payable, there may be such a shortfall. Depending on the events causing the default, the holders may not be able to obtain payment of the shortfall.

Modification and Waiver. We and the trustee may amend or supplement the senior indenture or the senior debt securities without the consent of any holder:

- to convey, transfer, assign, mortgage or pledge any assets as security for the senior debt securities of one or more series;
- to evidence the succession of a corporation, limited liability company, partnership or trust to us, and the assumption by such successor of our covenants, agreements and obligations under the senior indenture;
- to add to our covenants such new covenants, restrictions, conditions or provisions for the protection of the holders, and to make the occurrence, or the occurrence and continuance, of a default in any such additional covenants, restrictions, conditions or provisions an event of default;
- to cure any ambiguity, defect or inconsistency in the senior indenture or in any supplemental indenture or to conform the senior indenture or the senior debt securities to the description of senior debt securities of such series set forth in this prospectus or any applicable prospectus supplement;
- to provide for or add guarantors with respect to the senior debt securities of any series;
- to establish the form or forms or terms of the senior debt securities as permitted by the senior indenture;
- to evidence and provide for the acceptance of appointment under the senior indenture by a successor trustee, or to make such changes as shall be necessary to provide for or facilitate the administration of the trusts in the senior indenture by more than one trustee;
- to add to, delete from or revise the conditions, limitations and restrictions on the authorized amount, terms, purposes of issue, authentication and delivery of any series of senior debt securities;

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- to make any change to the senior debt securities of any series so long as no senior debt securities of such series are outstanding; or
- to make any change that does not adversely affect the rights of any holder in any material respect.

Other amendments and modifications of the senior indenture or the senior debt securities issued may be made, and our compliance with any provision of the senior indenture with respect to any series of senior debt securities may be waived, with the consent of the holders of a majority of the aggregate principal amount of the outstanding senior debt securities of all series affected by the amendment or modification (voting together as a single class); provided, however, that each affected holder must consent to any modification, amendment or waiver that:

- extends the final maturity of any senior debt securities of such series;
- reduces the principal amount of any senior debt securities of such series;
- reduces the rate or extends the time of payment of interest on any senior debt securities of such series;
- reduces the amount payable upon the redemption of any senior debt securities of such series;
- changes the currency of payment of principal of or interest on any senior debt securities of such series;
- reduces the principal amount of original issue discount securities payable upon acceleration of maturity or the amount provable in bankruptcy;
- waives a default in the payment of principal of or interest on the senior debt securities;
- changes the provisions relating to the waiver of past defaults or changes or impairs the right of holders to receive payment or to institute suit for the enforcement of any payment or conversion of any senior debt securities of such series on or after the due date therefor;
- modifies any of the provisions of these restrictions on amendments and modifications, except to increase any required percentage or to provide that certain other provisions cannot be modified or waived without the consent of the holder of each senior debt security of such series affected by the modification; or
- reduces the above-stated percentage of outstanding senior debt securities of such series whose holders must consent to a supplemental indenture or to modify or amend or to waive certain provisions of or defaults under the senior indenture.

It shall not be necessary for the holders to approve the particular form of any proposed amendment, supplement or waiver, but it shall be sufficient if the holders' consent approves the substance thereof. After an amendment, supplement or waiver of the senior indenture in accordance with the provisions described in this section becomes effective, the trustee must give to the holders affected thereby certain notice briefly describing the amendment, supplement or waiver. Any failure by the trustee to give such notice, or any defect therein, shall not, however, in any way impair or affect the validity of any such amendment, supplemental indenture or waiver.

No Personal Liability of Incorporators, Shareholders, Officers, Directors. The senior indenture provides that no recourse shall be had under any obligation, covenant or agreement of ours in the senior indenture or any supplemental indenture, or in any of the senior debt securities or because of the creation of any indebtedness represented thereby, against any of our incorporators, shareholders, officers or directors, past, present or future, or of any predecessor or successor entity thereof under any law, statute or constitutional provision or by the enforcement of any assessment or by any legal or equitable proceeding or otherwise. Each holder, by accepting the senior debt securities, waives and releases all such liability.

Concerning the Trustee. The senior indenture provides that, except during the continuance of an event of default, the trustee will not be liable except for the performance of such duties as are specifically set forth in the

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senior indenture. If an event of default has occurred and is continuing, the trustee will exercise such rights and powers vested in it under the senior indenture and will use the same degree of care and skill in its exercise as a prudent person would exercise under the circumstances in the conduct of such person's own affairs.

The senior indenture and the provisions of the Trust Indenture Act of 1939 incorporated by reference therein contain limitations on the rights of the trustee thereunder, should it become a creditor of ours or any of our subsidiaries, to obtain payment of claims in certain cases or to realize on certain property received by it in respect of any such claims, as security or otherwise. The trustee is permitted to engage in other transactions, provided that if it acquires any conflicting interest (as defined in the Trust Indenture Act), it must eliminate such conflict or resign.

We may have normal banking relationships with the senior trustee in the ordinary course of business.

Unclaimed Funds. All funds deposited with the trustee or any paying agent for the payment of principal, premium, interest or additional amounts in respect of the senior debt securities that remain unclaimed for two years after the date upon which such principal, premium or interest became due and payable will be repaid to us. Thereafter, any right of any holder of senior debt securities to such funds shall be enforceable only against us, and the trustee and paying agents will have no liability therefor.

Governing Law. The senior indenture and the senior debt securities will be governed by, and construed in accordance with, the internal laws of the State of New York.

Certain Terms of the Subordinated Debt Securities

Other than the terms of the subordinated indenture and subordinated debt securities relating to subordination or otherwise as described in the prospectus supplement relating to a particular series of subordinated debt securities, the terms of the subordinated indenture and subordinated debt securities are identical in all material respects to the terms of the senior indenture and senior debt securities.

Additional or different subordination terms may be specified in the prospectus supplement applicable to a particular series.

Subordination. The indebtedness evidenced by the subordinated debt securities is subordinate to the prior payment in full of all of our senior indebtedness, as defined in the subordinated indenture.

During the continuance beyond any applicable grace period of any default in the payment of principal, premium, interest or any other payment due on any of our senior indebtedness, we may not make any payment of principal or interest on the subordinated debt securities (except for certain sinking fund payments). In addition, upon any payment or distribution of our assets upon any dissolution, winding-up, liquidation or reorganization, the payment of the principal or interest on the subordinated debt securities will be subordinated to the extent provided in the subordinated indenture in right of payment to the prior payment in full of all our senior indebtedness. Because of this subordination, if we dissolve or otherwise liquidate, holders of our subordinated debt securities may receive less, ratably, than holders of our senior indebtedness. The subordination provisions do not prevent the occurrence of an event of default under the subordinated indenture.

The term "senior indebtedness" of a person means with respect to such person the principal of, premium, if any, interest on, and any other payment due pursuant to any of the following, whether outstanding on the date of the subordinated indenture or incurred by that person in the future:

- all of the indebtedness of that person for money borrowed;
- all of the indebtedness of that person evidenced by notes, debentures, bonds or other securities sold by that person for money;

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- all of the lease obligations that are capitalized on the books of that person in accordance with generally accepted accounting principles;
- all indebtedness of others of the kinds described in the first two bullet points immediately above and all lease obligations of others of the kind described in the third bullet point immediately above that the person, in any manner, assumes or guarantees or that the person in effect guarantees through an agreement to purchase, whether that agreement is contingent or otherwise; and
- all renewals, extensions or refundings of indebtedness of the kinds described in the first, second or fourth bullet points immediately above and all renewals or extensions of leases of the kinds described in the third or fourth bullet points immediately above;

unless, in the case of any particular indebtedness, renewal, extension or refunding, the instrument creating or evidencing it or the assumption or guarantee relating to it expressly provides that such indebtedness, renewal, extension or refunding is not superior in right of payment to the subordinated debt securities. Our senior debt securities constitute senior indebtedness for purposes of the subordinated debt indenture.

DESCRIPTION OF CAPITAL STOCK

The following description summarizes information about our capital stock. This information does not purport to be complete and is subject to, and qualified in its entirety by reference to, the terms of our amended and restated articles of incorporation and amended and restated bylaws, which are included as exhibits to the registration statement of which this prospectus forms a part, and the applicable provisions of Virginia law, the state in which we are incorporated.

As of August 25, 2017, our authorized capital stock consisted of 200,000,000 shares of common stock, no par value per share, and 25,000,000 shares of preferred stock, no par value per share.

As of August 25, 2017, there were 120,519,449 shares of common stock outstanding and held of record by approximately 326 shareholders. The actual number of shareholders is greater than this number of record holders and includes shareholders who are beneficial owners but whose shares are held in street name by brokers and other nominees. This number of holders of record also does not include shareholders whose shares may be held in trust by other entities. All outstanding shares of common stock are fully paid and nonassessable. There are no shares of preferred stock outstanding.

Common Stock

Shares of our common stock have the following rights, preferences and privileges:

Voting rights

Each outstanding share of common stock is entitled to one vote on all matters submitted to a vote of our shareholders, including the election of directors. Holders of our common stock do not have cumulative voting rights in the election of directors, and therefore the holders of a plurality of the shares of common stock voting for the election of directors may elect all of our directors standing for election.

Dividends

Holders of common stock are entitled to receive dividends if and when dividends are declared by our board of directors out of assets legally available for the payment of dividends, subject to preferential rights of outstanding shares of preferred stock, if any.

Liquidation

In the event of a liquidation, dissolution or winding up of the affairs of our Company, whether voluntary or involuntary, after payment of our debts and other liabilities and making provision for the holders of outstanding shares of preferred stock, if any, we will distribute the remainder of our assets ratably among the holders of shares of common stock.

Rights and preferences

The common stock has no preemptive, redemption, conversion or subscription rights. The rights, powers, preferences and privileges of holders of common stock are subject to, and may be impaired by, the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future.

Stock options

As of August 25, 2017, options to purchase 12,662,918 shares of our common stock were outstanding, of which options to purchase 4,950,372 shares of our common stock were exercisable.

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Warrants

As of August 25, 2017, we had outstanding warrants to purchase shares of our common stock that will be exercisable for an aggregate of 133,264 shares of our common stock. Each of these warrants was and remains exercisable in full.

Registration Rights

We have entered into an investors' rights agreement with certain of our shareholders who will have the right to require us to register their shares under the Securities Act under specified circumstances and will have incidental registration rights as described below. After registration pursuant to these rights, these shares will become freely tradable without restriction under the Securities Act.

Demand registration rights

Certain holders, or Demand Holders, have demand registration rights. Beginning on February 4, 2014, subject to specified limitations set forth in the investor rights agreement, at any time the Demand Holders who are holders of at least 75 percent of the then-outstanding registrable securities, as defined in the investor rights agreement, of all Demand Holders as a class, acting together, may demand in writing that we register their registrable securities under the Securities Act. We are not obligated to file a registration statement pursuant to this demand provision on more than two occasions, subject to specified exceptions.

In addition, subject to specified limitations, the holders of registrable securities may demand in writing that we register on Form S-3 the registrable securities held by them so long as the total amount of registrable securities being registered has an aggregate offering price of at least \$500,000. We are not obligated to file a Form S-3 pursuant to this provision within 12 months of the effective date of any other Form S-3 registration statement that we may file.

In addition, certain holders who entered into securities purchase agreements with us on March 26, 2014, or March 2014 Investors, have demand registration rights. Any March 2014 Investor who purchased at least \$10.0 million of our common stock in the March 2014 private placement has the right to require us to register such shares of our common stock on a registration statement on Form S-3, if available for use.

Incidental registration rights

If we propose to file a registration statement to register any of our securities under the Securities Act for our own account, other than pursuant to a Form S-4 or Form S-8, the holders of our registrable securities are entitled to notice of registration and, subject to specified exceptions, we will be required to register the registrable securities then held by them that they request that we register. The holders of these registrable securities may be deemed to have such rights with respect to offerings under any prospectus supplement.

Expenses

Pursuant to the investor rights agreement, we are required to pay all registration expenses, including all registration, filing and qualification fees, printers' and accounting fees, fees and expenses incurred in connection with complying with state securities or "blue sky" laws, fees and expenses of listing registrable securities on any securities exchange on which shares of our common stock are then listed, fees and disbursements of our counsel, but excluding any underwriting discounts and commissions, related to any demand or incidental registration. The investor rights agreement contains customary cross-indemnification provisions, pursuant to which we are obligated to indemnify the selling shareholders in the event of material misstatements or omissions in the registration statement attributable to us, and they are obligated to indemnify us for material misstatements or omissions in the registration statement attributable to them.

Preferred Stock

As of August 25, 2017, we have no shares of preferred stock issued or outstanding. Our amended and restated articles of incorporation authorize our board to designate and issue from time to time one or more series of preferred stock without shareholder approval. Our board may fix and determine the preferences, limitations and relative rights of each series of preferred stock issued. Because our board has the power to establish the preferences and rights of each series of preferred stock, it may afford the holders of any series of preferred stock preferences and rights, voting or otherwise, senior to the rights of holders of our common stock. It is not possible to state the actual effect of the issuance of any shares of preferred stock upon the rights of holders of common stock until our board determines the specific rights of the holders of preferred stock. However, the effects might include:

- restricting dividends on our common stock;
- diluting the voting power of our common stock;
- impairing liquidation rights of our common stock; or
- delaying or preventing a change in control of us without further action by our shareholders.

We have no present plans to issue any shares of preferred stock.

Anti-takeover Effects of Provisions of our Charter and Bylaws and of Virginia Law

Our amended and restated articles of incorporation, bylaws and Virginia law contain provisions that may have the effect of impeding the acquisition of control of us by means of a tender offer, a proxy contest, open market purchases or otherwise in a transaction not approved by our board of directors. These provisions are designed to reduce, or have the effect of reducing, our vulnerability to coercive takeover practices and inadequate takeover bids. The existence of these provisions could limit the price that investors might otherwise pay in the future for shares of common stock. In addition, these provisions make it more difficult for our shareholders to remove our board of directors or management, should they choose to do so.

Articles of Incorporation and Bylaws

Preferred stock

Our amended and restated articles of incorporation authorize our board to establish one or more series of preferred stock and to determine, with respect to any series of preferred stock, the preferences, rights and other terms of such series. See “Preferred stock” above for additional information. Under this authority, our board could create and issue a series of preferred stock with rights, preferences or restrictions that have the effect of discriminating against an existing or prospective holder of our capital stock as a result of such holder beneficially owning or commencing a tender offer for a substantial amount of our common stock. One of the effects of authorized but unissued and unreserved shares of preferred stock may be to render it more difficult for, or to discourage an attempt by, a potential acquiror to obtain control of us by means of a merger, tender offer, proxy contest or otherwise, and thereby protect the continuity of our management. The issuance of shares of preferred stock may have the effect of delaying, deferring or preventing a change in control of our Company without any action by our shareholders.

Qualification and election of directors

Our bylaws provide that to be eligible to be a nominee for election to our board of directors, a person must submit a written questionnaire regarding his or her background and qualifications and must agree to other representations as set forth in our bylaws. In addition, we have adopted a director resignation policy. Our bylaws provide that, in uncontested director elections (i.e., an election where the number of nominees is not greater than the number of directors to be elected), a nominee for director will be elected to the board of directors if the votes

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cast for such nominee's election exceed the votes cast against such nominee's election. However, directors will be elected by a plurality of the votes cast at any meeting of the shareholders for which (i) the Secretary receives a notice that a shareholder has nominated a person for election to the board of directors in compliance with the advance notice requirements for shareholder nominees for director set forth in the bylaws, and (ii) such nomination has not been withdrawn by such shareholder on or prior to the 10th day preceding the date we first mail the notice of meeting for such meeting to the shareholders (i.e., if there is a contested director election). If directors are to be elected by a plurality of the votes cast, the shareholders may withhold votes, but will not be permitted to vote against a nominee. Our Corporate Governance Guidelines provide that any nominee for director in an uncontested election who receives a greater number of shareholder votes cast "against" his or her election than votes "for" his or her election must promptly tender his or her resignation to the board of directors for consideration. The Nominating and Governance Committee will then evaluate the best interests of the company and will recommend to the board of directors whether to accept or reject the tendered resignation. Following the board of directors' receipt of this recommendation and determination as to whether to accept the resignation, we will disclose the board of directors' decision and an explanation of how the decision was reached.

Board vacancies; removal

Our amended and restated articles of incorporation provide that any vacancy occurring on our board of directors may be filled by a majority of directors then in office, even if less than a quorum.

Special meetings of shareholders

Our bylaws provide that a special meeting may be called by a vote of 25 percent of shareholders, and that shareholders may only conduct business at special meetings of shareholders that was specified in the notice of the meeting.

Advance notification of shareholder nominations and proposals

Our bylaws establish advance notice procedures with respect to shareholder proposals and the nomination of persons for election as directors, other than nominations made by or at the direction of our board.

Exclusive forum provision

Our bylaws provide that unless we consent in writing to the selection of an alternative forum, the United States District Court for the Eastern District of Virginia, Alexandria Division, or in the event that court lacks subject matter jurisdiction to hear such action, the Circuit Court of the County of Fairfax, Virginia, will be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action for breach of duty to the Company or our shareholders by any current or former officer or other employee or agent or director of the Company, (iii) any action against the Company or any current or former officer or other employee or agent or director of the Company arising pursuant to any provision of the Virginia Stock Corporation Act (as it may be amended from time to time) or our articles of incorporation or our bylaws (as either may be amended from time to time), or (iv) any action against the Company or any current or former officer or other employee or agent or director of the Company governed by the internal affairs doctrine. Any person or entity purchasing or otherwise acquiring or holding any interest in shares of our capital stock shall be deemed to have notice of and consented to the forum provisions in our amended and restated bylaws. It is possible that a court of law could rule that the choice of forum provision contained in our bylaws is inapplicable or unenforceable if it is challenged in a proceeding or otherwise.

Virginia Anti-takeover Statutes

Affiliated transactions statute

Virginia law contains provisions governing affiliated transactions. In general, these provisions prohibit a Virginia corporation from engaging in affiliated transactions with any holder of more than 10 percent of any

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class of its outstanding voting shares, or an interested shareholder, for a period of three years following the date that such person became an interested shareholder unless:

- a majority of (but not fewer than two) disinterested directors of the corporation and the holders of two-thirds of the voting shares, other than the shares beneficially owned by the interested shareholder, approve the affiliated transaction; or
- before or on the date the person became an interested shareholder, a majority of disinterested directors approved the transaction that resulted in the shareholder becoming an interested shareholder.

Affiliated transactions subject to this approval requirement include mergers, share exchanges, material dispositions of corporate assets not in the ordinary course of business, any dissolution of the corporation proposed by or on behalf of an interested shareholder or any reclassification, including reverse stock splits, recapitalizations or mergers of the corporation with its subsidiaries, which increases the percentage of voting shares owned beneficially by an interested shareholder by more than five percent.

Virginia law permits a corporation to exempt itself from this statutory provision by placing a statement to that effect in its articles of incorporation. Our amended and restated articles of incorporation do not specifically address the Virginia statute regarding affiliated transactions; therefore, we are subject to this provision.

Control share acquisitions statute

Virginia law also contains provisions relating to control share acquisitions, which are transactions causing the voting strength of any person acquiring beneficial ownership of shares of a Virginia public corporation to meet or exceed certain threshold percentages (20 percent, 33 1/3 percent or 50 percent) of the total votes entitled to be cast for the election of directors. Shares acquired in a control share acquisition have no voting rights unless:

- the voting rights are granted by a majority vote of all outstanding shares entitled to vote in the election of directors, other than those held by the acquiring person or any officer or employee director of the corporation; or
- the articles of incorporation or bylaws of the corporation provide that these Virginia law provisions do not apply to acquisitions of its shares.

The acquiring person may require that a special meeting of the shareholders be held within 50 days of the corporation's receipt of the acquiring person's request to consider the grant of voting rights to the shares acquired in the control share acquisition. If voting rights are not granted and the corporation's articles of incorporation or bylaws permit, the acquiring person's shares may be repurchased by the corporation, at its option, at a price per share equal to the acquiring person's cost. Virginia law grants dissenters' rights to any shareholder who objects to a control share acquisition that is approved by a vote of disinterested shareholders and that gives the acquiring person control of a majority of the corporation's voting shares.

Our amended and restated articles of incorporation provide that this second statutory provision does not apply to our Company; therefore, we are not subject to this provision.

Indemnification and Limitation of Directors' and Officers' Liability

The Virginia Stock Corporation Act and our amended and restated articles of incorporation provide for indemnification of our directors and officers in a variety of circumstances, which may include liabilities under the Securities Act. Virginia law provides that, unless limited by its articles of incorporation, a corporation must indemnify a director or officer who entirely prevails in the defense of any proceeding to which he was a party because he is or was a director or officer of the corporation against reasonable expenses incurred by him in connection with the proceeding. Virginia law permits a corporation to indemnify, after a determination has been made that indemnification of the director is permissible in the circumstances because he has met the following

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standard of conduct, an individual made a party to a proceeding because he is or was a director against liability incurred in the proceeding if:

- he conducted himself in good faith;
- he believed in the case of conduct in his official capacity with the corporation, that his conduct was in its best interests and in all other cases that his conduct was at least not opposed to its best interests; and
- in the case of any criminal proceeding, he had no reasonable cause to believe his conduct was unlawful.

A Virginia corporation may not indemnify a director in connection with a proceeding by or in the right of the corporation in which the director was adjudged liable to the corporation or in connection with any other proceeding charging improper personal benefit to him, whether or not involving action in his official capacity, in which he was adjudged liable on the basis that personal benefit was improperly received by him, unless in either case a court orders indemnification and then only for expenses. In addition, the Virginia Stock Corporation Act permits a corporation to advance reasonable expenses to a director or officer upon the corporation's receipt of a written undertaking by the director or on the director's behalf to repay the amount paid or reimbursed by the corporation if it is ultimately determined that the director is not entitled to indemnification and did not meet the relevant standard of conduct.

In addition, Virginia law permits a corporation to make any further indemnity, including indemnity with respect to a proceeding by or in the right of the corporation, and to make additional provision for advances and reimbursement of expenses, to any director or officer that may be authorized by the articles of incorporation or any bylaw made by the shareholders or any resolution adopted by the shareholders, except an indemnity against his willful misconduct or a knowing violation of the criminal law.

In addition, the Virginia Stock Corporation Act permits a Virginia corporation to limit the personal liability of an officer or director in any proceeding brought by or in the name of the corporation or its shareholders, except if the director or officer engaged in willful misconduct or a knowing violation of the criminal law or any federal or state securities laws, including insider trading or market manipulation.

Our amended and restated articles of incorporation require indemnification of directors and officers with respect to certain liabilities, expenses, and other amounts imposed on them by reason of having been a director or officer, except in the case of willful misconduct or a knowing violation of criminal law. Our amended and restated articles of incorporation also limit the liability of our officers and directors to the extent not prohibited by Virginia law. We also carry insurance on behalf of directors, officers, employees or agents which may cover liabilities under the Securities Act.

Listing on the New York Stock Exchange

Our common stock is listed on the New York Stock Exchange under the symbol "XON."

Authorized but Unissued Shares

The authorized but unissued shares of common stock and preferred stock are available for future issuance without shareholder approval, subject to any limitations imposed by the New York Stock Exchange listing rules. These additional shares may be used for a variety of corporate finance transactions, acquisitions and employee benefit plans. The existence of authorized but unissued and unreserved common stock and preferred stock could make it more difficult or discourage an attempt to obtain control of us by means of a proxy contest, tender offer, merger or otherwise.

Transfer Agent and Registrar

The transfer agent and registrar for the common stock is American Stock Transfer & Trust Company, LLC.

DESCRIPTION OF WARRANTS

We may issue warrants to purchase debt securities, preferred stock, common stock or other securities. We may issue warrants independently or together with other securities. Warrants sold with other securities may be attached to or separate from the other securities. We will issue warrants under one or more warrant agreements between us and a warrant agent that we will name in the applicable prospectus supplement. The warrant agent will act solely as our agent in connection with the warrants and will not assume any obligation or relationship of agency or trust for or with any holders or beneficial owners of warrants. Further terms of the warrants and the applicable warrant agreements will be set forth in the applicable prospectus supplement.

The prospectus supplement relating to any warrants we offer will include specific terms relating to the offering. These terms will include some or all of the following:

- the title of the warrants;
- the aggregate number of warrants offered;
- the designation, number and terms of the debt securities, preferred stock, common stock or other securities purchasable upon exercise of the warrants and procedures by which those numbers may be adjusted;
- the exercise price of the warrants;
- the dates or periods during which the warrants are exercisable;
- the designation and terms of any securities with which the warrants are issued;
- if the warrants are issued as a unit with another security, the date on and after which the warrants and the other security will be separately transferable;
- if the exercise price is not payable in United States dollars, the foreign currency, currency unit or composite currency in which the exercise price is denominated;
- any minimum or maximum amount of warrants that may be exercised at any one time;
- any terms relating to the modification of the warrants;
- any terms, procedures and limitations relating to the transferability, exchange or exercise of the warrants; and
- any other specific terms of the warrants.

We and the warrant agent may amend or supplement the warrant agreement for a series of warrants without the consent of the holders of the warrants issued thereunder to effect changes that are not inconsistent with the provisions of the warrants and that do not materially and adversely affect the interests of the holders of the warrants.

The description in the applicable prospectus supplement of any warrants that we may offer will not necessarily be complete and will be qualified in its entirety by reference to the applicable warrant agreement, which will be filed with the SEC.

DESCRIPTION OF RIGHTS

We may issue rights to purchase debt securities, preferred stock, common stock or other securities. These rights may be issued independently or together with any other security offered hereby and may or may not be transferable by the shareholder receiving the rights in such offering. The applicable prospectus supplement may add, update or change the terms and conditions of the rights as described in this prospectus.

The applicable prospectus supplement will describe the specific terms of any offering of rights for which this prospectus is being delivered, including the following:

- the price, if any, per right;
- the exercise price payable for debt securities, preferred stock, common stock, or other securities upon the exercise of the rights;
- the number of rights issued or to be issued to each shareholder;
- the number and terms of debt securities, preferred stock, common stock, or other securities which may be purchased per right;
- the extent to which the rights are transferable;
- any other terms of the rights, including the terms, procedures and limitations relating to the exchange and exercise of the rights;
- the date on which the holder's ability to exercise the rights shall commence, and the date on which the rights shall expire;
- the extent to which the rights may include an over-subscription privilege with respect to unsubscribed securities; and
- if applicable, the material terms of any standby underwriting or purchase arrangement entered into by us in connection with the offering of such rights.

Holders may exercise rights as described in the applicable prospectus supplement. Upon receipt of payment and the rights certificate properly completed and duly executed at the corporate trust office of the rights agent or any other office indicated in the prospectus supplement, we will, as soon as practicable, forward the applicable securities purchased upon exercise of the rights. If less than all of the rights issued in any rights offering are exercised, we may offer any unsubscribed securities directly to persons other than shareholders, to or through agents, underwriters or dealers or through a combination of such methods, including pursuant to standby arrangements with one or more underwriters or other purchasers, pursuant to which the underwriters or other purchasers may be required to purchase any securities remaining unsubscribed for after such offering, as described in the applicable prospectus supplement.

The description in the applicable prospectus supplement of any rights that we may offer will not necessarily be complete and will be qualified in its entirety by reference to the applicable rights certificate, which will be filed with the SEC.

DESCRIPTION OF STOCK PURCHASE CONTRACTS AND STOCK PURCHASE UNITS

We may issue stock purchase contracts, including contracts obligating holders to purchase from or sell to us, and obligating us to sell to or purchase from the holders, a specified number of shares of common stock, preferred stock or other securities at a future date or dates, which we refer to in this prospectus as stock purchase contracts. The price per share of the securities and the number of shares of the securities may be fixed at the time the stock purchase contracts are issued or may be determined by reference to a specific formula set forth in the stock purchase contracts, and may be subject to adjustment under anti-dilution formulas. The stock purchase contracts may be issued separately or as part of units consisting of a stock purchase contract and our debt securities, shares of our common stock or preferred stock, or preferred securities or debt obligations of third parties, including U.S. Treasury securities, any other securities described in the applicable prospectus supplement, or any combination of the foregoing, securing the holder's obligations to purchase shares of our common stock or preferred stock under the stock purchase contracts, which we refer to herein as stock purchase units. The stock purchase units may require holders to secure their obligations under the stock purchase contracts in a specified manner. The stock purchase units also may require us to make periodic payments to the holders of the stock purchase contracts or the stock purchase units, as the case may be, or vice versa, and those payments may be unsecured or pre-funded on some basis.

The applicable prospectus supplement will describe the terms of the stock purchase contracts or stock purchase units. This description is not complete and the description in the prospectus supplement will not necessarily be complete, and reference is made to the stock purchase contracts, and, if applicable, collateral or depositary arrangements relating to the stock purchase contracts or stock purchase units, which will be filed with the SEC each time we issue stock purchase contracts or stock purchase units. If any particular terms of the stock purchase contracts or stock purchase units described in the prospectus supplement differ from any of the terms described herein, then the terms described herein will be deemed superseded by that prospectus supplement. Material United States federal income tax considerations applicable to the stock purchase units and the stock purchase contracts will also be discussed in the applicable prospectus supplement.

SELLING SECURITYHOLDERS

Selling securityholders are persons or entities that, directly or indirectly, have acquired or will from time to time acquire from us our securities. Such selling securityholders may be parties to registration rights agreements with us, or we otherwise may have agreed or will agree to register their securities for resale. The initial purchasers of our securities, as well as their transferees, pledges, donees or successors, all of whom we refer to as “selling securityholders,” may from time to time offer and sell our securities pursuant to this prospectus and any applicable prospectus supplement.

The applicable prospectus supplement or post-effective amendment, or in filings we make with the SEC under the Exchange Act that are incorporated by reference to such registration statement, will set forth the name of each of the selling securityholders and the number of securities beneficially owned by such selling securityholder that are covered by such prospectus supplement. The applicable prospectus supplement will also disclose whether any of the selling securityholders has held any position or office with, has been employed by, or otherwise has had a material relationship with us during the three years prior to the date of the applicable prospectus supplement.

PLAN OF DISTRIBUTION

We and/or any selling securityholder may sell our securities from time to time in one or more transactions. We and/or any selling securityholder may sell our securities to or through agents, underwriters, dealers, remarketing firms or other third parties or directly to one or more purchasers or through a combination of any of these methods. In some cases, we and/or any selling securityholder or dealers acting with us and/or any selling securityholder or on behalf of us and/or any selling securityholder may also purchase our securities and reoffer them to the public. We and/or any selling securityholder may also offer and sell, or agree to deliver, our securities pursuant to, or in connection with, any option agreement or other contractual arrangement. The securities may or may not be listed on a national securities exchange.

Agents whom we designate may solicit offers to purchase our securities.

- We and/or any selling securityholder will name any agent involved in offering or selling our securities, and disclose any commissions that we will pay to the agent, in the applicable prospectus supplement.
- Unless we and/or any selling securityholder indicate otherwise in the applicable prospectus supplement, agents will act on a best efforts basis for the period of their appointment.
- Agents may be deemed to be underwriters under the Securities Act, of any of our securities that they offer or sell.

We and/or any selling securityholder may use an underwriter or underwriters in the offer or sale of our securities.

- If we and/or any selling securityholder use an underwriter or underwriters, we will execute an underwriting agreement with the underwriter or underwriters at the time that we reach an agreement for the sale of our securities.
- We and/or any selling securityholder will include the names of the specific managing underwriter or underwriters, as well as the names of any other underwriters, and the terms of the transactions, including the compensation the underwriters and dealers will receive, in the applicable prospectus supplement.
- The underwriters will use the applicable prospectus supplement, together with the prospectus, to sell our securities.

We may use a dealer to sell our securities.

- If we and/or any selling securityholder use a dealer, we will sell our securities to the dealer, as principal.
- The dealer will then sell our securities to the public at varying prices that the dealer will determine at the time it sells our securities.
- We and/or any selling securityholder will include the name of the dealer and the terms of the transactions with the dealer in the applicable prospectus supplement.

We and/or any selling securityholder may solicit directly offers to purchase our securities, and we may directly sell our securities to institutional or other investors. We and/or any selling securityholder will describe the terms of direct sales in the applicable prospectus supplement.

We and/or any selling securityholder may engage in at-the-market offerings into an existing trading market in accordance with Rule 415(a)(4) of the Securities Act.

We and/or any selling securityholder will indemnify agents, underwriters and dealers against certain liabilities, including liabilities under the Securities Act. Agents, underwriters and dealers, or their affiliates, may be customers of, engage in transactions with or perform services for us or our respective affiliates in the ordinary course of business.

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We and/or any selling securityholder may authorize agents and underwriters to solicit offers by certain institutions to purchase our securities the public offering price under delayed delivery contracts.

- If we and/or any selling securityholder use delayed delivery contracts, we will disclose that we are using them in the prospectus supplement and will tell you when we will demand payment and when delivery of our securities will be made under the delayed delivery contracts.
- These delayed delivery contracts will be subject only to the conditions that we describe in the prospectus supplement.
- We and/or any selling securityholder will describe in the applicable prospectus supplement the commission that underwriters and agents soliciting purchases of our securities under delayed delivery contracts will be entitled to receive.

Unless otherwise specified in connection with a particular underwritten offering of our securities, the underwriters will not be obligated to purchase offered securities unless specified conditions are satisfied, and if the underwriters do purchase any offered securities, they will purchase all offered securities.

In connection with underwritten offerings of the offered securities and in accordance with applicable law and industry practice, the underwriters in certain circumstances are permitted to engage in certain transactions that stabilize the price of our securities. Such transactions consist of bids or purchases for the purpose of pegging, fixing or maintaining the price of our securities. If the underwriters create a short position in our securities in connection with the offering (i.e., if they sell more securities than are set forth on the cover page of the applicable prospectus supplement), the underwriters may reduce that short position by purchasing our securities in the open market or as otherwise provided in the applicable prospectus supplement. The underwriters may also impose a penalty bid, whereby selling concessions allowed to dealers participating in the offering may be reclaimed if the securities sold by them are repurchased in connection with stabilization transactions. In general, purchases of a security for the purpose of stabilization or to reduce a short position could cause the price of the security to be higher than it might be in the absence of such purchases. The imposition of a penalty bid might also have an effect on the price of our securities to the extent that it were to discourage resales of our securities. The underwriters are not required to engage in these activities and may end any of these activities at any time.

We and/or any selling securityholder may effect sales of securities in connection with forward sale, option or other types of agreements with third parties. Any distribution of securities pursuant to any forward sale agreement may be effected from time to time in one or more transactions that may take place through a stock exchange, including block trades or ordinary broker's transactions, or through broker-dealers acting either as principal or agent, or through privately-negotiated transactions, or through an underwritten public offering, or through a combination of any such methods of sale, at market prices prevailing at the time of sale, prices relating to such prevailing market prices or at negotiated or fixed prices.

The specific terms of the lock-up provisions, if any, in respect of any given offering will be described in the applicable prospectus supplement.

LEGAL MATTERS

The validity of the securities being offered by this prospectus will be passed upon by Troutman Sanders LLP, Richmond, Virginia.

EXPERTS

The consolidated financial statements of Intrexon Corporation and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Report on Internal Control over Financial Reporting) incorporated in this prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2016 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

The financial statements of ZIOPHARM Oncology, Inc. as of December 31, 2015 and 2014 and for each of the years in the two-year period ended December 31, 2015, incorporated in this Prospectus by reference from the Intrexon Corporation Annual Report on Form 10-K for the year ended December 31, 2016, have been audited by RSM US LLP, an independent registered public accounting firm, as stated in their report thereon, incorporated herein by reference, and have been incorporated in this Prospectus in reliance upon such report and upon the authority of such firm as experts in accounting and auditing.



J.P. Morgan