

REPLIGEN CORP
Form 424B5
May 18, 2016
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Filed Pursuant to Rule 424(b)5
Registration No. 333-211436

The information in this preliminary prospectus supplement is not complete and may be changed. A registration statement relating to the notes has become effective under the Securities Act of 1933, as amended. This preliminary prospectus supplement and the accompanying prospectus do not constitute an offer to sell the notes and it is not soliciting an offer to buy the notes in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED MAY 18, 2016

Prospectus Supplement

(to Prospectus Dated May 18, 2016)

REPLIGEN CORPORATION

\$100,000,000

% Convertible Senior Notes due 2021

Interest payable June 1 and December 1

We are offering \$100,000,000 principal amount of our % Convertible Senior Notes due 2021. The notes will bear interest at a rate of % per year, payable semiannually in arrears on June 1 and December 1 of each year, beginning on December 1, 2016. The notes will mature on June 1, 2021.

Holders may convert their notes at their option at any time prior to the close of business on the business day immediately preceding March 1, 2021 only under the following circumstances: (1) during any calendar quarter commencing after the calendar quarter ending on June 30, 2016 (and only during such calendar quarter), if the last reported sale price of our common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on 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 March 1, 2021 until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert their notes at any time, regardless of the foregoing circumstances. Additionally, if we call any or all of the notes for redemption, holders may

convert their notes called for redemption at any time prior to the close of business on the second scheduled trading day preceding the redemption date. 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 or upon our issuance of a notice of redemption, we will, in certain circumstances, increase the conversion rate for a holder who elects to convert its notes in connection with such a corporate event or during the related redemption period, as applicable.

We may not redeem the notes prior to June 5, 2019. We may redeem the notes, at our option, in whole or in part, on any business day on or after June 5, 2019 and prior to the maturity date if the last reported sale price of our common stock has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period ending within five trading days prior to the date on which we provide written notice of redemption. The redemption price will be equal to 100% of the principal amount of the principal amount of notes to be redeemed *plus* accrued and unpaid interest to, but excluding, the redemption date, as set forth under Description of notes Optional redemption. 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) and preferred stock of our subsidiaries.

We do not intend to apply to list the notes on any securities exchange or any automated dealer quotation system. Our common stock is listed on the NASDAQ Global Select Market under the symbol RGEN. The last reported sale price of our common stock on the NASDAQ Global Select Market on May 17, 2016 was \$25.36 per share.

Investing in the notes involves a high degree of risk. See Risk Factors beginning on page S-17 of this prospectus supplement.

	Per Note	Total
Public offering price (1)	\$	\$
Underwriting discounts and commissions (2)	\$	\$
Proceeds, before expenses, to us	\$	\$

(1) Plus accrued interest, if any, from May , 2016.

(2) See Underwriting

We have granted the underwriters the right to purchase, exercisable within a 30-day period, up to an additional \$15,000,000 principal amount of notes.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the notes or determined if this prospectus supplement or the accompanying 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 May , 2016.

Sole Book-Running Manager

Jefferies

The date of this prospectus is May , 2016

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ABOUT THIS PROSPECTUS SUPPLEMENT

This document is part of the registration statement that we filed with the Securities and Exchange Commission, or the SEC, using a shelf registration process and consists of two parts. The first part is this prospectus supplement, including the documents incorporated by reference, which describes the specific terms of this offering. The second part, the accompanying prospectus, including the documents incorporated by reference, gives more general information, some of which may not apply to this offering. Generally, when we refer to the prospectus, we are referring to both parts combined. This prospectus supplement and any free writing prospectus we authorize for use in connection with this offering may add to, update or change information in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement or the accompanying prospectus.

If information in this prospectus supplement is inconsistent with the accompanying prospectus or with any document incorporated by reference that was filed with the SEC before the date of this prospectus supplement, you should rely on this prospectus supplement. This prospectus supplement, the accompanying prospectus, the documents incorporated by reference into each and any free writing prospectus we authorize for use in connection with this offering include important information about us, the notes and other information should you consider before investing in the notes. See Incorporation of Certain Information by Reference.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference herein were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties and covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

We take no responsibility for, and can provide no assurances as to the reliability of, any information that is in addition to or different from that contained or incorporated by reference in this prospectus supplement and the accompanying prospectus. We are not offering to sell these notes in any jurisdiction where the offer or sale is not permitted. You should not assume that the information contained or incorporated by reference in this prospectus supplement or the accompanying prospectus is accurate as of any date other than as of the date of this prospectus supplement or the accompanying prospectus, as the case may be, or in the case of the documents incorporated by reference, the date of such documents regardless of the time of delivery of this prospectus supplement and the accompanying prospectus or any sale of our securities. Our business, financial condition, liquidity, results of operations and prospects may have changed since those dates.

All references in this prospectus supplement or the accompanying prospectus to Repligen, the Company, we, us, or our mean Repligen Corporation and our subsidiaries, unless we state otherwise or the context otherwise requires. This prospectus supplement, the accompanying prospectus and the information incorporated herein and therein 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 supplement, the accompanying prospectus and the information incorporated herein and therein, 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. All trademarks, service marks and trade names included or incorporated by reference into this prospectus supplement, the accompanying prospectus or any related free writing prospectus are the property of their respective owners.

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PRESENTATION OF NON-GAAP FINANCIAL INFORMATION

Non-GAAP Adjusted Income From Operations, Non-GAAP Adjusted Net Income, Non-GAAP Adjusted EBITDA, and Non-GAAP Adjusted Net Income Per Share (Diluted) which are presented in this prospectus supplement, are not required by, or presented in accordance with, generally accepted accounting principles in the United States (GAAP). We include this non-GAAP financial information because we believe these measures provide a useful comparison of our financial results between periods and reflect how management reviews its financial results. These financial measures exclude the impact of certain acquisition-related items because we believe that the resulting charges do not accurately reflect the performance of our ongoing operations for the period in which such charges were incurred.

We define Non-GAAP Adjusted Income from Operations as income from operations as reported in accordance with GAAP and excluding acquisition costs and contingent consideration expenses booked through our condensed consolidated statements of comprehensive income. Similarly, we define Non-GAAP Adjusted Net Income as net income as reported in accordance with GAAP excluding acquisition costs and contingent consideration expenses booked through our condensed consolidated statements of comprehensive income. We define Non-GAAP Adjusted EBITDA as net income as reported in accordance with GAAP, excluding investment income, interest expense, taxes, depreciation and amortization, and excluding acquisition costs and contingent consideration expenses booked through our condensed consolidated statements of comprehensive income. Finally, we define Non-GAAP Adjusted Net Income Per Share (Diluted) as net income per share, excluding acquisition costs and contingent consideration expenses booked through our condensed consolidated statements of comprehensive income.

Non-GAAP Adjusted Income from Operations, Adjusted Net Income, Adjusted EBITDA, and Non-GAAP Adjusted Net Income Per Share (Diluted) are not recognized terms under GAAP. Because certain companies do not calculate Non-GAAP Adjusted Income From Operations, Adjusted Net Income, Non-GAAP Adjusted EBITDA, and Non-GAAP Adjusted Net Income Per Share (Diluted) in the same way and certain other companies may not perform such calculations, those measures as used by other companies may not be consistent with the way we calculate such measures and should not be considered as alternative measures of operating profit or net income. Our presentation of these measures does not replace the presentation of our financial results in accordance with GAAP.

For reconciliations of our income and net income, as applicable, to Non-GAAP Adjusted Income from Operations, Non-GAAP Adjusted Net Income, Non-GAAP Adjusted EBITDA and Non-GAAP Adjusted Net Income Per Share (Diluted), see Summary Consolidated Financial Data Reconciliation of Non-GAAP Financial Measures.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the information incorporated by reference herein and therein contain and any free writing prospects we authorize for use in connection with this offering may contain statements that are not historical facts and are considered forward-looking within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These forward-looking statements contain projections of our future results of operations or of our financial position or state other forward-looking information. In some cases you can identify these statements by forward-looking words such as anticipate, believe, could, continue, estimate, expect, intend, should, will, would, plan, projected or the negative of such words or other similar words or phrases. We believe it is important to communicate our future expectations to our investors. However, there may be events in the future that we are not able to accurately predict or control and that may cause our actual results to differ materially from the expectations we describe in our forward-looking statements.

Investors are cautioned not to unduly rely on forward-looking statements because they involve risks and uncertainties, and statements relate to future events or our future financial performance, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements. Forward-looking statements include, but are not limited to, statements about:

the acceptance by the market of our products;

the implementation of our business model, strategic plans for our business, products and technology;

our ability to complete and successfully integrate acquisitions;

our ability to maintain and establish key customer relationships;

estimates of our expenses, future revenues and capital requirements;

our financial performance;

the scope of protection we are able to establish and maintain for intellectual property rights covering our products and technology;

developments relating to our competitors and our industry; and

other risks and uncertainties, including those listed under the caption Risk Factors below and in any documents incorporated by reference herein.

Given these uncertainties, readers should not place undue reliance on our forward-looking statements. These forward-looking statements speak only as of the date on which the statements were made and are not guarantees of future performance. Except as may be required by applicable law, we do not undertake or intend to update any forward-looking statements after the date of this prospectus supplement or the accompanying prospectus or the respective dates of documents incorporated by reference herein or therein that include forward-looking statements.

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PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights selected information contained elsewhere or incorporated by reference in this prospectus supplement and the accompanying prospectus. This summary may not contain all the information that you should consider before making your investment decision. You should read this entire prospectus supplement and the accompanying prospectus carefully, especially the risks of investing in our securities discussed under Risk Factors beginning on page S-17 of this prospectus supplement, along with our consolidated financial statements and notes to those consolidated financial statements, the other information incorporated by reference in this prospectus supplement and the accompanying prospectus and any free writing prospectus we authorize for use in connection with this offering, before making an investment decision. This prospectus supplement may add to, update or change information in the accompanying prospectus.

Overview

Our Business

We are a bioprocessing company focused on the development, production, and commercialization of innovative products and solutions used to manufacture biologic drugs. Biologics principally monoclonal antibodies, recombinant proteins, and vaccines are produced through a complex process involving the use of live cells to produce the drug, followed by multiple separation and purification processes. Our products enable biologics manufacturers to enhance production yields while retaining the highest quality and safety standards, and delivering cost and time savings.

For over twenty years, we have been a global market leader in the supply of native and recombinant forms of Protein A, a critical reagent used in the downstream purification of therapeutic monoclonal antibodies, or mAbs, one of the largest and fastest-growing class of biologic drugs on the market. Our Protein A reagents are currently used in the commercial production of over 50 mAbs, and in clinical stage production of over 300 investigational mAbs.

Through strategic acquisitions and internal product development, we have expanded our portfolio of products that we sell directly to end users (biopharmaceutical companies and contract manufacturing organizations). This expansion includes our acquisition of the MediaScout pre-packed chromatography column manufacturing business from Atoll GmbH, our acquisition of the ATF System, a best-in-class device for generating extremely high cell concentrations (allowing improved drug yield and more robust, large scale manufacturing) from Refine Technologies LLC, and our development of OPUS[®], our single-use pre-packed chromatography columns for the capture and purification of biologic drugs in clinical development.

We market our products globally through a direct commercial organization in the United States, Europe and Asia, as well as through strategic partners in select markets. In 2014 and 2015, we invested in expanding our global commercial organization, adding sales, marketing and applications personnel who interact directly with our end users. Our customer base is comprised of leading life sciences companies, major contract manufacturers and 20 of the top biopharmaceutical companies.

Customers use our products to produce initial quantities of drug for clinical studies, then scale-up to larger volumes as the drug progresses to commercial production following regulatory approval. Detailed specifications for a drug's manufacturing process are included in applications that must be approved by regulators, such as the U.S. Food and Drug Administration, or FDA, and the European Medicines Agency, throughout the clinical trial process and prior to final commercial approval. As a result, products that become part of the manufacturing specifications of a late-stage clinical or commercial process can be very sticky due to the costs and uncertainties associated with displacing them.

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Our dedicated team of professionals has substantial experience in biomanufacturing. We work closely with industry leaders and our customers to develop innovative solutions that address pressure points in the production process. Our team has a track record of successfully launching new products and applications, as well as building new markets for acquired technologies. For example we engineered and introduced OPUS line extensions in 2012, 2014 and 2015, and since acquiring the ATF System line in 2014, we have rapidly expanded its market penetration through increased customer interactions and new applications.

Many of our products are early in their adoption cycle, and together with the expansion of our commercial organization and strategic acquisitions, have contributed to product revenue expansion from \$41.8 million in 2012, to \$83.5 million in 2015 and \$25.1 million during the first quarter of 2016. To meet increased demand for our products, we have increased and continue to increase the volume and scale of manufacturing at our two manufacturing facilities in the United States and Sweden and plan to expand manufacturing capacity at our newly acquired manufacturing facility in Germany.

Our Market Opportunity

The global biologics drug market is estimated to be over \$200 billion. This market includes therapeutic mAbs, proteins and vaccines. MAb-based biologics alone accounted for approximately \$80 billion of revenue and represented six of the top 10 best-selling drugs across the pharmaceutical industry in 2014. Industry sources project the biologics market to grow at a rate of 8%-10% annually over the next five years, driven by strength in the mAb class of biologics, as evidenced by the rate of new approvals, expanded labels for marketed mAbs and the emergence of biosimilar versions of originator mAbs. For example, in 2015, a record nine therapeutic mAbs were approved by the FDA to treat a diverse range of diseases, including the approvals of mAbs to control LDL cholesterol or bad cholesterol. There are currently more than 300 mAbs in various stages of clinical development addressing a wide range of medical conditions including asthma, migraines and Alzheimer's disease.

In addition to investments in the discovery and development of novel biologic drugs, there has been substantial investment in follow-on products (biosimilars) by generic and specialty pharmaceutical as well as large biopharmaceutical companies. We believe development of follow-on products is accelerating as the first major mAbs begin to come off patent in the European Union and United States. For example, there are at least 12 companies attempting to market the first Humira® (adalimumab) biosimilar, which faces patent expiration in the United States at the end of 2016. Also, due to the high cost of biologic drugs, many countries in the developing and emerging markets have been aggressively investing in biomanufacturing capabilities to supply lower cost alternatives or biosimilars for the local markets. We believe they are focused on innovative technologies that offer greater manufacturing flexibility, production yields and lower-costs through improved process efficiencies.

The Biologics Manufacturing Process

Manufacturing biologic drugs requires three fundamental steps. First, upstream manufacturing involves the production of the biologic by living cells that are grown in a bioreactor under controlled conditions. These cells, or factories, are highly sensitive to the conditions under which they grow, including the composition of the cell culture media and the growth factors used to stimulate increased cell growth and protein production, or titre. In the second, downstream step, the biologic must be separated and purified, typically through various filtration and chromatography steps. Biologics drugs tend to be large molecules with complex, three-dimensional shapes or structures that confer therapeutic function. The types of purification methods (for example, form of filtration membrane or chromatography resins or buffers/solutions) can affect these highly specific shapes or structures and consequently impact the amount of active drug ultimately captured or lost in the process. In the third stage of the process, the purified biologic drug is formulated, quality controlled and packaged into its final injectable form.

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Biologics are generally high value therapies. Given the inherent complexities of the process and drug product, we have observed that manufacturers are seeking and investing in innovative technologies that address pressure points in the production process in order to improve yields. We see that manufacturers are also seeking technologies that reduce cost of goods as the biologic drug moves through clinical stages and into commercial processes, by adopting single-use technologies as well as other products that confer more flexibility and efficiency.

Our Strategy

We are focused on the development, production and commercialization of differentiated, technology-leading solutions or products that address pressure points in the biologics manufacturing process and deliver substantial value to our customers. We are committed to supporting our customers with strong customer service and applications expertise.

We intend to build on our recent history of developing market leading solutions and delivering strong financial performance through the following strategies.

Continued innovation. We plan to capitalize on our internal technological expertise to develop products that address unmet needs in upstream and downstream bioprocessing. We intend to invest further in our core ligands business while developing platform and derivative products to support our growth factor, ATF System and OPUS franchises.

Platforming our products. A key strategy for accelerating market adoption of our products is delivery of enabling technologies that become the standard, or platform, technology in markets where we compete. We focus our efforts on winning early-stage technology evaluations through direct interaction with the key biomanufacturing decision makers in process development labs. This strategy is designed to establish both early adoption of our enabling technologies at key accounts and accelerate the implementation of our products as platform products, thereby strengthening our competitive advantage and contributing to long-term growth.

Targeted acquisitions. We will selectively pursue acquisitions of innovative technologies and products. We intend to leverage our balance sheet to acquire technologies and products that improve our overall financial performance by improving our competitiveness and/or moving us into adjacent markets with common commercial call points.

Geographical expansion. We intend to expand our commercial presence by continuing to build out our global sales, marketing, field applications and services infrastructure.

Operational efficiency. We seek to expand operating margins through capacity utilization and process optimization strategies designed to increase our manufacturing yields. We plan to invest in systems to support our global operations, optimizing resources across our global footprint to maximize productivity.

Our Products Downstream Products Protein A

We are the leading provider of Protein A ligands, an essential component of Protein A chromatography resins (media) used in the purification of virtually all mAbs on the market (more than 50) or in development (more than 300). We manufacture multiple forms of Protein A ligands under long-term supply agreements for major life sciences companies including GE Healthcare and MilliporeSigma, who in turn sell their Protein A chromatography media to end users (biopharmaceutical manufacturers). We have two manufacturing sites, one in Lund, Sweden and another in Waltham, MA, collectively supporting overall global demand for our Protein A ligands. On February 22, 2016, we amended our long term supply agreements with GE Healthcare to, among other things, extend the terms of the supply agreement relating to our Lund, Sweden facility through 2019. The

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supply agreement relating to our Waltham, MA facility runs through 2021. This dual manufacturing capability gives us strong business continuity and reduces overall supply risk for our major customers.

Protein A chromatography media is considered the industry standard for purification of mAbs, due to the ability of Protein A to selectively bind to, or capture, mAbs from crude protein mixtures. Protein A media is packed into chromatography columns as the standard first step in a purification process. As a result of Protein A's high affinity for antibodies, the mAb product is highly purified and concentrated during this first capture step before moving to polishing steps. The global Protein A media market that we supply generates annual revenues of \$350-\$400 million. We expect continued growth for our Protein A ligands as new drugs are approved and biosimilar manufacturing accelerates.

Chromatography products

Our chromatography portfolio includes a number of products used in the downstream purification and quality control of biologic drugs. The main driver of growth in this portfolio is our OPUS pre-packed chromatography column line. Our other products include Protein A chromatography resins used in a small number of commercial drug processes and ELISA test kits used by quality control departments to detect and measure the presence of leached Protein A in the final product. In April 2016, we completed our acquisition of the MediaScout pre-packed chromatography column manufacturing business from Atoll GmbH, expanding our chromatography portfolio into high throughput process development screening.

Chromatography columns, packed with chromatography media, are used in biomanufacturing to purify the contents of a bioreactor. For late-stage clinical and large commercial processes, stainless steel columns are standard, and are packed in-house by the biomanufacturer. For clinical stage manufacturing, we believe biomanufacturers value the quick turnover, cost savings and convenience of using pre-packed columns such as OPUS versus traditional glass columns.

OPUS columns are pre-packed with purification media and are an efficient plug-and-play solution for our customers, and is a growing area of our business. As biomanufacturers have become acutely focused on improving the drug development process, they are moving toward flexible manufacturing and disposable solutions such as OPUS. Over the past three years we have observed customers moving away from in-house solutions (self-packed glass columns). They are starting to adopt the OPUS ready-to-use format, we believe due to convenience, flexibility and consistent product performance. OPUS columns save labor time, reduce overall costs and improve overall manufacturing efficiency, allowing biomanufacturers to reassign resources to higher value-add processes.

Our OPUS line is distinctly open platform, providing significant opportunities for customization. For example, most biopharmaceutical manufacturers utilize three different chromatography media in a given process and our flexible columns are designed to meet these needs. We differentiate ourselves in the pre-packed column space by packing any brand of chromatography media in OPUS to any bed height, ensuring a convenient and efficient process for end users. The plug-and-play nature of our OPUS columns make them ideal for purification of antibodies and recombinant proteins. With the launch of OPUS 45 cm diameter columns in 2014 and 60 cm columns in 2015, we have further differentiated ourselves from our competitors who offer a limited number of column diameter and resin (media) options. By offering these larger columns, we are making inroads in the glass column market where customers typically self-pack.

Pre-packed chromatography columns are at the early stages of adoption; we estimate that currently, we and our competitors collectively capture approximately 30% of a \$165 million addressable market. As our sales force expands and we increase the number of call points, we are seeing more multi-site adoption of our OPUS pre-

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packed columns, including increased use by contract manufacturers, where quick turnover of multiple production runs is critical to profitability. We expect continued growth for this product line as we aim to expand geographically and provide best-in-class service and support.

Upstream Products

Growth factors

Most biopharmaceuticals are produced through a mammalian cell fermentation process. In order to stimulate increased cell growth and maximize overall yield from a bioreactor, manufacturers often add growth factors, such as insulin, to the cell culture fermentation media. As part of the Novozymes acquisition, we acquired several cell culture growth factor additives. Among those products is LONG[®] R3 IGF-1, our insulin-like growth factor that has been shown to be 100x more biologically potent than insulin (the industry standard), thereby increasing recombinant protein production in cell culture fermentation applications. LONG[®] R3 IGF-1 is currently used in the manufacture of several commercial biopharmaceutical products and is sold through a distribution partnership with MilliporeSigma. Our goal over the last few years with MilliporeSigma has been to focus on pipeline product development and work with customers already familiar with the product to more broadly adopt LONG[®] R3 IGF-1 as a platform product.

We estimate that the current market for cell culture growth factors is \$75-\$80 million. We are gaining share of this market as customers displace insulin with LONG[®] R3 IGF-1. We anticipate continued growth for this product group as our pipeline of opportunities advances from early-stage clinical to late-stage clinical and commercial manufacturing processes.

ATF System

The ATF System is a technologically advanced filtration device used to continuously remove cellular metabolic waste products during the course of a fermentation run, freeing healthy cells to continue producing the biologic drug of interest. The ATF System is designed to both increase the density of cells in a bioreactor and extend the production run, resulting in significantly greater product yield of up to two- to three-fold as well as reduced costs. This is important to biomanufacturers who seek to maximize output from their existing facilities. ATF Systems consist of a stainless steel housing that contains a consumable filter and an associated pump and controller. We sell the ATF System in a variety of sizes suitable for use in laboratory scale-up all the way to production bioreactors as large as 2,000 liters. ATF Systems are used in the production of several FDA-approved mAbs.

Following our acquisition of the ATF System from Refine Technology in 2014, we integrated the production of ATF Systems into our operations in Waltham, MA.

We estimate that the current market for cell retention devices is approximately \$125-150 million. Within this market, we expect continued growth for our ATF Systems franchise over the next several years, as biologics manufacturing accelerates globally and as large pharmaceutical customers who have evaluated the system adopt the technology as platform. The ATF System strengthens our upstream fermentation business and significantly broadens our technology base.

Risks Related to Our Business

Our ability to execute our business strategy is subject to a number of risks of which you should be aware before you decide to invest in our notes. In particular, you should consider the following risks, which are discussed more fully in the section entitled **Risk Factors** in this prospectus supplement and in our Annual Report on Form 10-K

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for the fiscal year ended December 31, 2015 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2016, which are each incorporated herein by reference:

Although we generate revenue from product sales, our product revenue may be negatively impacted by a number of factors, including without limitation, competition in the bioprocessing market, our reliance on a limited number of customers, our ability to develop or acquire additional bioprocessing products in the future, our ability to manufacture our bioprocessing products sufficiently and timely, and our ability to effectively penetrate the bioprocessing products market.

We may not be able to achieve sufficient market acceptance for our bioprocessing products, and our results of operations and competitive positions could suffer.

If our products do not perform as expected, we could experience lost revenue, delayed or reduced market acceptance, increased cost and damage to our reputation.

If we are unable to manufacture our products in sufficient quantities and in a timely manner, our operating results will be harmed, our ability to generate revenue could be diminished and our gross margin may be negatively impacted.

Our acquisitions expose us to risks that could adversely affect our business, and we may not achieve the anticipated benefits of acquisitions of businesses or technologies.

Our results of operations could be negatively affected by potential fluctuations in foreign currency exchange rates.

We have limited sales and marketing capabilities, and such capabilities are becoming increasingly important for our business as we began to sell directly to more end-users, so the buildout of such capabilities is critical to our anticipated revenue growth.

If we are unable to hire and retain skilled personnel, including sales and marketing personnel, then we will have trouble developing and marketing our products.

We rely on certain suppliers for our ATF System business, and any interruption in the operations of these suppliers could result in significant delays and disruptions in our supply chain related to these products.

If we are unable to obtain or maintain our intellectual property rights related to our products, we may not be able to compete effectively or succeed commercially.

Company Information

We were incorporated in May 1981 under the laws of the State of Delaware. Our mailing address and executive offices are located at 41 Seyon Street, Waltham, MA 02453 and our telephone number at that address is (781) 250-0111. We maintain an Internet website at the following address: www.repligen.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 invest in our notes. Our common stock trades on the NASDAQ Global Select Market under the symbol RGEN.

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The summary below describes the principal terms of the notes. This summary does not contain all of the information that is important relating to an investment in the notes and any shares of our common stock issuable upon conversion thereof. Certain of the terms and conditions described below are subject to important limitations and exceptions. The Description of 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 only to Repligen Corporation and not to any of its subsidiaries.

Issuer	Repligen Corporation, a Delaware corporation.
Securities	\$100,000,000 principal amount of % Convertible Senior Notes due 2021 (<i>plus</i> up to an additional \$15,000,000 principal amount at the option of the underwriters).
Maturity	June 1, 2021, unless earlier repurchased, redeemed or converted.
Interest	% per year. Interest will accrue from May , 2016 and will be payable semiannually in arrears on June 1 and December 1 of each year, beginning on December 1, 2016. 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 March 1, 2021 only under the following circumstances:</p> <p>during any calendar quarter commencing after the calendar quarter ending on June 30, 2016 (and only during such calendar quarter), if the last reported sale price of our common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on 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;</p> <p>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</p>

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.

On or after March 1, 2021 until the close of business on the second scheduled trading day immediately preceding the maturity date,

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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. Additionally, if we call any or all of the notes for redemption, holders may convert their notes called for redemption at any time prior to the close of business on the second scheduled trading day preceding the redemption date.

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 40 trading day observation period (as described herein). See Description of Notes Conversion Rights Settlement Upon Conversion.

In addition, if certain specified corporate events occur prior to the maturity date or upon our issuance of a notice of redemption, we will, in certain circumstances, increase the conversion rate for a holder who elects to convert its notes in connection with such a corporate event or during the related redemption period, as described under Description of Notes Conversion Rights Increase in Conversion Rate Upon Conversion Upon a Make-Whole Fundamental Change or During a Redemption Period.

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.

Redemption at our option

We may not redeem the notes prior to June 5, 2019. We may redeem the notes, at our option, in whole or in part, on any business day on or after June 5, 2019 and prior to the maturity date if the last reported sale price per share of our common stock has been at least 130% of the conversion

price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period ending within five trading days prior to the date on which we provide written notice of redemption. The redemption price will be equal to 100% of the principal amount of the notes to be purchased,

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plus accrued and unpaid interest to, but excluding, the redemption date. No sinking fund is provided for the notes, and except as described below in connection with a fundamental change, we are not required to redeem or repurchase 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) and preferred stock of our subsidiaries.

As of March 31, 2106, we had no consolidated indebtedness, and our subsidiaries had no liabilities (excluding intercompany obligations, trade payables, and liabilities of a type not required to be reflected on a balance sheet of such subsidiaries in accordance with GAAP).

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

Use of proceeds

We estimate that the proceeds from this offering will be approximately \$ million (or \$ million if the underwriters exercise their option to purchase additional notes in full), after deducting fees and estimated expenses payable by us. We intend to use the net proceeds of the this offering for working capital and other general corporate purposes, including to fund possible acquisitions of, or investments in, complementary businesses, products, services and technologies. 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

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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 Income Tax Considerations.
NASDAQ Global Select Market symbol for our common stock	Our common stock is listed on the NASDAQ Global Select Market under the symbol RGEN.
Trustee, paying agent and conversion agent	Wilmington Trust, National Association

Table of Contents**SUMMARY CONSOLIDATED FINANCIAL DATA**

The following table sets forth summary consolidated financial data. The summary consolidated financial data as of December 31, 2015 and 2014 and for the years ended December 31, 2015 and 2014 are derived from our audited condensed consolidated financial statements, which are incorporated by reference herein. The summary consolidated financial data as of March 31, 2016 and for the three months ended March 31, 2016, and 2015 are derived from our unaudited condensed consolidated financial statements, which are incorporated by reference herein. These unaudited condensed consolidated financial statements have been prepared on a basis consistent with our audited consolidated financial statements. The unaudited consolidated financial statements include, all adjustments, consisting of normal recurring accruals, which we consider necessary for a fair presentation of the financial position and the results of operations for these periods. Our historical results are not necessarily indicative of the results that may be expected in the future. The following summary consolidated financial data should be read in conjunction with Management's Discussion and Analysis of Financial Condition and Results of Operations and our consolidated financial statements and the related notes thereto, all of which is incorporated by reference herein.

	Year ended		Three months	
	December 31,		ended	
	2015(1)	2014	2016	2015
	(in thousands, except per share data)			
	(unaudited)			
Consolidated Statement of Operations Data:				
Revenue:				
Product revenue	\$ 83,537	\$ 60,431	\$ 25,094	\$ 20,816
Royalty and other revenue		3,117		
Total revenue	83,537	63,548	25,094	20,816
Operating expenses:				
Cost of product revenue	35,251	28,022	11,069	8,073
Cost of royalty and other revenue				
Research and development	5,740	5,609	1,539	1,568
Selling, general and administrative	24,699	17,154	7,018	6,026
Contingent consideration fair value adjustments	4,083	2,072	2,005	1,111
Total operating expenses	69,773	52,857	21,631	16,778
Income from operations	13,764	10,691	3,463	4,038
Investment income	136	309	61	37
Interest expense	(32)	(50)	(5)	(9)
Other income (expense)	(445)	188	(979)	132
Income before income tax	13,423	11,138	2,540	4,198
Income tax provision	4,078	2,968	915	1,268
Net income	\$ 9,345	\$ 8,170	\$ 1,625	\$ 2,930

Earnings per share:				
Basic	\$ 0.28	\$ 0.25	\$ 0.05	\$ 0.09
Diluted	\$ 0.28	\$ 0.25	\$ 0.05	\$ 0.09
Weighted average common shares outstanding, basic	32,882	32,498	33,025	32,755
Weighted average common shares outstanding, diluted	33,577	33,264	33,494	33,451
Other Operating Data(2)				
Non-GAAP Adjusted Income From Operations	\$ 17,847	\$ 10,464	\$ 5,861	\$ 5,149
Non-GAAP Adjusted Net Income	\$ 13,428	\$ 7,943	\$ 4,023	\$ 4,041
Non-GAAP Adjusted EBITDA	\$ 21,998	\$ 14,684	\$ 6,032	\$ 6,431
Non-GAAP Adjusted Net Income Per Share (Diluted)	\$ 0.40	\$ 0.24	\$ 0.12	\$ 0.12

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	Year ended December 31, 2015 2014		Three months ended March 31, 2016	
	(in thousands, except per share data)			
	(unaudited)			
Balance Sheet Data				
Cash and marketable securities	\$ 73,407	\$ 62,003	\$ 70,912	
Working capital	84,471	70,264	89,424	
Total assets	146,237	128,293	147,324	
Long-term obligations	4,708	5,879	2,617	
Accumulated deficit	(71,542)	(80,887)	(69,917)	
Total stockholders' equity	122,748	111,732	128,886	

- (1) Includes the full year impact of the Refine Acquisition on June 2, 2014.
- (2) For a discussion of and definitions for Non-GAAP Adjusted Income From Operations, Non-GAAP Adjusted Net Income, and Non-GAAP Adjusted EBITDA and Non-GAAP Adjusted Net Income Per Share (Diluted), see Presentation of Non-GAAP Financial Information. See Reconciliation of Non-GAAP Financial Measures for GAAP reconciliation of these measures.

Reconciliation of Non-GAAP Financial Measures

This prospectus supplement contains certain financial measures that have been prepared other than in accordance with GAAP. These measures include Non-GAAP Adjusted Income From Operations, Adjusted Net Income, and Adjusted EBITDA. The following tables present a reconciliation of such financial measures to the most comparable measures calculated in accordance with GAAP.

Reconciliation of GAAP Income from Operations to Non-GAAP Adjusted Income from Operations

	Year ended December 31, 2015 2014		Three months ended March 31, 2016 2015	
	(in thousands)			
	(unaudited)			
GAAP Income from Operations	\$ 13,764	\$ 10,691	\$ 3,643	\$ 4,038
Non-GAAP Income from Operations Adjustments:				
Royalty and other revenue		(3,117)		
Refine acquisition costs		818		
Atoll acquisition costs			393	
Contingent consideration fair value adjustments	4,083	2,072	2,005	1,111
Non-GAAP Adjusted Income from Operations	\$ 17,847	\$ 10,464	\$ 5,861	\$ 5,149

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	Year ended December 31,		Three months ended March 31,	
	2015	2014	2016	2015
	(in thousands)			
	(unaudited)			
GAAP Net Income (Loss)	\$ 9,345	\$ 8,170	\$ 1,625	\$ 2,930
Non-GAAP Net Income Adjustments:				
Royalty and other revenue		(3,117)		
Refine acquisition costs		818		
Atoll acquisition costs			393	
Contingent consideration fair value adjustments	4,083	2,072	2,005	1,111
Non-GAAP Adjusted Net Income	\$ 13,428	\$ 7,943	\$ 4,023	\$ 4,041

Reconciliation of GAAP Net Income to Non-GAAP Adjusted EBITDA

	Year ended December 31,		Three months ended March 31,	
	2015	2014	2016	2015
	(in thousands)			
	(unaudited)			
GAAP Net Income (Loss)	\$ 9,345	\$ 8,170	\$ 1,625	\$ 2,930
Non-GAAP EBITDA Adjustments:				
Investment Income	(136)	(309)	(61)	(37)
Investment Expense	32	50	5	9
Tax Provision	4,078	2,968	915	1,268
Depreciation	2,996	2,606	751	749
Amortization	1,600	1,426	399	401
Non-GAAP EBITDA Adjustments	17,915	14,911	3,634	5,320
Other Non-GAAP Adjustments:				
Royalty and other revenue		(3,117)		
Refine acquisition costs		818		
Atoll acquisition costs			393	
Contingent consideration fair value adjustments	4,083	2,072	2,005	1,111
Non-GAAP Adjusted EBITDA	\$ 21,998	\$ 14,684	\$ 6,032	\$ 6,431

Reconciliation of GAAP Net Income (Loss) Per Share to Non-GAAP Adjusted Net Income Per Share (Diluted)

	Year ended December 31,		Three months ended March 31,	
	2015	2014	2016	2015
			(unaudited)	
GAAP Net Income (Loss) Per Share	\$ 0.28	\$ 0.25	\$ 0.05	\$ 0.09
Non-GAAP Net Income Adjustments:				
Royalty and other revenue		(0.09)		
Refine acquisition costs		0.02		
Atoll acquisition costs			0.01	
Contingent consideration fair value adjustments	0.12	0.06	0.06	0.03
Non-GAAP Adjusted Net Income Per Share (Diluted)	\$ 0.40	\$ 0.24	\$ 0.12	\$ 0.12

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Table of Contents**RISK FACTORS**

*Investing in our notes and our common stock potentially issuable upon the conversion of our notes involves a high degree of risk. In addition to the other information contained in this prospectus supplement, the accompanying prospectus, the documents incorporated by reference herein and therein and any free writing prospectus we authorize for use in connection with this offering, you should carefully consider the risks discussed below and under the heading **Risk Factors** in our Annual Report on Form 10-K for the fiscal year ended December 31, 2015, filed with the SEC on February 25, 2016, and our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2016, filed with the SEC on May 5, 2016, before making a decision about investing in our notes. The risks and uncertainties discussed below and in our Annual Report on Form 10-K for the fiscal year ended December 31, 2015 and our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2016 are not the only ones we face. 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 our common stock could decline and you could lose part or all of your investment. The risks discussed below also include forward-looking statements and our actual results may differ substantially from those discussed in these forward-looking statements. See **Special Note Regarding 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) and preferred stock of our subsidiaries. In the event of our bankruptcy, liquidation, reorganization or other winding up, our assets that secure debt ranking senior 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 will it prohibit any of our subsidiaries from incurring liabilities or issuing preferred stock.

As of March 31, 2016, we had no consolidated indebtedness and our subsidiaries had no liabilities (excluding intercompany obligations, trade payables, and liabilities of a type not required to be reflected on a balance sheet of such subsidiaries in accordance with GAAP).

The notes are our obligations only.

The notes are our obligations exclusively and are not guaranteed by any of our subsidiaries. Our ability to service our debt, including the notes, may depend 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 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, including that such distributions may be subject to United States and foreign tax liabilities.

Servicing our debt will require a significant amount of cash, and we may not have sufficient cash flow from our business to make payments on our 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

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other factors that may be beyond our control. Our business may not 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, including the notes.

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 market price of our common stock, like that of the common stock of many other companies with similar market capitalizations, is highly volatile. In addition, the stock market has experienced extreme price and volume fluctuations. This volatility has significantly affected the market prices of securities of many life sciences, biotechnology and pharmaceutical companies for reasons frequently unrelated to or disproportionate to the operating performance of the specific companies. These broad market fluctuations may adversely affect the market price of our common stock. 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.

We may incur substantially more debt or take other actions which would intensify the risks discussed above.

We and our subsidiaries will be able to incur substantial additional debt in the future, some of which may be secured debt and/or structurally senior debt. We and our subsidiaries will not be restricted under the terms of the indenture governing the notes from incurring additional debt, securing debt, recapitalizing our debt or taking several 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.

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We may not have the ability to raise the funds necessary to settle conversions of the notes if we elect to settle conversions by delivering all or a portion of the consideration in cash or to repurchase the notes upon a fundamental change or pursuant to our optional redemption right, and our future debt may contain limitations on our ability to pay cash upon conversion or repurchase of the notes.

Holder 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, we may redeem the notes, at our option, in whole or in part, on any business day on or after June 5, 2019 and prior to the maturity date if the last reported sale price per share of our common stock has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period ending within five trading days prior to the date on which we provide written notice of redemption, as described under Description of Notes Optional Redemption. Finally, 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 in 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. At all times on or after March 1, 2021 until the close of business on the second scheduled trading day immediately preceding the maturity date, holders of the notes will be entitled to convert the notes. 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 method for convertible debt securities that may be settled in cash, such as the notes, is the subject of changes that could have a material effect on our reported financial results.

In May 2008, the Financial Accounting Standards Board, to which we refer 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, to which we refer as ASC 470-20. Under ASC 470-20, an entity must separately account for the liability and equity components of 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 stockholders' equity on our consolidated

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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 or 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 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 will be adversely affected.

Future sales of our common stock or equity-linked securities 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 or in connection with strategic transactions or partnerships. In addition, a substantial number of shares of our common stock is reserved for issuance upon the exercise of stock options, the vesting of restricted stock units 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 securities.

You will not be entitled to any rights with respect to our common stock, but you will be subject to all changes made with respect to them to the extent we satisfy our conversion obligation with shares of our common stock.

To the extent we elect to deliver shares of our common stock upon conversion, holders of notes will not be entitled to any rights with respect to our common stock (including, without limitation, voting rights, rights to receive any dividends or other distributions on our common stock or rights pursuant to our shareholder rights plan) 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 subject to all changes affecting our common stock. For example, if we elect to settle any portion of our conversion obligation in shares of our common stock, and an amendment is proposed to our certificate of incorporation or bylaws requiring stockholder approval with respect to which the record date for determining the stockholders of record entitled to vote on such 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 the amendment, if

adopted.

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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 March 1, 2021, 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 (through sale or otherwise) 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 an 40 trading day observation period. As described under Description of Notes Settlement upon Conversion, this period would be (i) subject to clause (ii), if the relevant conversion date occurs prior to March 1, 2021, the 40 consecutive trading day period beginning on, and including, the third trading day immediately succeeding such conversion date; (ii) if the relevant conversion date occurs during a redemption period as described under Description of Notes Optional Redemption, the 40 consecutive trading day period beginning on, and including, the 42nd scheduled trading day immediately preceding such redemption date; and (iii) if the relevant conversion date occurs on or after March 1, 2021 and does not occur during a redemption period, the 40 consecutive trading days beginning on, and including, the 42nd scheduled trading day immediately preceding the maturity date.

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 third 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 contain no covenants or other provisions to afford protection to 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 or During a Redemption Period and Description of Notes Consolidation, Merger and Sale of Assets.

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The increase in the conversion rate for notes converted in connection with a make-whole fundamental change or during a redemption period 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 or if we elect to issue a notice of redemption, if a holder elects to convert its notes in connection with such make-whole fundamental change or during the related redemption period, as the case may be, under certain circumstances, we will increase the conversion rate for notes converted in connection with such make-whole fundamental change or during the related redemption period, as the case may be. The increase in the conversion rate will be determined based on the date on which the specified corporate transaction becomes effective or the redemption notice date and the price paid (or deemed to be paid) per share of our common stock in such transaction or the price of our common stock immediately prior to the delivery of the redemption notice, as described below under **Description of Notes Conversion Rights Increase in Conversion Rate upon Conversion upon a Make-Whole Fundamental Change or during a Redemption Period**. The increase in the conversion rate for notes converted in connection with a make-whole fundamental change or during a redemption period may not adequately compensate you for any lost value of your notes as a result of such transaction or redemption. In addition, if the price per share of our common stock paid (or deemed paid) in the transaction, or on the redemption notice date, as applicable, is greater than \$ per share or less than \$ per share (in each case, subject to adjustment), the conversion rate will not be increased. Moreover, in no event will the conversion rate per \$1,000 principal amount of notes as a result of this adjustment exceed , 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 or upon redemption 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

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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. If a rating service were to rate the notes, however, 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 and in connection with a make-whole fundamental change. Adjustments or failures to adjust (or to adjust adequately) that have the effect of increasing the proportionate interest of a holder of notes in our assets or earnings may give rise to a deemed distribution for U.S. federal income tax purposes if the adjustment or failure to adjust is made in connection with other shareholders receiving a distribution of money or other property. You may be deemed to have received a dividend from us, resulting in ordinary dividend income to you, as a result of such an adjustment or failure to adjust made in connection with other shareholders receiving such distributions, even though you do not receive any cash related to that adjustment and even though you might not exercise your conversion right. It is unclear whether any such constructive dividend would be eligible for preferential tax treatment generally available for dividends paid by U.S. corporations to U.S. holders. If you are a non-U.S. holder (as defined in Material U.S. Federal Income 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. We do not currently expect to make distributions, although no assurance can be given in this regard. See Material U.S. federal income tax considerations.

Risks Related to Our Common Stock***The price of our common stock historically has been volatile, which may affect your ability to convert your notes or the price at which you could sell any shares of our common stock issued upon conversion of your notes.***

The market price for our common stock has varied between a high price of \$42.48 on June 29, 2015 and a low price of \$20.07 on February 9, 2016 in the twelve-month period ending on May 13, 2016. This volatility may affect the price at which you could sell the common stock, if any, that you receive upon conversion of your notes, and the sale of substantial amounts of our common stock could adversely affect the price of our common stock and the value of your notes. Our stock price is likely to continue to be volatile and subject to significant price and volume fluctuations in response to market and other factors, including the other factors discussed herein and in our Annual Report on Form 10-K for the year ended December 31, 2015, our Quarterly Report on Form 10-Q for the quarter ended March 31, 2016 or in future periodic reports; variations in our quarterly operating results from our expectations or those of securities analysts or investors; downward revisions in securities analysts' estimates; and announcement by us or our competitors of significant acquisitions, strategic partnerships, joint ventures or capital commitments.

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We have broad discretion in the use of the net proceeds from this offering as well as our existing cash and we may not use them effectively.

Our management will have broad discretion in the application of the net proceeds from this offering, including for any of the purposes described in the section entitled Use of Proceeds, as well as our existing cash, and you will be relying on the judgment of our management regarding such application. You will not have the opportunity, as part of your investment decision, to assess whether the proceeds from this offering and our existing cash are being used effectively. Our management might not apply the net proceeds or our existing cash in ways that ultimately increase the value of your investment. If we do not invest or apply the net proceeds from this offering or our existing cash in ways that enhance stockholder value, we may fail to achieve expected financial results, which could cause our stock price to decline. Pending their use, we may invest the net proceeds from this offering in short-term, investment-grade, interest-bearing securities. These investments may not yield a favorable return to our stockholders.

Anti-takeover provisions in our charter documents, certain of our contracts with third parties, and under Delaware law could make an acquisition of us, even one that may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our certificate of incorporation and by-laws may delay or prevent an acquisition of us or a change in our management. These provisions include the ability of our board of directors to issue preferred stock without stockholder approval. In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which limits the ability of stockholders owning in excess of 15% of our outstanding voting stock to merge or combine with us. Although we believe these provisions collectively provide for an opportunity to obtain greater value for stockholders by requiring potential acquirers to negotiate with our board of directors, they would apply even if an offer rejected by our board were considered beneficial by some stockholders. Additionally, certain of our contracts with third parties allow for termination upon specified change of control transactions. Anti-takeover provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, which is responsible for appointing the members of our management, and anti-takeover or change of control contract termination rights may frustrate or prevent any attempts by a third party to acquire or attempt to acquire the Company.

Risks Related to Our Business

We face competition from numerous competitors, most of whom have far greater resources than we have, which may make it more difficult for us to achieve significant market penetration.

The bioprocessing market is intensely competitive, subject to rapid change and significantly affected by new product introductions and other market activities of industry participants.

Many of our competitors are large, well-capitalized companies with significantly more market share and resources than we have. As a consequence, they are able to spend more aggressively on product development, marketing, sales and other product initiatives than we can. Many of these competitors have:

significantly greater name recognition;

larger and more established distribution networks;

additional lines of products and the ability to bundle products to offer higher discounts or other incentives to gain a competitive advantage;

greater experience in conducting research and development, manufacturing, clinical trials, marketing, obtaining regulatory approval and entering into collaboration or other strategic partnership arrangements; and

greater financial and human resources for product development, sales and marketing and patent litigation.

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Our current competitors or other companies may at any time develop additional products that compete with our products. If an existing or future competitor develops products that compete with or are superior to our products, our revenue may decline. In addition, some of our competitors may compete by lowering the price of their products. If prices were to fall, we may not be able to improve our gross margins or sales growth sufficiently to maintain and grow our profitability.

We depend on, and expect to continue to depend on, a limited number of customers for a high percentage of our revenues.

The loss of, or a significant reduction in orders from, any of these customers would significantly reduce our revenues and harm our results of operations. If a large customer purchases fewer of our products, defers orders or fails to place additional orders with us, our revenue could decline, and our operating results may not meet market expectations. In addition, if those customers order our products, but fail to pay on time or at all, our liquidity and operating results could be materially and adversely affected. Furthermore, if any of our current or future products compete with those of any of our largest customers, these customers may place fewer orders with us or cease placing orders with us, which would negatively affect our revenues and operating results.

As we evolve from a company dependent on others to commercialize our products to a company selling directly to end users, we may encounter difficulties in expanding our product portfolio and our commercial efforts.

In connection with our decision to focus our efforts on the growth of our core bioprocessing business, we are increasingly seeking to develop and commercialize our own portfolio of products. Our future financial performance will depend, in part, on our ability to successfully develop and acquire additional bioprocessing products. There is no guarantee that we will be able to successfully acquire or develop additional bioprocessing products, and our financial performance will likely suffer if we are unable to do so.

If intangible assets that we recorded in connection with our acquisitions become impaired, we could have to take significant charges against earnings.

In connection with the accounting for the Novozymes acquisition, we recorded a significant amount of intangible assets, including developed technology and customer relationships relating to the growth factor products. In addition, in connection with the accounting for the Refine acquisition, we recorded a significant amount of intangible assets, including developed technology and customer relationships relating to the ATF System. Under U.S. GAAP, we must assess, at least annually and potentially more frequently, whether the value of intangible assets has been impaired. Intangible assets will be assessed for impairment in the event of an impairment indicator. Any reduction or impairment of the value of intangible assets will result in a charge against earnings, which could materially adversely affect our results of operations and shareholders' equity in future periods.

Our exposure to political, economic and other risks that arise from operating a multinational business has and may continue to increase.

Our operations and sales outside of the United States have increased as a result of the Novozymes acquisition, the Refine acquisition, and the Atoll GmbH acquisition and the continued expansion of our commercial organization. Risks related to these increased foreign operations include:

fluctuations in foreign currency exchange rates;

changes in general economic and political conditions in countries where we operate, particularly as a result of ongoing economic instability within the European Union and other foreign jurisdictions;

being subject to complex and restrictive employment and labor laws and regulations, as well as union and works council restrictions;

changes in tax laws or rulings in the United States or other foreign jurisdictions that may have an adverse impact on our effective tax rate;

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being subject to burdensome foreign laws and regulations, including regulations that may place an increased tax burden on our operations;

being subject to longer payment cycles from customers and experiencing greater difficulties in timely accounts receivable collections; and

required compliance with a variety of foreign laws and regulations.

Our business success depends in part on our ability to anticipate and effectively manage these and other risks. We cannot assure you that these and other related factors will not materially adversely affect our international operations or business as a whole.

We may be unable to manage efficiently having become a larger and more geographically diverse organization.

The Novozymes acquisition, the Refine acquisition, the Atoll GmbH acquisition, the continued expansion of our commercial sales operations, and our organic growth have increased the scope and complexity of our business. We will face challenges inherent in efficiently managing a more complex business with an increased number of employees over large geographic distances, including the need to implement appropriate systems, policies, benefits and compliance programs. Our inability to manage successfully the geographically more diverse (including from a cultural perspective) and substantially larger combined organization could materially adversely affect our operating results and, as a result, the market price of our common stock.

Our business is subject to a number of environmental risks.

Our manufacturing business involves the controlled use of hazardous materials and chemicals and is therefore subject to numerous environmental and safety laws and regulations and to periodic inspections for possible violations of these laws and regulations. In addition to these hazardous materials and chemicals, our facility in Sweden also uses Staphylococcus aureus and toxins produced by Staphylococcus aureus in some of its manufacturing processes. Staphylococcus aureus and the toxins it produces, particularly enterotoxins, can cause severe illness in humans. The costs of compliance with environmental and safety laws and regulations are significant and have increased since we completed the acquisition of the Novozymes Biopharma business. Any violations, even if inadvertent or accidental, of current or future environmental, safety laws or regulations and the cost of compliance with any resulting order or fine could adversely affect our operations.

Our acquisitions expose us to risks that could adversely affect our business, and we may not achieve the anticipated benefits of acquisitions of businesses or technologies.

In addition to the Novozymes acquisition, the Refine acquisition, and the Atoll GmbH acquisition, and as a part of our growth strategy, we may make selected acquisitions of complementary products and/or businesses. Any acquisition involves numerous risks and operational, financial, and managerial challenges, including the following, any of which could adversely affect our business, financial condition, or results of operations:

difficulties in integrating new operations, technologies, products, and personnel;

problems maintaining uniform procedures, controls and policies with respect to our financial accounting systems;

lack of synergies or the inability to realize expected synergies and cost-savings;

difficulties in managing geographically dispersed operations;

underperformance of any acquired technology, product, or business relative to our expectations and the price we paid;

negative near-term impacts on financial results after an acquisition, including acquisition-related earnings charges;

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the potential loss of key employees, customers, and strategic partners of acquired companies;

claims by terminated employees and shareholders of acquired companies or other third parties related to the transaction;

the assumption or incurrence of additional debt obligations or expenses, or use of substantial portions of our cash;

the issuance of equity securities to finance or as consideration for any acquisitions would dilute the ownership of our stockholders;

the issuance of equity securities to finance or as consideration for any acquisitions may not be an option if the price of our common stock is low or volatile which could preclude us from completing any such acquisitions;

any collaboration, strategic alliance and licensing arrangement may require us to relinquish valuable rights to our technologies or product candidates, or grant licenses on terms that are not favorable to us;

diversion of management's attention and company resources from existing operations of the business;

inconsistencies in standards, controls, procedures, and policies;

the impairment of intangible assets as a result of technological advancements, or worse-than-expected performance of acquired companies; and

assumption of, or exposure to, historical liabilities of the acquired business, including unknown contingent or similar liabilities that are difficult to identify or accurately quantify.

In addition, the successful integration of acquired businesses requires significant efforts and expense across all operational areas, including sales and marketing, research and development, manufacturing, finance, legal, and information technologies. There can be no assurance that any of the acquisitions we may make will be successful or will be, or will remain, profitable. Our failure to successfully address the foregoing risks may prevent us from achieving the anticipated benefits from any acquisition in a reasonable time frame, or at all.

Our royalty agreement with Bristol-Myers Squibb on sales of Orencia expired on December 31, 2013.

Our royalty agreement with Bristol provided for us to receive payments from Bristol based on their net sales of their Orencia® product in the United States through December 31, 2013. As a result, we no longer receive royalty payments under this agreement as of December 31, 2013.

Our license agreement with Pfizer expired on April 26, 2015.

Our licensing agreement with Pfizer provided for us to potentially receive payments from Pfizer based on milestones related to clinical development and initial commercial sales in specific geographies, as well as royalty payments from Pfizer based on its future sales of RG3039 or any SMA compounds developed under the license agreement. On January 26, 2015, Pfizer issued to us a notice of its termination of the License Agreement for convenience, effective as of April 26, 2015. As a result, we no longer receive milestone payments under this agreement.

We have limited sales and marketing capabilities.

We have a small sales force and, historically, we have generated most of our revenues through sales of bioprocessing products to a limited number of life sciences companies, such as GE Healthcare and MilliporeSigma, and through other individual distributors. However, due in part to the Refine acquisition, an increasing amount of our revenue is attributable to our commercialization of bioprocessing products that we sell directly to end-users such as biopharmaceutical companies and contract manufacturing organizations. This has required and will continue to require us to invest additional resources in our sales and marketing capabilities. We

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may not be able to attract and retain additional sales and marketing professionals, and the cost of building the sales and marketing function may not generate our anticipated revenue growth. In addition, our sales and marketing efforts may be unsuccessful.

Our failure to manage these risks may have a negative impact on our financial condition, or results of operations and may cause our stock price to decline.

If we are unable to obtain or maintain our intellectual property, we may not be able to succeed commercially.

We endeavor to obtain and maintain trade secrets and, to a lesser extent, patent protection for our products and processes when available in order to protect them from unauthorized use and to produce a financial return consistent with the significant time and expense required to bring our products to market. Our success will depend, in part, on our ability to:

preserve our trade secrets and know-how;

operate without infringing the proprietary rights of third parties;

obtain and maintain patent protection for our products and manufacturing processes; and

secure any necessary licenses from others on acceptable terms.

We consider trade secrets, know-how and other forms of market protection to be among the most important elements of our proprietary position. We also own or have exclusive rights to a number of U.S. patents and U.S. pending patent applications as well as corresponding foreign patents and patent applications. We continue to actively and selectively pursue patent protection and seek to expand our patent estate, and we cannot be sure that any patent applications relating to our products that we will file in the future or that any currently pending applications will issue on a timely basis, if ever. Since patent applications in the United States filed prior to November 2000 are maintained in secrecy until patents issue and since publication of discoveries in the scientific or patent literature often lag behind actual discoveries, we cannot be certain that we were the first to make the inventions covered by each of our pending patent applications or that we were the first to file patent applications for such inventions. Even if patents are issued, the degree of protection afforded by such patents will depend upon the:

scope of the patent claims;

validity and enforceability of the claims obtained in such patents; and

our willingness and financial ability to enforce and/or defend them.

The patent position of life sciences companies is often highly uncertain and usually involves complex legal and scientific questions. Patents which may be granted to us in certain foreign countries may be subject to opposition

proceedings brought by third parties or result in suits by us, which may be costly and result in adverse consequences for us.

In some cases, litigation or other proceedings may be necessary to assert claims of infringement, to enforce patents issued to us or our licensors, to protect trade secrets, know-how or other intellectual property rights we own or to determine the scope and validity of the proprietary rights of third parties. Such litigation could result in substantial cost to us and diversion of our resources. An adverse outcome in any such litigation or proceeding could have a material adverse effect on our business, financial condition and results of operations. If our competitors prepare and file patent applications in the United States that claim technology also claimed by us, we may be required to participate in interference proceedings declared by the U.S. Patent and Trademark Office to determine priority of invention, which would result in substantial costs to us.

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While one of our U.S. patents covering recombinant Protein A had its term adjusted to expire in 2028, our other U.S. patents covering recombinant Protein A have expired, and as a result, we may face increased competition, which could harm our results of operations, financial condition, cash flow and future prospects.

Other companies could begin manufacturing and selling native or some of the commercial forms of recombinant Protein A in the U.S. and may directly compete with us on certain Protein A products. This may induce us to sell Protein A at lower prices and may erode our market share, which could adversely affect our results of operations, financial condition, cash flow and future prospects.

Our freedom to develop our products may be challenged by others, and we may have to engage in litigation to determine the scope and validity of competitors' patents and proprietary rights, which, if we do not prevail, could harm our business, results of operations, financial condition, cash flow and future prospects.

There has been substantial litigation and other proceedings regarding the complex patent and other intellectual property rights in the life sciences industry. We have been a party to, and in the future may become a party to, patent litigation or other proceedings regarding intellectual property rights.

Other types of situations in which we may become involved in patent litigation or other intellectual property proceedings include:

We may initiate litigation or other proceedings against third parties to seek to invalidate the patents held by such third parties or to obtain a judgment that our products or services do not infringe such third parties' patents.

We may initiate litigation or other proceedings against third parties to seek to enforce our patents against infringement.

If our competitors file patent applications that claim technology also claimed by us, we may participate in interference or opposition proceedings to determine the priority of invention.

If third parties initiate litigation claiming that our processes or products infringe their patent or other intellectual property rights, we will need to defend against such claims.

The cost to us of any patent litigation or other proceeding, even if resolved in our favor, could be substantial. Some of our competitors may be able to sustain the cost of such litigation or proceedings more effectively than we can because of their substantially greater financial resources. If a patent litigation or other intellectual property proceeding is resolved in a way that is unfavorable to us, we or our collaborative or strategic partners may be enjoined from manufacturing or selling our products and services without a license from the other party and be held liable for significant damages. The failure to obtain any required license on commercially acceptable terms or at all may harm our business, results of operations, financial condition, cash flow and future prospects.

Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace. Patent litigation and other proceedings may also absorb significant management time, attention and resources.

We may become involved in litigation or other proceedings with collaborative partners, which may be time consuming, costly and could result in delays in our development and commercialization efforts.

In connection with our decision to focus our efforts on the growth of our core bioprocessing business, we will seek development and commercialization partnerships for our remaining portfolio of clinical stage assets.

Any disputes with such partners, such as BioMarin, that lead to litigation or similar proceedings may result in us incurring legal expenses, as well as facing potential legal liability. Such disputes, litigation or other proceedings are also time consuming and may cause delays in our development and commercialization efforts. If we fail to resolve these disputes quickly and with terms that are no less favorable to us than the current terms of the arrangements, our business, results of operations, financial condition, cash flow and future prospects may be harmed.

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If we are unable to continue to hire and retain skilled personnel, then we will have trouble developing and marketing our products.

Our success depends largely upon the continued service of our management and scientific staff and our ability to attract, retain and motivate highly skilled technical, scientific, management and marketing personnel. We also face significant competition in the hiring and retention of such personnel from other companies, research and academic institutions, government and other organizations who have superior funding and resources. The loss of key personnel or our inability to hire and retain skilled personnel could materially adversely affect our product development efforts and our business.

The market may not be receptive to our new bioprocessing products upon their introduction.

We expect a portion of our future revenue growth to come from introducing new bioprocessing products, such as a larger size version of our OPUS disposable chromatography products, the ATF System, MediaScout pre-packed chromatography columns and new growth factors. The commercial success of all of our products will depend upon their acceptance by the life science and biopharmaceutical industries. Many of the bioprocessing products that we are developing are based upon new technologies or approaches. As a result, there can be no assurance that these new products, even if successfully developed and introduced, will be accepted by customers. If customers do not adopt our new products and technologies, our results of operations may suffer and, as a result, the market price of our common stock may decline.

If our new products do not achieve sufficient market acceptance, our results of operations and competitive position could suffer.

There can be no assurance that unforeseen problems will not occur with respect to the development, performance or market acceptance of new products or that we will otherwise be able to successfully develop and market new products. Failure of our new products to gain market acceptance or our failure to successfully develop and market new products could reduce our margins, which would have an adverse effect on our business, financial condition and results of operations.

If our products do not perform as expected or the reliability of the technology on which our products are based is questioned, we could experience lost revenue, delayed or reduced market acceptance of our products, increased costs and damage to our reputation.

Our success depends on the market's confidence that we can provide reliable, high-quality bioprocessing products. We believe that customers in our target markets are likely to be particularly sensitive to product defects and errors. Our reputation and the public image of our products and technologies may be impaired if our products fail to perform as expected. Although our products are tested prior to shipment, defects or errors could nonetheless occur in our products. Furthermore, the Protein A that we manufacture is subsequently incorporated into products that are sold by other life sciences companies and we have no control over the manufacture and production of those products. In the future, if our products experience, or are perceived to experience, a material defect or error, this could result in loss or delay of revenues, delayed market acceptance, damaged reputation, diversion of development resources, legal claims, increased insurance costs or increased service and warranty costs, any of which could harm our business. Such defects or errors could also narrow the scope of the use of our products, which could hinder our success in the market. Even after any underlying concerns or problems are resolved, any lingering concerns in our target market regarding our technology or any manufacturing defects or performance errors in our products could continue to result in lost revenue, delayed market acceptance, damaged reputation, increased service and warranty costs and claims against us.

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If we are unable to manufacture our products in sufficient quantities and in a timely manner, our operating results will be harmed, our ability to generate revenue could be diminished and our gross margin may be negatively impacted.

Our revenues and other operating results will depend in large part on our ability to manufacture and assemble our products in sufficient quantities and in a timely manner. Any interruptions we experience in the manufacturing or shipping of our products could delay our ability to recognize revenues in a particular quarter. Manufacturing problems can and do arise, and as demand for our products increases, any such problems could have an increasingly significant impact on our operating results. While we have not generally experienced problems with, or delays in, our production capabilities that resulted in delays in our ability to ship finished products, there can be no assurance that we will not encounter such problems in the future. We may not be able to quickly ship products and recognize anticipated revenues for a given period if we experience significant delays in the manufacturing process. In addition, we must maintain sufficient production capacity in order to meet anticipated customer demand, which carries fixed costs that we may not be able to offset if orders slow, which would adversely affect our operating margins. If we are unable to manufacture our products consistently, in sufficient quantities, and on a timely basis, our bioprocessing revenue, gross margins and our other operating results will be materially and adversely affected.

Our operating results may fluctuate significantly, our customers' future purchases are difficult to predict and any failure to meet financial expectations may result in a decline in our stock price.

Our quarterly operating results may fluctuate in the future as a result of many factors such as the impact of seasonal spending patterns, changes in overall spending levels in the life sciences industry, the inability of some of our customers to consummate anticipated purchases of our products due to changes in end-user demand, and other unpredictable factors that may affect ordering patterns. Because our revenue and operating results are difficult to predict, we believe that period-to-period comparisons of our results of operations are not a good indicator of our future performance. Additionally, if revenue declines in a quarter, whether due to a delay in recognizing expected revenue, adverse economic conditions or otherwise, our results of operations will be harmed because many of our expenses are relatively fixed. In particular, a large portion of our manufacturing costs, our research and development, sales and marketing and general and administrative expenses are not significantly affected by variations in revenue. If our quarterly operating results fail to meet investor expectations, the price of our common stock may decline.

Our future revenues pursuant to our asset purchase agreement with BioMarin regarding the HDACi program depends significantly on BioMarin's development and commercialization activities, over which we have no control. If BioMarin is unable or determines not to further develop or commercialize the HDACi program, or experiences significant delays in doing so, we may see a delay in receiving any potential milestone or royalty payments or fail to receive any additional financial benefits from the program.

We entered into an asset purchase agreement with BioMarin on January 21, 2014, related to the histone deacetylase inhibitor (HDACi) portfolio, which includes the Friedreich's ataxia program. We are dependent on BioMarin for the future success of this development program. We have no control over the conduct and timing of development efforts with respect to the HDACi program. BioMarin's failure to devote sufficient financial and other resources to the development plan may result in the delayed or unsuccessful development of the program, which could lead to the non-payment or delay in payment of milestones under the asset purchase agreement and may preclude or delay commercialization of any product under the HDACi program and any royalties we could receive on future commercial sales. Our future financial results may be harmed if BioMarin does not commercialize the HDACi program successfully or on a timely basis prior to the achievement of any milestones or the payment of any royalties to us.

Health care reform measures could adversely affect our business.

The efforts of governmental and third-party payors to contain or reduce the costs of health care may adversely affect the business and financial condition of pharmaceutical and biotechnology companies, including us.

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Specifically, in both the United States and some foreign jurisdictions, there have been a number of legislative and regulatory proposals to change the health care system in ways that could affect our ability to sell our products profitably. The U.S. Congress passed the America Affordable Health Choices Act of 2009 and the Patient Protection and Affordable Care Act and is considering a number of proposals that are intended to reduce or limit the growth of health care costs and which could significantly transform the market for pharmaceutical products. We expect further federal and state proposals and health care reforms to continue to be proposed by legislators, which could limit the prices that can be charged for the products we develop and may limit our commercial opportunity. In the United States, the Medicare Prescription Drug, Improvement, and Modernization Act of 2003, also called the Medicare Modernization Act (the MMA) changed the way Medicare covers and pays for pharmaceutical products. These cost reduction initiatives and other provisions of this legislation could decrease the coverage and price that we receive for any approved products and could seriously harm our business. While the MMA applies only to drug benefits for Medicare beneficiaries, private payors often follow Medicare coverage policy and payment limitations in setting their own reimbursement rates, and any reduction in reimbursement that results from the MMA may result in a similar reduction in payments from private payors.

The continuing efforts of government and other third-party payors to contain or reduce the costs of health care through various means may limit our commercial opportunities and result in a decrease in the price of our common stock or limit our ability to raise capital.

We compete with life science, pharmaceutical and biotechnology companies who are capable of developing new approaches that could make our products and technology obsolete.

The market for therapeutic and commercial products is intensely competitive, rapidly evolving and subject to rapid technological change. Life science, pharmaceutical and biotechnology companies may have substantially greater financial, manufacturing, marketing, and research and development resources than we have. New approaches by these competitors may make our products and technologies obsolete or noncompetitive.

We may be exposed to liabilities under the Foreign Corrupt Practices Act, and any determination that we violated the Foreign Corrupt Practices Act could have a material adverse effect on our business.

We are subject to the Foreign Corrupt Practice Act (the FCPA) and other laws that prohibit improper payments or offers of payments to foreign governments and their officials and political parties by U.S. persons and issuers as defined by the statute for the purpose of obtaining or retaining business. We have operations, agreements with third parties and make sales in jurisdictions outside of the U.S., which may experience corruption. Our activities in jurisdictions outside of the U.S. create the risk of unauthorized payments or offers of payments by one of our employees, consultants, sales agents or distributors, because these parties are not always subject to our control. These risks have increased following the Novozymes acquisition. It is our policy to implement safeguards to discourage these practices by our employees. However, our existing safeguards and any future improvements may prove to be less than effective, and the employees, consultants, sales agents or distributors of our Company may engage in conduct for which we might be held responsible. Violations of the FCPA may result in severe criminal or civil sanctions, and we may be subject to other liabilities, which could negatively affect our business, operating results and financial condition. In addition, the government may seek to hold us liable for successor liability FCPA violations committed by any companies in which we invest or that we acquire.

Our stock price could be volatile, which could cause shareholders to lose part or all of their investment.

The market price of our common stock, like that of the common stock of many other companies with similar market capitalizations, is highly volatile. In addition, the stock market has experienced extreme price and volume fluctuations.

This volatility has significantly affected the market prices of securities of many life sciences, biotechnology and pharmaceutical companies for reasons frequently unrelated to or disproportionate to the operating performance of the specific companies. These broad market fluctuations may adversely affect the market price of our common stock.

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Our growth potential is changing as we evolve from an organization that was heavily involved in research and development to an organization with a strategic focus on our bioprocessing business.

In connection with the Company's decision to focus its efforts on the growth of its core bioprocessing business, the Company has terminated its therapeutic product development activities. The core bioprocessing business on which the Company now focuses will provide growth opportunities that are different than those of a research and development oriented biotechnology company. As a result, the price of the Company's common stock may behave differently than it has historically and, during the shift in our business, may behave in a manner not expected by securities analysts and investors. If the Company's future business focused on bioprocessing generates results that fall below the revised expectations of securities analysts and investors, the trading price of the Company's common stock could decline.

As a result of these risks, we may not be able to achieve the expected benefits of any such transaction or deliver the value thereof to our shareholders. If we are unsuccessful in consummating any such transaction, we may be required to reevaluate our business only after we have incurred substantial expenses and devoted significant management time and resources.

Changes in accounting standards and subjective assumptions, estimates, and judgments by management related to complex accounting matters could significantly affect our financial results or financial condition.

Generally accepted accounting principles and related accounting pronouncements, implementation guidelines, and interpretations with regard to a wide range of matters that are relevant to our business, such as revenue recognition, asset impairment and fair value determinations, inventories, business combinations and intangible asset valuations, and litigation, are highly complex and involve many subjective assumptions, estimates, and judgments. Changes in these rules or their interpretation or changes in underlying assumptions, estimates, or judgments could significantly change our reported or expected financial performance or financial condition.

Our results of operations could be negatively affected by potential fluctuations in foreign currency exchange rates.

We conduct a large portion of our business in international markets. For the fiscal year ended December 31, 2015, 33% of our revenue and 23% of our costs and expenses were denominated in foreign currencies, primarily the Swedish Kroner, the British pound sterling and the Euro. We are exposed to the risk of an increase or decrease in the value of the foreign currencies relative to the U.S. Dollar, which could increase the value of our expenses and decrease the value of our revenue when measured in U.S. Dollars or decrease the value of our assets thereby generating related expense recognition obligations under GAAP. As a result, our results of operation may be influenced by the effects of future exchange rate fluctuations and such effects may have an adverse impact on our common stock price.

Our ability to use net operating loss and tax credit carryforwards and certain built-in losses to reduce future tax payments is limited by provisions of the Internal Revenue Code, and it is possible that certain transactions or a combination of certain transactions may result in material additional limitations on our ability to use our net operating loss and tax credit carryforwards.

As of December 31, 2015, we had approximately \$47.0 million of U.S. federal net operating loss carryforwards and \$1.9 million of U.S. federal business tax credit carryforwards. In general, Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, or the Code, contain rules that limit the ability of a company that undergoes an ownership change (as defined in Section 382 of the Code), which is generally any change in ownership of more than 50% of its stock over a three-year period, to utilize its net operating loss and tax credit carryforwards and certain built-in losses recognized in years after the ownership change. These rules generally operate by focusing on ownership changes involving stockholders owning directly or indirectly 5% or more of the stock of a company and any change in

ownership arising from a new issuance of stock by the company. Generally, if an ownership change occurs, the yearly taxable income limitation on the use of net operating loss

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and tax credit carryforwards and certain built-in losses is equal to the product of the applicable long term tax exempt rate and the value of the company's stock immediately before the ownership change. We may be unable to offset our taxable income with losses, or our tax liability with credits, before such losses and credits expire and therefore would incur larger federal income tax liability. We have completed a number of financings since our inception which may have resulted in a change in control as defined by Section 382, or could result in a change in control in the future, including an ownership change as a result of this offering.

If we identify a material weaknesses in our internal control over financial reporting, our ability to meet our reporting obligations and the trading price of our stock could be negatively affected.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis. Accordingly, a material weakness increases the risk that the financial information we report contains material errors.

We regularly review and update our internal controls, disclosure controls and procedures, and corporate governance policies. In addition, we are required under the Sarbanes-Oxley Act of 2002 to report annually on our internal control over financial reporting. Any system of internal controls, however well designed and operated, is based in part on certain assumptions and can provide only reasonable, not absolute, assurances that the objectives of the system are met. For example, in 2012, we updated our internal controls to include our operations in Sweden. If we, or our independent registered public accounting firm, determine that our internal controls over financial reporting are not effective, or we discover areas that need improvement in the future, these shortcomings could have an adverse effect on our business and financial results, and the price of our common stock could be negatively affected.

If we cannot conclude that we have effective internal control over our financial reporting, or if our independent registered public accounting firm is unable to provide an unqualified opinion regarding the effectiveness of our internal control over financial reporting, investors could lose confidence in the reliability of our financial statements, which could lead to a decline in our stock price. Failure to comply with reporting requirements could also subject us to sanctions and/or investigations by the SEC, the NASDAQ Stock Market or other regulatory authorities.

If we fail to maintain an effective system of internal controls, we may not be able to accurately report financial results or prevent fraud.

Effective internal controls are necessary to provide reliable financial reports and to assist in the effective prevention of fraud. Any inability to provide reliable financial reports or prevent fraud could harm our business.

We must annually evaluate our internal procedures to satisfy the requirements of Section 404 of the Sarbanes-Oxley Act of 2002, which requires management and our independent registered public accounting firm to assess the effectiveness of internal control over financial reporting.

We are implementing a new enterprise resource planning (ERP) system and have recently implemented several significant ERP modules and expect to implement additional ERP modules in the future. The implementation of the ERP system represents a change in our internal control over financial reporting. Although we continue to monitor and assess our internal controls in the new ERP system environment as changes are made and new modules are implemented, and have taken additional steps to modify and enhance the design and effectiveness of our internal control over financial reporting, there is a risk that deficiencies may occur that could constitute significant deficiencies or in the aggregate a material weakness.

If we fail to remedy any deficiencies or maintain the adequacy of our internal controls, we could be subject to regulatory scrutiny, civil or criminal penalties or shareholder litigation. In addition, failure to maintain adequate internal controls could result in financial statements that do not accurately reflect our operating results or financial condition.

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USE OF PROCEEDS

We estimate that the net proceeds from this offering will be approximately \$ million, or approximately \$ million if the underwriters exercise in full their option to purchase additional notes, after deducting underwriting discounts and commissions and estimated offering expenses. We intend to use the net proceeds of this offering for working capital and other general corporate purposes, including to fund possible acquisitions of, or investments in, complementary businesses, products, services and technologies. We have not entered into any agreements or commitments with respect to any acquisitions or investments at this time.

Our expected use of net proceeds from this offering represents our current intentions based upon our present plans and business condition. As of the date of this prospectus supplement, we cannot predict with certainty all of the particular uses for the net proceeds to be received upon the completion of this offering or the amounts that we will actually spend on the uses set forth above.

Pending the use of the proceeds from this offering, we intend to invest the net proceeds in short-term, interest-bearing, investment-grade securities, certificates of deposit or government securities.

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The following table sets forth our cash, cash equivalents and investments and our capitalization as of March 31, 2016:

on an actual basis; and

on an as adjusted basis to reflect the sale of the notes (assuming the underwriters' option is not exercised) and the receipt of \$ of net proceeds, after deducting underwriting discounts and commissions and estimated offering expenses therefrom and assuming such net proceeds are held as cash or cash equivalents.

You should read this table in conjunction with "Use of proceeds" appearing elsewhere in this prospectus supplement, as well as "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our unaudited condensed consolidated financial statements and the related notes thereto, incorporated by reference into this prospectus supplement from our Quarterly Report on Form 10-Q for the three-months ended March 31, 2016.

	As of March 31, 2016	
	Actual	As adjusted
	(dollars in thousands other than par value) (unaudited)	
Cash, cash equivalents and investments	\$ 70,912	\$
Notes offered hereby (1)		
Stockholders' equity:		
Preferred stock, \$0.01 par value, 5,000,000 shares authorized, no shares issued or outstanding actual and as adjusted		
Common stock, \$0.01 par value, 80,000,000 shares authorized, 33,097,903 shares issued and outstanding actual and as adjusted	331	
Additional paid-in capital (2)	205,142	
Accumulated other comprehensive loss, net	(6,670)	
Accumulated deficit	(69,917)	
Total stockholders' equity	128,886	
Total capitalization	\$ 129,881	\$

- (1) In accordance with ASC 470-20, a convertible debt instrument (such as the notes) that may be wholly or partially settled in cash is required to be separated into a liability and an equity component, such that interest expense reflects the issuer's nonexchangeable debt interest rate. Upon issuance, a debt discount is recognized as a decrease

in debt and an increase in equity. The debt component accretes up to the principal amount over the expected term of the debt. ASC 470-20 does not affect the actual amount that we are required to repay, and the amount shown in the table above for the notes is the aggregate principal amount of the notes without reflecting the debt discount or fees and expenses that we are required to recognize or the increase in paid-in capital on our consolidated balance sheet.

- (2) The common stock shown in the table above excludes 1,312,508 shares of common stock issuable upon the exercise of stock options and restricted stock units outstanding as of March 31, 2016, at a weighted average exercise price of \$11.50 per share, and 2,085,727 shares of common stock reserved for future issuance under our 2012 Repligen Corporation Stock Option and Incentive Plan as of March 31, 2016. In addition, the as adjusted common stock shown excludes the shares of common stock reserved for issuance upon conversion of the notes offered by this prospectus.

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The following table sets forth our ratio of earnings to fixed charges for the periods shown. You should read this table in conjunction with this the financial statements and notes incorporated by reference in this prospectus supplement.

	Three Months Ended	Fiscal Year Ended December 31,				Nine Months Ended
	March 31,	2015	2014	2013	2012	December 31,
	2016					2011
Ratio of earnings to fixed charges	16.1x	20.5x	16.2x	35.9x	19.7x	(9.0)**

** Earnings for the nine months ended December 31, 2011 were insufficient to cover fixed charges by \$1,597,000.

** Earnings for the nine months ended December 31, 2011 were insufficient to cover fixed charges by \$1,597,000.

(1) For this purpose, earnings is calculated by: (i) adding (a) pre-tax income (loss) from continuing operations before adjustment for income or loss from equity investees; (b) fixed charges; and (c) amortization of capitalized interest; and (ii) then subtracting from such sum (a) interest capitalized; and (b) preference security dividend requirements of our consolidated subsidiaries. Fixed charges consist of that portion of rental expense associated with certain facility, equipment and vehicle leases considered to be a reasonable estimate of the interest factor (during the periods indicated above we have not incurred interest expense on indebtedness).

Table of Contents**DIVIDEND POLICY**

We have not paid any dividends since our inception and do not intend to pay any dividends on our common stock in the foreseeable future. We anticipate that we will retain all earnings, if any, to support our operations. Any future determination as to the payment of dividends will be at the sole discretion of our Board of Directors and will depend on our financial condition, results of operations, capital requirements and other factors our Board of Directors deems relevant.

PRICE RANGE OF COMMON STOCK

Our common stock trades on the NASDAQ Global Select Market under the symbol **RGEN**. The following table sets forth the high and low sale prices per share of our common stock as reported by the NASDAQ Global Select Market for the periods indicated:

	Sales prices	
	High	Low
Year ended December 31, 2016		
First Quarter	\$ 28.85	\$ 20.07
Second Quarter (through May 17, 2016)	\$ 28.97	\$ 24.70
Year ending December 31, 2015		
First Quarter	\$ 34.15	\$ 19.53
Second Quarter	\$ 42.48	\$ 28.88
Third Quarter	\$ 42.22	\$ 27.25
Fourth Quarter	\$ 36.00	\$ 21.69
Year ended December 31, 2014		
First Quarter	\$ 17.26	\$ 11.70
Second Quarter	\$ 23.14	\$ 12.60
Third Quarter	\$ 24.68	\$ 18.23
Fourth Quarter	\$ 26.75	\$ 19.02

The last reported sale price of our common stock on the NASDAQ Global Select Market on May 17, 2016 was \$25.36 per share. As of May 17, 2016, there were approximately 434 record holders of our common stock. The actual number of stockholders is greater than this number of record holders and includes stockholders who are beneficial owners but whose shares are held in street name by brokers and other nominees.

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DESCRIPTION OF NOTES

We will issue the notes under a base indenture between us and Wilmington Trust, National Association, as supplemented by a supplemental indenture with respect to the notes, each of which will be dated the date of the initial issuance of 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 of the provisions of the notes and the indenture, including the definitions of certain terms used in the notes and 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 Repligen Corporation and not to any of its subsidiaries.

General

The notes will:

be our general unsecured, senior obligations;

initially be limited to an aggregate principal amount of \$100,000,000 (or \$115,000,000 if the underwriters exercise their over-allotment option in full);

bear cash interest from May 1, 2016 at an annual rate of % payable on June 1 and December 1 of each year, beginning on December 1, 2016;

be subject to redemption at our option, in whole or in part, on any business day on or after June 5, 2019 and prior to the maturity date if the last reported sale price of our common stock has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period ending on, and including, the trading day immediately preceding the date on which we provide written notice of redemption, at a redemption price equal to 100% of the principal amount of the notes to be redeemed, plus accrued and unpaid interest to, but excluding, the redemption date, as described under "Optional redemption";

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 relevant fundamental change repurchase date;

mature on June 1, 2021, unless earlier converted, redeemed or repurchased;

be issued in denominations of \$1,000 and integral multiples of \$1,000; 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.

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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 our common stock, \$0.01 par value per share (the _____ 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.

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.

The indenture will not limit the amount of debt, including secured 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 the 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 or during a redemption period, _____ the indenture does 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 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.

Purchase and cancellation

We will cause all notes surrendered for payment, redemption, repurchase (including as described below, but excluding notes repurchased pursuant to cash-settled swaps or other cash-settled derivatives), registration of transfer or exchange or conversion, if surrendered to any person that we control other than the trustee (including any of our agents, subsidiaries or affiliates, in each case, that we control), to be delivered to the trustee for cancellation and such notes will no longer be considered _____ outstanding _____ under the indenture upon their payment, redemption, repurchase or conversion, as applicable. All notes delivered to the trustee shall be cancelled promptly by the trustee. Except for notes surrendered for registration of transfer or exchange, no notes shall be issued to replace 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 privately negotiated transaction or public tender or exchange offer or through counterparties to private agreements, including by cash-settled swaps or other cash-settled derivatives, in each case, without prior notice to the holders of the notes. 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.

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

We will pay or cause the paying agent to pay the principal of, and interest on, notes in global form registered in the name of or held by The Depository Trust Company (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 or cause the paying agent to 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 corporate trust office 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 giving 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 holding certificated notes having an aggregate principal amount of \$5,000,000 or less, by check mailed to the holders of these notes and (ii) to holders holding certificated notes having an aggregate principal amount of more than \$5,000,000, either by check mailed to each such holder or, upon written 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 redemption, 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 May , 2016 or from the most recent date on which interest has been paid or duly provided for. Interest will be payable semiannually in arrears on June 1 and December 1 of each year, beginning on December 1, 2016.

Interest will be paid to the person in whose name a note is registered at the close of business on May 15 or November 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 during certain periods for an event of default 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 of

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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 (excluding intercompany obligations, trade payables and liabilities of a type not required to be reflected on a balance sheet of such subsidiaries in accordance with GAAP) and preferred stock of our subsidiaries. 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, 2016, we had no consolidated indebtedness and our subsidiaries had no liabilities (excluding intercompany obligations, trade payables and liabilities of a type not required to be reflected on a balance sheet of such subsidiaries in accordance with GAAP).

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 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.

Optional Redemption

No sinking fund is provided for the notes and, except as described below in connection with a fundamental change, we are not required to repurchase the notes. Prior to June 5, 2019, the notes will not be redeemable. On or after June 5, 2019, we may redeem all or part of the notes on any business day prior to the maturity date if the last reported sale price of our common stock has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period ending on, and including, the trading day immediately preceding the date on which we provide written notice of redemption (a redemption notice date).

In the case of any optional redemption, we will provide not less than 45 nor more than 55 scheduled trading days written notice before the redemption date to the trustee, the conversion agent (if other than the trustee), the paying agent and each holder of notes. We will redeem the notes, in cash, at a redemption price equal to 100% of the principal amount of such notes to be redeemed, plus accrued and unpaid interest, if any, to, but excluding, the redemption date. The redemption date must be a business day.

We refer to the period from and including the date of the redemption notice to and including the second scheduled trading day prior to the redemption date as the redemption period.

The redemption notice will identify the aggregate principal amount thereof to be redeemed and will state, among other things:

the redemption date

that the holder has the right to convert all or any portion of its notes called for redemption, the applicable conversion rate as of the date of the redemption notice and the settlement method that will apply during the redemption period; and

that the holder must convert on or before the close of business on the second scheduled trading day immediately preceding the redemption date.

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We will issue a press release (and make the press release available on our website) announcing the redemption.

Notwithstanding the foregoing, if we set a redemption date between a regular record date and the corresponding interest payment date, we will not pay accrued interest to any holder of notes to be redeemed, and will instead pay the full amount of the relevant interest payment on such interest payment date to the holder of record on such a regular record date.

If we decide to redeem fewer than all of the outstanding notes, the notes to be redeemed will be selected (1) if the notes are listed on any national securities exchange, in compliance with the requirements of the principal national securities exchange on which the notes are listed, (2) if the notes are not so listed but are in global form, then by lot or otherwise in accordance with the DTC's applicable procedures or (3) if the notes are not so listed and are not in global form, then on a pro rata basis, by lot or by such other method as the Trustee in its sole discretion shall deem fair and appropriate.

If the trustee selects a portion of your notes for redemption and you convert a portion of such notes, the converted portion will be deemed to be from the portion selected for redemption.

In the event of any redemption in part, we will not be required to register the transfer of or exchange any note so selected for redemption, in whole or in part, except the unredeemed portion of any such note being redeemed in part.

No notes may be redeemed if the principal amount of the notes has been accelerated, and such acceleration has not been rescinded, on or prior to the redemption date (except in the case of an acceleration resulting from a default by us in the payment of the redemption price with respect to such notes).

Conversion rights

General

Prior to the close of business on the business day immediately preceding March 1, 2021, 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, Conversion upon notice of redemption and Conversion upon specified corporate events. On or after March 1, 2021 until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert all or any portion of their notes 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 the number of 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 an 40 trading day observation period (as defined below under Settlement upon conversion). The trustee will initially act as the conversion agent.

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A holder may convert fewer than all of such holder's notes so long as the notes converted are an integral 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 5:00 p.m., New York City time (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. However, notes surrendered for conversion during the period from the close of business on any regular record date to 9:00 a.m., New York City time (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 redemption date that is after a regular record date and on or prior to the second scheduled trading day following the corresponding interest payment date, in respect of notes converted after the close of business on such record date and on or prior to the open of business on the second scheduled trading day following such interest payment date;

if we have specified a fundamental change repurchase date that is after a regular record date and on or prior to the corresponding interest payment date, in respect of notes converted after the close of business on such record date and on or prior to the open of business on such 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 of notes on the regular record date immediately preceding the maturity date, any redemption date described in the second bullet in the immediately preceding paragraph and any

fundamental change repurchase date described in the third bullet in the immediately preceding paragraph will receive the full interest payment due on the maturity date or other applicable interest payment date 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 any such shares to be issued in a name other than the holder's name, in which case the holder will pay that tax.

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

Conversion upon satisfaction of sale price condition

Prior to the close of business on the business day immediately preceding March 1, 2021, a holder may surrender all or any portion of its notes for conversion at any time during any calendar quarter commencing after the calendar quarter ending on June 30, 2016 (and only during such calendar quarter), if the last reported sale price of our common stock for at least 20 trading days (whether or not consecutive) during the period of 30 consecutive trading days ending on 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.

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 per share 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 per share for our common stock on the relevant date received from each of at least three nationally recognized independent investment banking firms selected by us for this purpose. The last reported sale price will be determined without regard to after-hours trading or any other trading outside of regular trading session hours.

On or after the occurrence of a share exchange event, the last reported sale price of a unit of reference property on any date will be determined in accordance with the definition of last reported sale price above (except in the case of a share exchange event in connection with which holders of our common stock receive only cash as set forth under

Recapitalizations, reclassifications and changes of our common stock below, in which case the last reported sale price will be equal to the per share amount of cash received by holders of our common stock in such share exchange event).

Except for the purposes of determining amounts due upon conversion, trading day means a day on which (i) trading in our common stock (or other security for which a closing sale price or last reported sale price must be determined) generally occurs on The NASDAQ Global Select Market or, if our common stock (or such other security) is not then listed on The NASDAQ Global Select Market, 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 March 1, 2021, 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, subject to compliance with the procedures and conditions described below concerning the bid solicitation agent's obligation to make a trading price determination.

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The trading price per \$1,000 principal amount of the notes on any date of determination means the average of the secondary market bid quotations obtained by the bid solicitation agent for \$2,000,000 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 \$2,000,000 principal amount of notes from a nationally recognized securities dealer selected by us, then the trading price per \$1,000 principal amount of notes for such determination date 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. Any such determination will be conclusive absent manifest error. 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 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 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 unless a holder of at least \$500,000 aggregate principal amount of notes 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 to 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 on any day, we will so notify the holders, the trustee and the conversion agent (if other than the trustee) on or within one business day of such trading day. 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 trading day, we will so notify the holders, the trustee and the conversion agent (if other than the trustee) that the trading price condition is no longer met and thereafter neither we nor the bid solicitation agent shall be required to solicit bids again until a new holder request is made as provided above.

We will initially act as the bid solicitation agent.

Conversion upon notice of redemption

If we call any or all of the notes for redemption, as described under *Optional redemption*, prior to the close of business on the business day immediately preceding March 1, 2021, holders may convert all or a portion of the notes that have been so called for redemption at any time prior to the close of business on the second scheduled trading day preceding the redemption date, even if such notes are not otherwise convertible at such time. After that time, the right to convert the notes that have been so called for redemption will expire, unless we default in the payment of the redemption price, in which case a holder of notes may convert its notes until the redemption price has been paid or duly provided for. If a holder elects to convert notes during a redemption period, we will, under certain circumstances, increase the applicable conversion rate for the notes as described under *Increase in conversion rate upon conversion upon a make-whole fundamental change or during a redemption period*.

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Conversion upon specified corporate events

Certain distributions

If, prior to the close of business on the business day immediately preceding March 1, 2021, 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, debt 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 immediately preceding the date of announcement for such distribution,

then, in either case, we must notify the holders of the notes, the trustee and the conversion agent (if other than the trustee) at least 45 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.

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 or during a redemption period) occurs prior to the close of business on the business day immediately preceding March 1, 2021, regardless of whether a holder has the right to require us to repurchase the notes as described under Fundamental change permits holders to require us to repurchase notes, or if we are a party to a share exchange event (as defined under Recapitalizations, reclassifications and changes of our common stock) (other than any share exchange event that is solely for the purpose of changing our jurisdiction of organization that (x) does not constitute a fundamental change or a make-whole fundamental change and (y) results in a reclassification, conversion or exchange of outstanding shares of our common stock solely into shares of common stock of the surviving entity) that occurs prior to the close of business on the business day immediately preceding May 1, 2021, all or a portion of the notes may be surrendered for conversion at any time from or after the effective date of the transaction until 35 trading days after the effective date of such transaction or, if such transaction also constitutes a fundamental change, until the second scheduled trading day preceding the related fundamental change repurchase date. We will notify holders, the trustee and the conversion agent (if other than the trustee) as promptly as practicable following the date on which we publicly announce the effective date of such transaction or the date upon which we receive notice, or otherwise become aware, of the effective date of such transaction, but in no event later than the actual effective date of such transaction.

Conversions on or after March 1, 2021

On or after March 1, 2021, a holder may convert all or any portion of its notes at any time prior to the close of business on the second scheduled trading day immediately preceding the maturity date regardless of the foregoing conditions.

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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.

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 second 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 March 1, 2021 or occurs during the redemption period will be settled using the same settlement method. Except for any conversions for which the relevant conversion date occurs on or after March 1, 2021 or during the redemption period, 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 the trustee, the conversion agent (if other than the trustee) and the holders so converting through the conversion agent of the settlement method we have selected no later than:

if the relevant conversion date occurs prior to March 1, 2021, the close of business on the second trading day immediately following the related conversion date;

subject to the immediately succeeding bullet, if the relevant conversion date occurs on or after March 1, 2021, no later than March 1, 2021; and

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if the relevant conversion date occurs during a redemption period (including any redemption period that occurs on or after March 1, 2021), the date of the relevant notice of redemption to be given as described under **Optional redemption**.

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. It is our current intent and policy to settle conversions through combination settlement with a specified dollar amount per \$1,000 principal amount of notes of \$1,000.

With respect to any conversion, 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 in effect on the conversion date;

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 40 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 40 consecutive trading days during the related observation period.

The **daily settlement amount**, for each of the 40 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 being converted to be received upon conversion as specified in the notice specifying our chosen settlement method (the **specified dollar amount**), if any, *divided by* 40 (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 40 consecutive trading days during the observation period, 2.5% of the product of (1) the conversion rate on such trading day and (2) the **daily VWAP** for such trading day.

The **daily VWAP** means, for each of the 40 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 **RGEN**

<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.

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

subject to the immediately succeeding bullet, if the relevant conversion date occurs prior to March 1, 2021, the 40 consecutive trading day period beginning on, and including, the third trading day immediately succeeding such conversion date

if the relevant conversion date occurs during a redemption period, the 40 consecutive trading days beginning on, and including, the 42nd scheduled trading day immediately preceding the relevant redemption date; and

if the relevant conversion date occurs on or after March 1, 2021 (and does not occur during a redemption period), the 40 consecutive trading days beginning on, and including, the 42nd 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 NASDAQ Global Select Market or, if our common stock is not then listed on The NASDAQ Global Select Market, 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 future contracts relating to our common stock.

Except as described under Increase in conversion rate upon conversion upon a make-whole fundamental change or during a redemption period and Recapitalizations, reclassifications and changes of our common stock, we will deliver the consideration due in respect of conversion on the third business day immediately following the relevant conversion date, if we elect physical settlement, or on the third 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 in accordance with the requirements set forth in the indenture 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 become 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).

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When a holder surrenders its notes for conversion, we may, at our election (an exchange election), direct the conversion agent to surrender, on or prior to the second trading day following the conversion date, such notes to a financial institution designated by us for exchange in lieu of conversion. In order to accept any notes surrendered for conversion, the designated institution must agree to timely deliver, in exchange for such notes, the shares of our common stock, cash or combination thereof due upon conversion as described above under Settlement upon conversion. If we make an exchange election, we will, by the close of business on the second trading day following the relevant conversion date, notify the holder surrendering its notes for conversion that we have made the exchange election, and we will notify the designated financial institution of the settlement method we have elected with respect to such conversion and the relevant deadline for payment and/or delivery of shares of our common stock, cash or a combination thereof due upon conversion.

Any notes exchanged by the designated institution will remain outstanding. If the designated institution agrees to accept any notes for exchange but does not timely pay and/or deliver the shares of our common stock, cash or a combination thereof due upon conversion, or if such designated financial institution does not accept the notes for exchange, we will pay and/or deliver the shares of our common stock, cash or a combination thereof due upon conversion to the converting holder at the time and in the manner required under the indenture as if we had not made an exchange election.

Our designation of an institution to which the notes may be submitted for exchange does not require the institution to accept any notes (unless the financial institution has separately made an agreement with us). We may, but will not be obligated to, enter into a separate agreement with any designated financial institution that would compensate it for any such transaction.

Conversion rate adjustments

The conversion rate will be adjusted by us as described below, except that we will not make any adjustments to the conversion rate if holders of the notes participate in their capacity as noteholders (therefore, for the avoidance of doubt, we will make the applicable adjustment to the conversion rate set forth below 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 our 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,

- CR_0 = 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;
- CR_1 = the conversion rate in effect immediately after the open of business on such ex-dividend date or effective date;
- OS_0 = 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 such dividend, distribution, share split or share combination; and
- OS_1 = the number of shares of our common stock outstanding immediately after giving effect to such dividend, distribution, share split or share combination.

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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:

$$CR_1 = CR_{0X} \frac{OS_0 + X}{OS_0 + Y}$$

where,

CR_0 = the conversion rate in effect immediately prior to the open of business on the ex-dividend date for such issuance;

CR_1 = the conversion rate in effect immediately after the open of business on such ex-dividend date;

OS_0 = 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 such rights, options or warrants are not exercised prior to their expiration or shares of our 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 our common stock actually delivered. If such rights, options or warrants are not so issued or if no such right, option or warrant is exercised prior to its

expiration, 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 our common stock at a price per share that is less than such 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, and in determining the aggregate offering price of such shares of our 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.

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(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 shares of 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 an adjustment was effected pursuant to clause (4) below;

any dividends or distributions of reference property in exchange for our common stock in connection with any reclassification, change, consolidation, merger, conveyance, transfer, sale, lease or other disposition described below under "Recapitalizations, reclassifications and changes of our common stock"; 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:

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

where,

CR_0 = the conversion rate in effect immediately prior to the open of business on the ex-dividend date for such distribution;

CR_1 = the conversion rate in effect immediately after the open of business on such ex-dividend date;

SP_0 = 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 SP_0 (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 shares of our capital stock, evidences of our indebtedness, other assets or property of ours or rights, options or warrants to acquire shares of 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.

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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,

CR_0 = the conversion rate in effect immediately prior to the end of the valuation period (as defined below);

CR_1 = the conversion rate in effect immediately after the end of the valuation period;

FMV_0 = 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

MP_0 = 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 on the last trading day of the valuation period; *provided* that in respect of any conversion of notes during the valuation period, references in the preceding paragraph to 10 trading days shall be deemed to be replaced with such lesser number of trading days as have elapsed between the ex-dividend date of such spin-off and the conversion date in determining the conversion rate. If the ex-dividend date of the spin-off is after the 10th trading day immediately preceding, and including, the end of any observation period in respect of a conversion of notes, references in the preceding paragraph to 10 trading days will be deemed to be replaced, solely in respect of that conversion, with such lesser number of trading days as have elapsed from, and including, the ex-dividend date for the spin-off to, and including, the last trading day of such observation period.

(4) If we pay or make any cash dividend or distribution 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,

CR_0 = the conversion rate in effect immediately prior to the open of business on the ex-dividend date for such dividend or distribution;

CR_1 = the conversion rate in effect immediately after the open of business on the ex-dividend date for such dividend or distribution;

SP_0 = 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 to the conversion rate 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

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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 SP (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 pursuant to a tender or exchange offer for our common stock that is subject to the then-applicable tender offer rules under the Exchange Act, other than an odd lot tender offer, to the extent that the cash and value of any other consideration included in the payment per share of our 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:

$$CR_1 = CR_{0X} \frac{AC + (SP_1 \times OS_1)}{OS_0 \times SP_1}$$

where,

- CR_0 = 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;
- CR_1 = 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 or exchanged in such tender or exchange offer;
- OS_0 = 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 or exchange of all shares accepted for purchase or exchange in such tender or exchange offer);
- OS_1 = 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 or exchange of all shares accepted for purchase or exchange in such tender or exchange offer); and
- SP_1 = 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 adjustment 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 in respect of any conversion of notes within the 10 trading days immediately following, and including, the trading day next succeeding the expiration date of any tender or exchange offer, references with respect to 10 consecutive trading days 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 the conversion date in determining the conversion rate. In addition, if the trading day next succeeding the date such tender or exchange offer expires is after the 10th trading day immediately preceding, and including, the end of any observation period (if applicable) in respect of a conversion of notes, references in the preceding paragraph to 10 consecutive trading days shall be deemed to be replaced, solely in respect of that conversion, with such lesser number of trading days as have elapsed from, and including, the trading day next succeeding the date such tender or exchange offer expires to, and including, the last trading day of such observation period.

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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 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.

Subject to the applicable listing standards of The NASDAQ Global Select Market, 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. Subject to the applicable listing standards of The NASDAQ Global Select Market, 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 income tax considerations.

If we have a rights plan in effect upon any 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. We do not currently have a stockholder rights plan in effect.

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;

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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;

upon the repurchase of any shares of our common stock pursuant to an open-market share repurchase program or other buy-back transaction that is not a tender offer or exchange offer of the kind described under clause (5) above;

solely for a change in the par value of our common stock; or

for accrued and unpaid interest, if any.

We will not adjust the conversion rate pursuant to the clauses above unless the adjustment would result in a change of at least 1% in the then-effective conversion rate. However, we will carry forward any adjustment that we would otherwise have to make and take that adjustment into account in any subsequent adjustment. Notwithstanding the foregoing, all such carried-forward adjustments shall be made with respect to the notes (i) in connection with any subsequent adjustment to the conversion rate of at least 1% and (ii)(a) on each trading day of any observation period related to the conversion of notes (in the case of cash settlement or combination settlement) or (b) on the conversion date for any notes (in the case of physical settlement).

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 share split, share combination or change in par value),

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) (any such event, a share exchange event), then, at and after the effective time of the share exchange event, 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 share exchange event would have

owned or been entitled to receive (the reference property) upon the occurrence of such share exchange event. However, at and after the effective time of the share exchange event, (i) we or the successor or acquiring company, as the case may be, 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 share exchange event and (z) the daily VWAP and the last reported sale price, as applicable, 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 share exchange event. If the share exchange event 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 stockholder election), the reference property into which the notes will be convertible will be deemed to be (i) the weighted

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average of the types and amounts of consideration received by the holders of our common stock that affirmatively make such an election or (ii) if no holders of our common stock affirmatively make such an election, the types and amounts of consideration actually received by the holders of our common stock. 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. If the holders of our common stock receive only cash in such share exchange event, then for all conversions that occur after the effective date of such share exchange event (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 or during a redemption period**), *multiplied by* the price paid per share of common stock in such share exchange event and (ii) we will satisfy our conversion obligation by paying such cash amount to converting holders on the third business day immediately following the conversion date. 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 share exchange event includes shares of stock, securities or other property or assets of a company other than us or the successor or purchasing company, as the case may be, in such share exchange event, 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 repurchase notes** below, as the board of directors determines in good faith are appropriate by reason of such share exchange event. We will agree in the indenture not to become a party to any such share exchange event 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 an observation period and the **stock price** for purposes of a make-whole fundamental change or conversion during a redemption period), we will make appropriate adjustments (to the extent no corresponding adjustment is otherwise made pursuant to the provisions described under **Conversion rate adjustments** above) 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, as the case may be, of the event occurs at any time during the period when such 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 or during a redemption period

If the **effective date** (as defined below) of a **make-whole fundamental change** (as defined below) 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 or if we issue a notice of redemption as set forth under **Optional redemption** and a holder elects to convert its notes during the related redemption period, 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 **make-whole fundamental change** means any transaction or event that constitutes a fundamental change defined below in clause (1), (2) or (4) of the definition of **fundamental change** under **Fundamental change permits holders to require us to repurchase notes** below, after giving effect to any exceptions or exclusions from such definition, but without regard to the *proviso* in clause (2) of the definition thereof. 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 second 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

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proviso in clause (2) of the definition thereof, the 35th trading day immediately following the effective date of such make-whole fundamental change).

Upon surrender of notes for conversion in connection with a make-whole fundamental change or during a redemption period, 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 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 third business day following the conversion date. We will notify the trustee, the conversion agent (if other than the trustee) and holders of the effective date of any make-whole fundamental change no later than five business days after such effective date.

The amount, 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) or the redemption notice date, as applicable, and the price paid (or deemed to be paid) per share of our common stock in the make-whole fundamental change or on the redemption notice date, as applicable (the stock price). 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 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 or the redemption notice date, as applicable. In the event that a conversion during a redemption period would also be deemed to be in connection with a make-whole fundamental change, a holder of the notes to be converted will be entitled to a single increase to the conversion rate with respect to the first to occur of the applicable redemption notice date or the effective date of the applicable make-whole fundamental change, and the later event will be deemed not to have occurred for purposes of this section.

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 amounts by which the conversion rate may be increased 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 amount, if any, by which the conversion rate will be increased per \$1,000 principal amount of notes for each stock price and effective date or redemption notice date, as applicable, set forth below:

Effective Date / Redemption Notice Date	Stock Price											
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
May , 2016												
June 1, 2017												
June 1, 2018												

June 1, 2019

June 1, 2020

June 1, 2021

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The exact stock prices and effective date or redemption notice date 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 or redemption notice date is between two dates in the table, the amount by which the conversion rate will be increased will be determined by a straight-line interpolation between the amount of the conversion rate increase set forth for the higher and lower stock prices and the earlier and later effective dates or redemption notice 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), the conversion rate will not be increased; and

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), the conversion rate will not be increased.

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 prior to the maturity date, 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 amount thereof that is equal to \$1,000 or an integral multiple of \$1,000. The fundamental change repurchase date will be a date specified by us that is not less than 20 business days or more than 35 business 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) other than 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 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 equity representing more than 50% of the voting power of our common equity and has filed a Schedule TO or any schedule, form or report under the Exchange Act disclosing such fact;

- (2) the consummation of (A) any recapitalization, reclassification or change of our common stock (other than changes resulting from a subdivision, combination or changes solely in par value) 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 involving 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

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subsidiaries; *provided, however*, that a transaction described in clause (A) or (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 company 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 stockholders approve any plan or proposal for our liquidation or dissolution; or

- (4) our common stock (or other common stock, American depositary receipts, ordinary shares or other common equity interests 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).

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 stockholders, excluding cash payments for fractional shares and cash payments made pursuant to dissenters' appraisal rights, in connection with such transaction or transactions consists of shares of common stock, American depositary receipts, ordinary shares or other common equity interests, in each case, 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 such consideration becomes reference property for the notes, excluding cash payments for fractional shares and cash payments made pursuant to dissenters' appraisal rights (subject to the provisions set forth above under "Conversion rights" "Settlement upon conversion").

On or before the 20th business 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 effective 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.

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If notes are held in certificated form, to exercise the fundamental change repurchase right, you must deliver, prior to the close of business on the second 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 paying agent. 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 applicable DTC procedures.

Holders 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 second business day immediately preceding the fundamental change repurchase date. The notice of withdrawal shall state:

the principal amount of the withdrawn notes, which must be \$1,000 aggregate principal amount or an integral multiple thereof;

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, which must be \$1,000 aggregate principal amount or an integral multiple thereof.

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

We will be required to repurchase the notes on the fundamental change repurchase date, subject to postponement to comply with applicable law. 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.

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No notes may be repurchased by us 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 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).

We will not be required to purchase, or to make an offer to purchase, the notes upon a fundamental change if a third party makes such an offer in the same manner, at the same time and otherwise in compliance with the requirements for an offer made by us as set forth above and such third party purchases all notes properly surrendered and not validly withdrawn under its offer in the same manner, at the same time and otherwise in compliance with the requirements for an offer made by us as set forth above.

The repurchase rights of the holders upon a fundamental change 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.

To the extent that the provisions of any securities laws or regulations conflict with the provisions of the indenture relating to our obligations to purchase the notes upon a fundamental change, we will comply with the applicable securities laws and regulations and will not be deemed to have breached our obligations under such provisions of the indenture by virtue of such conflict.

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.

Furthermore, holders may not be entitled to require us to repurchase their notes upon a fundamental change or entitled to an increase in the conversion rate upon conversion as described under Increase in conversion rate upon conversion upon a make-whole fundamental change or during a redemption period in circumstances involving a significant change in the composition of our board, unless such change is in connection with a fundamental change or make-whole fundamental change, as the case may be, as described herein.

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 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 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

The indenture will provide that we will not consolidate with or merge with or into, or sell, convey, transfer or lease our consolidated properties and assets substantially as an entirety to another person unless (1) if we are

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not the resulting, surviving or transferee corporation, the resulting, surviving or transferee person 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 person expressly assumes by supplemental indenture all of our obligations under the notes and the indenture; and (2) 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 corporation (if not us) shall succeed to, and may exercise every right and power of, ours under the notes and 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 are 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.

This Consolidation, merger and sale of assets section replaces the section of the accompanying prospectus under the heading Description of Securities Debt Securities Consolidation, Merger or Sale in its entirety and Article 10 and Section 4.05 of the base indenture will not apply to the notes.

Events of default

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 redemption, 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 and such failure continues for a period of five business days;
- (4) our failure to give (A) a fundamental change notice as described under Fundamental change permits holders to require us to repurchase notes when due and such failure continues for a period of three business days or (B) notice of a specified corporate transaction as described under Conversion rights Conversion upon specified corporate events 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 significant 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 \$20,000,000 (or its foreign currency equivalent) in the aggregate of ours and/or of any such significant subsidiary, whether such indebtedness now exists or shall hereafter be created (i) resulting in such indebtedness becoming or being declared due and payable prior to its stated maturity or (ii) constituting a failure to pay the principal of any such debt when due and payable (after the expiration of all applicable grace periods) at its stated maturity, upon required repurchase, upon declaration of acceleration or otherwise, and such indebtedness is not discharged, or such acceleration is not cured or rescinded, within 30 days;
- (8) certain events of bankruptcy, insolvency, or reorganization of us or any of our significant subsidiaries; or
- (9) a final judgment for the payment of \$20,000,000 (or its foreign currency equivalent) or more (excluding any amounts covered by insurance) rendered against us or any of our significant

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subsidiaries, which judgment is not discharged 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 right to appeal have been extinguished.

A significant subsidiary is a subsidiary that meets the definition of significant subsidiary as defined in Article 1, Rule 1-02 of Regulation S-X promulgated under the Exchange Act as in effect on the date of the indenture; *provided* that, in the case of a subsidiary that meets the criteria of clause (3) of the definition thereof but not clause (1) or (2) thereof, such subsidiary shall not be deemed to be a significant subsidiary unless the subsidiary's income from continuing operations before income taxes, extraordinary items and cumulative effect of a change in accounting principle exclusive of amounts attributable to any non-controlling interests for the last completed fiscal year prior to the date of such determination exceeds \$15,000,000.

If an event of default occurs and is continuing (other than an event of default with respect to us described in clause (8) above), 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 of at least 25% in principal amount of the outstanding notes shall, declare 100% of the principal amount of and accrued and unpaid interest, if any, on all the notes to be due and payable. Upon such a declaration of acceleration, such principal and accrued and unpaid interest, if any, will be due and payable immediately. In case of any event of default described in clause (8) above with respect to us, 100% of the principal of and accrued and unpaid interest on the notes will automatically become due and payable.

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 (x) for the first 180 days after the occurrence of such an event of default (beginning on, and including, the date on which such an event of default first occurs), 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 notes outstanding for each day during such 180-day period on which such event of default is continuing and (y) for the period from, and including, the 181st day after the occurrence of such an event of default to, and including, the 270th day 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 0.50% per annum of the principal amount of notes outstanding for each day during such additional 90-day period on which such event of default is continuing. In no event will the additional interest described in this paragraph accrue at a rate in excess of 0.25% per annum during the initial 180-day period or 0.50% per annum during the subsequent 90-day period pursuant to the indenture, regardless of the number of events or circumstances giving rise to the requirement to pay such additional interest.

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 271st day after such event of default (if the event of default relating to the reporting obligations is not cured or waived prior to such 271st 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 270 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 the notes, the trustee and the paying agent of such election prior to the beginning of such 270-day period. Upon our failure to timely give such notice, the notes will be immediately subject to acceleration as provided above.

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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, and accrued and unpaid interest, if any, on the notes held by such holder and the consideration due upon conversion of its notes, on or after their respective due dates expressed or provided for in the indenture, and to bring suit for the enforcement of any such payment or delivery, as the case may be, and such right to receive such payment or delivery, as the case may be, on or after such respective dates, shall not be impaired or affected without the consent of such holder.

Subject to the provisions of the indenture relating to the duties of the trustee, if an event of default occurs or to institute, conduct or defend any litigation 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 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 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 written notice that an event of default with respect to the notes is continuing;
- (2) holders of at least 25% in aggregate principal amount of the outstanding notes have requested the trustee to pursue the remedy;
- (3) such holders have offered the trustee security 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 provides 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 provides that if a default occurs and is continuing and is known to a responsible officer of the trustee, the trustee must send to each holder notice of the default within 90 days after it occurs. Except in the case

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of a default in the payment of principal of 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 it 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; *provided* that we are not required to deliver such notice if the default has been cured.

Payments of the redemption price, 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 from the required payment date.

This Events of default section replaces the section of the accompanying prospectus under the heading Description of Securities Debt Securities Events of Default Under the Indenture in its entirety.

Modification and amendment

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 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 other than as required by the indenture;
- (5) reduce the fundamental change repurchase price or the redemption 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 a currency, or at a place of payment, other than that stated in the note;

- (7) change the ranking of the notes;

- (8) impair the right of any holder to receive payment of principal and interest on such holder's notes on or after the due dates therefor or to institute suit for the enforcement of any payment on or with respect to such holder's notes; or

- (9) 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 and/or the notes to:
 - (1) cure any ambiguity, omission, defect or inconsistency;

 - (2) provide for the assumption by a successor company of our obligations under the indenture and the notes as described above under Consolidation, merger and sale of assets ;

 - (3) add guarantees with respect to the notes;

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- (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) increase the conversion rate as provided in the indenture;
- (9) provide for the issuance of additional notes in accordance with the limitations set forth in the indenture;
- (10) comply with any requirement of the SEC in connection with the qualification of the indenture under the Trust Indenture Act;
- (11) provide for the acceptance of appointment by a successor trustee or facilitate the administration of the trusts under the indenture by more than one trustee; or
- (12) 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 as evidenced in an officer's certificate.

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 or the notes becomes effective, we are required to mail 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.

This Modification and amendment section replaces the section of the accompanying prospectus under the heading Description of Securities Debt Securities Modification of Indenture; Waiver in its entirety.

Discharge

We may satisfy and discharge our obligations under the indenture and the notes by delivering to the 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 or redemption 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.

This Discharge section replaces the section of the accompanying prospectus under the heading Description of Securities Debt Securities Discharge in its entirety.

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 written request of that holder.

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Reports

The indenture provides 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 (excluding, for the avoidance of doubt, any such documents or reports (or portions thereof) that are subject to confidential treatment and any correspondence with the SEC) (collectively, the financial information) 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 (or any successor thereto) will be deemed to be filed by us with the trustee as of the time such documents are filed via EDGAR (or any successor thereto), it being understood that the trustee shall have no responsibility to determine if such filings have been made. Notwithstanding the foregoing, at any time we are otherwise not required to file documents or reports with the SEC pursuant to Section 13 or 15(d) of the Exchange Act and the conversion obligation for the notes may be satisfied by the delivery of reference property consisting of, in whole or in part, another entity's common stock, American depositary receipts, ordinary shares or other common equity, as the case may be, we may satisfy our obligations under this covenant by delivering or filing the financial information of such entity within the same time periods and in the same manner described above.

Trustee

Wilmington Trust, National Association is the trustee, registrar, paying agent, conversion agent and bid solicitation agent. Wilmington Trust, National Association, in each of its capacities, including without limitation as trustee, 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.

Governing law

The indenture provides 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).

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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. 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 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.

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 paying agent to DTC's nominee as the registered holder of the global note. Neither we nor the paying agent 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.

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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 beneficial interests in the notes be exchanged for notes in physical, certificated form.

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DESCRIPTION OF CAPITAL STOCK

This section describes the general terms of our common stock. For more detailed information, a holder of our common stock should refer to our certificate of incorporation and our by-laws, copies of which are filed with the SEC as exhibits to the registration statement of which this prospectus supplement and the accompanying prospectus are a part.

General

As of March 31, 2016, our authorized capital stock consists of 80,000,000 shares of common stock, \$0.01 par value per share, and 5,000,000 shares of preferred stock, \$0.01 par value per share. As of March 31, 2016, there were 33,097,903 shares of our common stock outstanding and no shares of preferred stock were outstanding.

The following summary description of our capital stock is based on the provisions of our certificate of incorporation and bylaws and the applicable provisions of the Delaware General Corporation Law. This information is qualified entirely by reference to the applicable provisions of our certificate of incorporation, by-laws and the Delaware General Corporation Law.

Common Stock

We may issue shares of our common stock from time to time. Holders of shares of our common stock are entitled to one vote for each share held of record on all matters to be voted on by stockholders and do not have cumulative voting rights. Subject to the rights of holders of any future series of undesignated preferred stock which may be designated, each share of the outstanding common stock is entitled to participate ratably in any distribution of net assets made to the stockholders in the event of our liquidation, dissolution or winding up and is entitled to participate equally in dividends if and when declared by our board of directors. There are no redemption, sinking fund, conversion or preemptive rights with respect to shares of common stock. All shares of common stock have equal rights and preferences.

Preferred Stock

We may issue shares of our preferred stock from time to time, in one or more series. Our board of directors will determine the rights, preferences and privileges of the shares of each wholly unissued series, and any qualifications, limitations or restrictions thereon, including dividend rights, conversion rights, preemptive rights, voting rights, terms of redemption or repurchase, liquidation preferences, sinking fund terms and the number of shares constituting any series or the designation of any series. Convertible preferred stock will be convertible into our common stock or exchangeable for other securities. Conversion may be mandatory or at the holder's option and would be at prescribed conversion rates.

We will fix the rights, preferences and privileges of the preferred stock of each such series, as well as any qualifications, limitations or restrictions thereon, in the certificate of designation relating to that series. We will file as an exhibit to the registration statement of which this prospectus supplement and the accompanying prospectus are a part of, or will incorporate by reference from reports that we file with the SEC, the form of any certificate of designations that describes the terms of the series of preferred stock we are offering before the issuance of such series of preferred stock.

Anti-takeover Effects of Delaware Law, our Certificate of Incorporation and our By-Laws

Our certificate of incorporation and by-laws include a number of provisions that may have the effect of encouraging persons considering unsolicited tender offers or other unilateral takeover proposals to negotiate with our board of directors rather than pursue non-negotiated takeover attempts. These provisions include the items described below.

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Meetings of Stockholders

Our by-laws provide that a special meeting of the stockholders may be called by the President, the Chairman, the Board of Directors, or upon the written request of one or more stockholders holding in the aggregate at least 30% of the outstanding shares of our stock entitled to vote at such meeting; and only those matters set forth in the notice of the special meeting may be considered or acted upon at a special meeting of stockholders. Our by-laws limit the business that may be conducted at an annual meeting of stockholders to those matters properly brought before the meeting.

Blank Check Preferred Stock

Our certificate of incorporation provides for 5,000,000 authorized shares of preferred stock. The existence of authorized but unissued shares of preferred stock may enable our board of directors to render more difficult or to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise. For example, if in the due exercise of its fiduciary obligations, our board of directors were to determine that a takeover proposal is not in the best interests of us or our stockholders, our board of directors could cause shares of preferred stock to be issued without stockholder approval in one or more private offerings or other transactions that might dilute the voting or other rights of the proposed acquirer or insurgent stockholder or stockholder group. In this regard, our certificate of incorporation grants our board of directors broad power to establish the rights and preferences of authorized and unissued shares of preferred stock. The issuance of shares of preferred stock could decrease the amount of earnings and assets available for distribution to holders of shares of common stock. The issuance may also adversely affect the rights and powers, including voting rights, of these holders and may have the effect of delaying, deterring or preventing a change in control of us.

Section 203 of the Delaware General Corporation Law

We are subject to the provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a publicly-held Delaware corporation from engaging in a business combination with an interested stockholder for a three-year period following the time that this stockholder becomes an interested stockholder, unless the business combination is approved in a prescribed manner. A business combination includes, among other things, a merger, asset or stock sale or other transaction resulting in a financial benefit to the interested stockholder. An interested stockholder is a person who, together with affiliates and associates, owns, or did own within three years prior to the determination of interested stockholder status, 15% or more of the corporation's voting stock.

Under Section 203, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions:

before the stockholder became interested, the board of directors approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;

upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, shares owned by persons who are directors and also officers, and employee stock plans, in some instances; or

at or after the time the stockholder became interested, the business combination was approved by the board of directors of the corporation and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

A Delaware corporation may opt out of these provisions with an express provision in its original certificate of incorporation or an express provision in its certificate of incorporation or by-laws resulting from a stockholders

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amendment approved by at least a majority of the outstanding voting shares. We have not opted out of these provisions. As a result, mergers or other takeover or change in control attempts of us may be discouraged or prevented.

Transfer Agent and Registrar

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

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MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS

The following discussion is a summary of the material U.S. federal income tax considerations relating to the purchase, ownership and disposition of the notes and any common stock received on conversion thereof, but does not purport to be a complete analysis of all potential tax effects and does not address the effects of any state, local, alternative minimum, estate, gift or non-U.S. tax laws. This discussion is based upon the U.S. Internal Revenue Code of 1986, as amended (the Code), Treasury regulations issued thereunder, and judicial and administrative interpretations thereof, each as in effect on the date hereof, and all of which are subject to change, possibly with retroactive effect and to differing interpretations, all of which could result in U.S. federal income tax considerations different from those described below. No rulings from the Internal Revenue Service (IRS) have been or are expected to be sought with respect to the matters discussed below. The discussion below is not binding on the IRS or the courts. Accordingly, 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 that any such position would not be sustained.

This discussion does not address all of the U.S. federal income tax considerations that might be relevant to a beneficial owner in light of such beneficial owner's particular circumstances or to beneficial owners subject to special treatment under the U.S. federal income tax laws, including:

a dealer in securities;

a financial institution;

a regulated investment company;

a real estate investment trust;

a tax-exempt organization;

an insurance company;

a person holding the notes as part of a hedging, integrated, or conversion transaction or a straddle, or a person deemed to sell notes or common stock under the constructive sale provisions of the Code;

a trader in securities that has elected the mark-to-market method of tax accounting for securities;

an entity that is treated as a partnership for U.S. federal income tax purposes;

a person who is a partner or investor in a partnership or other pass-through entity that holds the notes or common stock;

a U.S. person whose functional currency is not the U.S. dollar;

a controlled foreign corporation ;

a passive foreign investment company ;

a qualified foreign pension fund; or

a U.S. expatriate.

In addition, this discussion is limited to persons who purchase the notes for cash at original issue and at their issue price (the first price at which a substantial amount of the notes is sold to the public for cash, excluding sales to bond houses, brokers or similar persons or organizations acting in the capacity of underwriters, placement agents or wholesalers) and who hold the notes as capital assets within the meaning of Section 1221 of the Code.

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For purposes of this discussion, a U.S. holder is a beneficial owner of a note or a share of common stock received upon conversion of the note that is, for U.S. federal income tax purposes:

an individual who is a citizen or resident of the United States;

a corporation (or any other entity treated as a corporation for U.S. federal income tax purposes) 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 (1) it 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 (2) it has a valid election in effect under applicable U.S. Treasury regulations to be treated as a U.S. person.

For purposes of this discussion, a non-U.S. holder is a beneficial owner of a note or share of common stock received upon conversion of the note that is (i) a foreign corporation, (ii) a nonresident alien individual, or (iii) a foreign estate or trust that in each case is not subject to U.S. federal income tax on a net-income basis on income or gain from a note or share of common stock. Special rules may apply to certain non-U.S. holders such as controlled foreign corporations, or, in certain circumstances, individuals who are U.S. expatriates. Such entities should consult their own tax advisors to determine the U.S. federal, state, local and other tax consequences that may be relevant to them.

If a partnership holds the notes or shares of common stock received on conversion thereof, the tax treatment of a partner will generally depend upon the status of the partner and the activities of the partnership. A partnership holding the notes or shares of common stock or a partner therein should consult its own tax advisors as to the tax consequences of holding and disposing of the notes or shares of common stock received on conversion thereof.

Prospective investors considering the purchase of notes should consult their own tax advisors concerning the particular U.S. federal income tax consequences to them of the ownership of the notes or shares of common stock received on conversion thereof in light of their specific situation, as well as the consequences to them arising under the laws of any other taxing jurisdiction.

U.S. Holders

The following discussion is a summary of certain U.S. federal income tax considerations applicable to a U.S. holder of notes or shares of common stock received on conversion.

Payment of Interest. Payments of stated interest on the notes generally will be taxable to a U.S. holder as ordinary income at the time that such payments are received or accrued, in accordance with such U.S. holder's method of accounting for U.S. federal income tax purposes.

This discussion assumes that the notes will not be issued with more than a *de minimis* amount of original issue discount. If, however, the notes' principal amount exceeds the issue price by more than a *de minimis* amount, as determined under applicable Treasury regulations, a U.S. holder will be required to include such excess of principal amount over issue price in income as original issue discount, as it accrues, in accordance with a constant yield method

based on a compounding of interest before the receipt of cash payments attributable to this income.

Additional Interest. As described under the heading Description of Notes Events of Default, we may be required to pay additional interest on the notes in certain circumstances. We intend to take the position that the notes should not be treated as contingent payment debt instruments because of the anticipated remote possibility of such additional payments. Assuming such position is respected, any additional interest paid to a U.S. holder would be taxable as additional ordinary income when received or accrued, in accordance with the U.S. holder s

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method of accounting for U.S. federal income tax purposes. However, the IRS may take a position contrary to our position, which could materially and adversely affect the timing and character of income with respect to the notes. In particular, if the notes were treated as contingent payment debt instruments, U.S. holders would be required to accrue interest income at a higher 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 the discussion assumes that the notes are not treated as contingent payment debt instruments.

Sale, Exchange, or Other Taxable Disposition of Notes, Including a Conversion of the Notes for Cash. A U.S. holder will generally recognize gain or loss upon the sale, exchange, or other taxable disposition of a note, including a conversion of the note into cash, equal to the difference between the amount realized upon the sale, exchange, or other taxable disposition (less an amount equal to any accrued but unpaid interest, which will be taxable as interest income as discussed above to the extent not previously included in income by the U.S. holder) and the U.S. holder's adjusted U.S. federal income tax basis in the note. A U.S. holder's adjusted tax basis in a note will generally be its cost for that note plus the amount, if any, included in income on an adjustment to the conversion rate of the notes. Any such gain or loss generally will be capital gain or loss. Capital gains of non-corporate U.S. holders (including individuals) derived in respect of capital assets held for more than one year currently are eligible for reduced rates of taxation. The deductibility of capital losses is subject to limitations under the Code.

Conversion of Notes into Common Stock. A U.S. holder who receives solely stock and cash in lieu of a fractional share of common stock upon conversion will generally not recognize any gain or loss, except to the extent of cash received in lieu of a fractional share, which will be taxable as a gain or loss as described below, and except to the extent of the fair market value of common stock received with respect to accrued interest, which will be taxable as interest income as discussed above to the extent not previously included in income by the U.S. holder.

A U.S. holder's tax basis in the shares of common stock received upon a conversion (other than common stock attributable to accrued interest, the tax basis of which will equal its fair market value) will equal the tax basis in the note that was converted (excluding the portion of the tax basis that is allocable to any fractional share). A U.S. holder's holding period for shares of common stock will include the period during which the U.S. holder held the notes, except that the holding period of any common stock received with respect to accrued interest will commence on the day after the date of receipt.

The amount of gain or loss recognized on the receipt of cash in lieu of a fractional share will be equal to the difference between the amount of cash a U.S. holder receives in respect of the fractional share and the portion of the U.S. holder's tax basis in the note that is allocable to the fractional share. 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.

If a U.S. holder surrenders notes for conversion and such notes are exchanged with an entity other than us or certain entities that would be treated, for U.S. federal income tax purposes, as a successor to us, the U.S. holder will be required to recognize gain or loss as described under *Sale, Exchange, or Other Taxable Disposition of Notes, Including a Conversion of the Notes for Cash*. In such case, the U.S. holder's tax basis in the common stock received will equal the fair market value of the stock on the date of the exchange, and the U.S. holder's holding period in the common stock received will begin on the day after the date of the exchange.

Conversion of Notes into a Combination of Common Stock and Cash. If a combination of cash and common stock is received in exchange for a U.S. holder's notes upon conversion, we intend to take the position that the conversion should be treated as a recapitalization. In this case, gain, but not loss, will be recognized in an amount equal to the excess of the fair market value of the common stock and cash received (other than amounts attributable to accrued

interest, which will be taxable as interest income as discussed above to the extent not

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previously included in income by the U.S. holder) over the U.S. holder's tax basis in the note, but such gain will only be recognized to the extent of such cash received (excluding cash attributable to accrued interest or received in lieu of a fractional share). 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.

The amount of gain or loss recognized on the receipt of cash in lieu of a fractional share will be equal to the difference between the amount of cash a U.S. holder receives in respect of the fractional share and the portion of the U.S. holder's tax basis in the note that is allocable to the fractional share.

The tax basis in the shares of common stock received upon a conversion (other than common stock attributable to accrued interest, the tax basis of which will equal its fair market value, but including a fractional share deemed received) will equal the tax basis in the note that was converted (excluding the portion of the tax basis that is allocable to any fractional share), reduced by the amount of any cash received (other than cash received in lieu of a fractional share and cash attributable to accrued interest), and increased by the amount of gain, if any, recognized (other than with respect to a fractional share). A U.S. holder's holding period for shares of common stock will include the period during which the U.S. holder held the notes except that the holding period of any common stock received with respect to accrued interest will commence on the day after the date of receipt.

Alternative treatments of the conversion of the notes into cash and common stock are possible. For example, the conversion of a note into cash and common stock may instead be treated for U. S. federal income tax purposes as in part a conversion into stock and in part a payment in redemption of a portion of the note. U.S. holders should consult their tax advisors regarding the tax treatment of the receipt of cash and stock in exchange for notes upon conversion, including any alternative treatments.

If a U.S. holder surrenders notes for conversion and such notes are exchanged with an entity other than us or certain entities that would be treated, for U.S. federal income tax purposes, as a successor to us, the U.S. holder will be required to recognize gain or loss as described under Sale, Exchange, or Other Taxable Disposition of Notes, Including a Conversion of the Notes for Cash. In such case, the U.S. holder's tax basis in the common stock received will equal the fair market value of the stock on the date of the exchange, and the U.S. holder's holding period in the common stock received will begin on the day after the date of the exchange.

Constructive Distribution. Under Section 305(c) of the Code, depending upon the particular circumstances, certain adjustments (or failures to make adjustments) in the conversion rate of the notes that have the effect of increasing a U.S. holder's proportionate interest in our assets or earnings may result in a deemed distribution for U.S. federal income tax purposes equal to the fair market value of such increase. In addition, a failure to adjust (or to adjust adequately) the conversion rate after an event that increases a U.S. holder's proportionate interest could be treated as a deemed distribution. In this regard, adjustments to the conversion rate of the notes that are not made in connection with other shareholders of the Company receiving a distribution of money or other property generally will not give rise to a deemed distribution. Additionally, even if an adjustment is made in connection with other shareholders receiving such a distribution, if such adjustment is made pursuant to a bona fide reasonable adjustment formula that has the effect of preventing the dilution of the interest of the beneficial owners of the notes, it generally will not result in a deemed distribution. Any deemed distribution would be taxable as a dividend, return of capital, or capital gain in accordance with the earnings and profits rules under the Code. It is not clear whether a constructive dividend deemed paid would be eligible for the preferential rates of U.S. federal income tax applicable to certain dividends paid to non-corporate beneficial owners. It is also not clear whether corporate beneficial owners would be entitled to claim the dividends-received deduction with respect to any such constructive dividends.

The conversion rate of the notes will be adjusted in certain circumstances, including upon the payment of certain cash distributions, in connection with a make-whole fundamental change. Certain of the possible conversion rate adjustments provided in the notes (including, without limitation, upon the payments of cash distributions to holders of common stock or in connection with a make-whole fundamental change) will not qualify as being

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pursuant to a bona fide reasonable adjustment formula. If such adjustments are made, depending on the facts at the time, in particular whether we have paid in the past or will pay in the future distributions on our stock or interest on other convertible debt, a U.S. holder may be deemed to have received a distribution even though it has not received any cash or property because of such adjustments. We do not currently anticipate paying cash distributions for the foreseeable future that could have the result of a U.S. holder receiving a deemed distribution as a result of an adjustment to the conversion rate of the notes, although there can be no assurance in this regard.

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. However, for individual U.S. holders, such dividends currently are generally taxed at the lower applicable long-term capital gains rates, provided certain holding period and other requirements 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. For corporate U.S. holders, dividends received may be eligible for the dividends-received deduction, subject to applicable limitations.

Upon the sale, exchange, 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 any property received upon such taxable 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) are generally subject to a reduced rate of U.S. federal income tax. The deductibility of capital losses is subject to certain limits under the Code.

Unearned Income Medicare Contribution Tax. Certain U.S. holders who are individuals, estates or trusts will be required to pay an additional 3.8% tax on, among other things, interest and dividends and capital gains from the sale, exchange, redemption, retirement or other taxable disposition of notes and our common stock.

Information Reporting and Backup Withholding. Information reporting requirements generally will apply to payments of interest on the notes, distributions on shares of common stock (including constructive distributions deemed paid) and to the proceeds of a sale of a note or shares of common stock received on conversion thereof unless a U.S. holder is an exempt recipient, such as a corporation. Backup withholding will apply to those payments if a U.S. holder fails to provide its correct taxpayer identification number and certification of exempt status, or fails to report in full interest and dividend income. Any amounts withheld under the backup withholding rules will be allowed as a refund or a credit against U.S. federal income tax liability, provided the required information is timely furnished to IRS. We are required to determine the date and amount of any constructive distributions. Recently proposed Treasury Regulations, on which we may rely prior to the issuance of final Treasury Regulations, specify how the date and amount of constructive distributions are determined, and provide that our determination of those items will generally control the timing and amount of any constructive distributions (or portions thereof) you would be required to include your taxable income.

Non-U.S. Holders

The following is a summary of the U. S. federal income tax considerations applicable to a non-U.S. holder (as defined above) of notes or shares of common stock received on conversion thereof.

Payments of Interest. The gross amount of payments to a non-U.S. holder of interest that does not qualify for the portfolio interest exemption and that is not effectively connected with the conduct by such non-U.S. holder of a trade or business within the United States (or, if required by an applicable income tax treaty, is not attributable to a

permanent establishment of such non-U.S. holder in the United States) will be subject to U.S. withholding tax at the rate of 30%, unless a U.S. income tax treaty applies to reduce or eliminate such withholding tax. The 30%

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U. S. federal withholding tax will not apply to any payment to a non-U.S. holder of interest on a note under the portfolio interest exemption provided the non-U.S. holder:

does not actually (or constructively) own 10% or more of the total combined voting power of all of our stock entitled to vote;

is not a controlled foreign corporation with respect to which we are a related person within the meaning of the Code; and

either (1) provides the non-U.S. holder's name and address on an IRS Form W-8BEN or W-8BEN-E (or other applicable or successor form), and certifies under penalties of perjury that it is not a U.S. person or (2) owns through a securities clearing organization, bank or other financial institution that holds customers securities in the ordinary course of its trade or business that certifies, under penalties of perjury, that such a form has been received from the non-U.S. holder by it or by a financial institution between it and the non-U.S. holder.

If a non-U.S. holder is engaged in a trade or business in the United States and interest paid on the note constitutes income that is effectively connected with the conduct of that trade or business (and, if required by an applicable income tax treaty, is attributable to a permanent establishment of that non-U.S. holder), or U.S. Trade or Business Income, such interest will be taxed on a net basis at regular graduated U.S. income tax rates rather than the 30% gross rate. In the case of a non-U.S. holder that is a corporation, such U.S. Trade or Business Income may also be subject to the branch profits tax at a 30% rate (or lower applicable income tax treaty rate).

To claim the benefit of a tax treaty exemption from or reduction in withholding, or to claim exemption from withholding because the income is U.S. Trade or Business Income, a non-U.S. holder must provide a properly executed IRS Form W-8BEN, W-8BEN-E or W-8ECI (or such successor forms as the IRS designates), as applicable. The non-U.S. holder must provide the form to its withholding agent. These forms must be periodically updated. A non-U.S. holder who is claiming the benefits of a treaty may be required in certain instances to obtain a U.S. taxpayer identification number and to provide certain documentary evidence issued by foreign governmental authorities to prove residence in the foreign country.

Dividends and Constructive Dividends. Any dividends paid to a non-U.S. holder with respect to shares of our common stock received on conversion of a note (and any deemed dividends resulting from certain adjustments, or failure to make adjustments, to the conversion rate including, without limitation, for cash dividends paid to holders of our common stock, see U.S. Holders Constructive Distribution above) will be subject to withholding tax at a 30% rate (or lower applicable treaty rate). Because any constructive dividend a non-U.S. holder is deemed to receive would not give rise to any cash from which any applicable withholding tax could be satisfied, this tax would be withheld from any amount owed to the non-U.S. holder, including, but not limited to, interest payments, cash or shares of common stock otherwise due on conversion, dividends or sales proceeds subsequently paid or credited to the non-U.S. holder. Dividends and constructive dividends that constitute U.S. Trade or Business Income and are attributable to a U.S. permanent establishment, 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. Certain certification requirements and disclosure requirements must be complied with 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 lower applicable income tax treaty rate).

A non-U.S. holder of shares of our common stock who wishes to claim the benefit of an applicable treaty rate is required to satisfy applicable certification and other requirements. Non-U.S. holders eligible for a reduced rate of U.S. withholding tax pursuant to an income tax treaty may obtain a refund of any excess amounts withheld by filing an appropriate claim for refund with the IRS.

Sale, Exchange, Conversion or Other Disposition of Notes or Shares of Common Stock. A non-U.S. holder will recognize gain on the sale, exchange, or other taxable disposition of notes or shares of common stock received on

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conversion thereof, including a conversion of notes into cash or into a combination of cash and stock. Nevertheless, such gain generally will not be subject to U.S. federal income tax unless:

such gain is U.S. Trade or Business Income (as defined above);

in the case of any gain recognized by an individual non-U.S. holder, such non-U.S. holder is present in the United States for 183 days or more in the taxable year of such sale, exchange, retirement, conversion, or other disposition and certain other conditions are met; or

we are or have been a United States real property holding corporation for U.S. federal income tax purposes during the shorter of the non-U.S. holder's holding period and the 5-year period ending on the date of such sale, exchange, retirement, conversion or other disposition.

An individual non-U.S. holder described in the first bullet point above will be subject to tax on the net gain derived from the sale, exchange, conversion or other taxable disposition under regular graduated U.S. federal income tax rates. An individual non-U.S. holder described in the second bullet point above will be subject to a flat 30% tax on the gain derived from the sale, exchange, conversion or other taxable disposition, which may be offset by U.S. source capital losses, even though such non-U.S. holder is not considered a resident of the United States. A corporate non-U.S. holder that falls under the first bullet point above will be subject to tax on any net gain in the same manner as if such non-U.S. holder was a U.S. person as defined under the Code and, in addition, may be subject to the branch profits tax equal to 30% of such non-U.S. holder's U.S. Trade or Business Income or at such lower rate as may be specified by an applicable income tax treaty.

We believe that we are not and do not anticipate becoming a United States real property holding corporation for U.S. federal income tax purposes.

Any stock that a non-U.S. holder receives on the sale, exchange, conversion or other disposition of a note that is attributable to accrued interest will not give rise to gain, as described above, but will instead generally be subject to the rules for taxation of interest described above under Payments of Interest.

Information Reporting and Backup Withholding. The amount of interest and distributions paid (including distributions deemed paid) and the amount of tax, if any, withheld with respect to those payments will be reported to the non-U.S. holder and the IRS. Copies of the information returns reporting such interest and distributions and any withholding may also be made available to the tax authorities in the country in which a non-U.S. holder resides, under the provisions of an applicable income tax treaty.

We are required to determine the date and amount of any constructive distributions. Recently proposed Treasury Regulations, on which we may rely prior to the issuance of final Treasury Regulations, specify how the date and amount of constructive distributions are determined, and provide that our determination of those items will generally control the timing and amount of any constructive distributions (or portions thereof) you would be required to include your taxable income.

In general, a non-U.S. holder will not be subject to backup withholding with respect to payments of interest or dividends, provided that the withholding agent does not have actual knowledge or reason to know that such non-U.S. holder is a U.S. person, as defined under the Code, and has received the statement described above in the third bullet

point under Payments of Interest. In addition, information returns will not be filed with the IRS in connection with the payment of proceeds from a sale or other disposition of the notes or the shares of our common stock unless made within the United States or through certain U.S. related payors. In the case of a payment made within the United States, unless the withholding agent has not received the statement described above in the third bullet point under

Payments of Interest, a non-U.S. holder may also be subject to U.S. backup withholding on such proceeds.

Any amounts withheld under the backup withholding rules will be allowed as a refund or a credit against a non-U.S. holder's U.S. federal income tax liability, provided the required information is timely furnished to the IRS.

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Withholding on Foreign Accounts. Legislation known as the Foreign Account Tax Compliance Act and guidance issued thereunder (FATCA) imposes withholding taxes on certain types of payments made to foreign financial institutions and certain other foreign entities (including financial intermediaries). FATCA generally imposes withholding at a rate of 30% on payments to certain foreign entities of interest on and the gross proceeds of dispositions of the notes and dividends on and the gross proceeds of dispositions of our common stock, unless various U.S. information reporting and due diligence requirements (generally relating to ownership by U.S. persons of interests in or accounts with those entities) have been satisfied or the entity otherwise qualifies for an exemption. An intergovernmental agreement between the United States and an applicable foreign country may modify these requirements. These withholding rules generally apply to payments of interest on the notes and dividends on common stock, and to payments of gross proceeds from a sale or other disposition of the notes or common stock made on or after January 1, 2019. You should consult your tax advisor regarding the application of FATCA.

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Under the terms and subject to the conditions contained in an underwriting agreement dated _____ we have agreed to sell to the underwriters named below, for whom Jefferies LLC is acting as representative, the following respective principal amounts of the notes:

Underwriter	Principal Amount
Jefferies LLC	\$
Total	\$ 100,000,000

The underwriting agreement provides that the underwriters are obligated to purchase all of the notes. The underwriting agreement also provides that if an underwriter defaults the purchase commitments of non-defaulting underwriters may be increased or the offering of notes may be terminated.

We expect to grant to the underwriters an option, exercisable from time to time within up to 30 days of the date of this prospectus (subject to certain limitations) to purchase on a pro rata basis up to \$15,000,000 aggregate principal amount of additional notes at the initial public offering price less the underwriting discounts and commissions.

The underwriters propose to offer the notes initially at the public offering price on the cover page of this prospectus and to selling group members at that price less a selling concession of up to % of the principal amount per note. After the initial public offering the underwriters may change the public offering price and concession and discount to broker/dealers.

The following table summarizes the compensation we will pay to the underwriters.

	Per Note	Total
Underwriting discounts and commissions paid by us	%	\$

We estimate that our out of pocket expenses for this offering will be approximately \$. The notes are a new issue of securities with no established trading market. One or more of the underwriters intends to make a secondary market for the notes. However, they are not obligated to do so and may discontinue making a secondary market for the notes at any time without notice. No assurance can be given as to how liquid the trading market for the notes will be.

The underwriters will not confirm sales to any accounts over which they exercise discretionary authority without first receiving a written consent from those accounts.

Without the prior written consent of Jefferies LLC, we will not, during the period ending 60 days after the date of this prospectus:

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, lend, pledge, hypothecate or otherwise transfer or dispose of, directly or indirectly, any shares of common stock or any securities convertible into or exercisable or

exchangeable for shares of common stock;

file any registration statement with the SEC relating to the offering of any shares of common stock or any securities convertible into or exercisable or exchangeable for common stock; or

enter into any swap, hedge or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the common stock;

whether any such transaction described above is to be settled by delivery of common stock or such other securities, in cash or otherwise.

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The restrictions described in the immediately preceding paragraph do not apply to:

the grant of options to purchase shares of common stock, restricted shares or restricted stock units pursuant to our existing employee benefit plans, the issuance of shares of common stock upon the exercise of any option issued pursuant to our employee benefit plans, or the vesting of or removal or lapse of restrictions on awards issued pursuant to our employee benefit plans (or the filing of a registration statement on Form S-8 to register shares of stock issuable under such plans);

the filing by us, on or after June 15, 2016, of a resale registration statement or prospectus supplement relating to the resale of up to 538,700 shares of Common Stock issued pursuant to the Share Purchase Agreement, dated as of March 31, 2016, between the Company, Repligen Sweden AB and UV-Cap GmbH & Co. KG;

the issuance by us of shares of common stock upon the exercise of a warrant or the conversion of a security outstanding on the date of this prospectus;

the issuance by us during such 60 day period of shares of common stock in an amount up to 5.0% of our outstanding shares in connection with a merger, acquisition or other transaction;

the issuance of common stock or options to purchase common stock, or the issuance of common stock upon exercise of options, pursuant to any stock option, stock bonus or other stock plan; or

the issuance of options, restricted stock units or other awards to newly hired employees.

Our directors and executive officers have agreed that, without the prior written consent of Jefferies LLC and subject to certain exceptions, they will not, during the period ending 90 days after the date of this prospectus:

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, lend, pledge, hypothecate or otherwise transfer or dispose of, directly or indirectly, any shares of common stock (other than shares of common stock pledged to a margin account as of the date of this prospectus supplement) or any securities convertible into or exercisable or exchangeable for shares of common stock; or

enter into any swap, hedge or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the common stock;

whether any such transaction described above is to be settled by delivery of common stock or such other securities, in cash or otherwise. In addition, each such person agrees that, without the prior written consent of Jefferies LLC, he or she will not, during the period ending 90 days after the date of this prospectus, make any demand for, or exercise any right with respect to, the registration of any shares of common stock or any security convertible into or exercisable or

exchangeable for common stock.

We have agreed to indemnify the several underwriters against liabilities under the Securities Act, or contribute to payments which the underwriters may be required to make in that respect.

In connection with the offering the underwriters, may engage in stabilizing transactions, syndicate covering transactions, and penalty bids in accordance with Regulation M under the Exchange Act.

Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum.

Syndicate covering transactions involve purchases of the notes in the open market after the distribution has been completed in order to cover syndicate short positions. In determining the source of notes to close out the short position, the underwriters will consider, among other things, the price of notes available for purchase in the open market.

Penalty bids permit the representatives to reclaim a selling concession from a syndicate member when the notes originally sold by the syndicate member are purchased in a stabilizing transaction or a syndicate covering transaction to cover syndicate short positions.

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These stabilizing transactions, syndicate covering transactions and penalty bids may have the effect of raising or maintaining the market price of the notes or preventing or retarding a decline in the market price of the notes. As a result the price of the notes may be higher than the price that might otherwise exist in the open market. These transactions may be effected on the Nasdaq Global Market or otherwise and, if commenced, may be discontinued at any time.

A prospectus in electronic format may be made available on the web sites maintained by one or more of the underwriters participating in this offering and one or more of the underwriters participating in this offering may distribute prospectuses electronically. The representative may agree to allocate securities to underwriters for sale to their online brokerage account holders. Internet distributions will be allocated by the underwriters that will make internet distributions on the same basis as other allocations.

In the ordinary course of their respective businesses, the underwriters and certain of their respective affiliates have in the past and may in the future engage in investment banking or other transactions of a financial nature with us, including the provision of certain advisory services and the making of loans to us and our affiliates, for which they have received or will receive customary compensation.

Selling Restrictions

Notice to Canadian Residents

This document constitutes an exempt offering document as defined in and for the purposes of applicable Canadian securities laws. No prospectus has been filed with any securities commission or similar regulatory authority in Canada in connection with the offer and sale of the notes. No securities commission or similar regulatory authority in Canada has reviewed or in any way passed upon this document or on the merits of the notes and any representation to the contrary is an offence.

Canadian investors are advised that this document has been prepared in reliance on section 3A.3 of National Instrument 33-105 *Underwriting Conflicts* (NI 33-105). Pursuant to section 3A.3 of NI 33-105, this document is exempt from the requirement that the Company and the underwriters provide investors with certain conflicts of interest disclosure pertaining to connected issuer and/or related issuer relationships that may exist between the Company and the underwriters as would otherwise be required pursuant to subsection 2.1(1) of NI 33-105.

Resale Restrictions

The offer and sale of the notes in Canada is being made on a private placement basis only and is exempt from the requirement that the Company prepares and files a prospectus under applicable Canadian securities laws. Any resale of the notes acquired by a Canadian investor in this offering and, if converted, the underlying shares, must be made in accordance with applicable Canadian securities laws, which may vary depending on the relevant jurisdiction, and which may require resales to be made in accordance with Canadian prospectus requirements, a statutory exemption from the prospectus requirements, in a transaction exempt from the prospectus requirements or otherwise under a discretionary exemption from the prospectus requirements granted by the applicable local Canadian securities regulatory authority. These resale restrictions may under certain circumstances apply to resales of the notes and, if converted, the underlying shares, outside of Canada.

Representations of Purchasers

Each Canadian investor who purchases the notes will be deemed to have represented to the Company, the underwriters and to each dealer from whom a purchase confirmation is received, as applicable, that the investor (i) is purchasing as principal, or is deemed to be purchasing as principal in accordance with applicable Canadian securities laws, for investment only and not with a view to resale or redistribution; (ii) is an accredited investor as such term is defined in section 1.1 of National Instrument 45-106 *Prospectus Exemptions* (NI 45-106) or, in

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Ontario, as such term is defined in section 73.3(1) of the *Securities Act* (Ontario); and (iii) is a permitted client as such term is defined in section 1.1 of National Instrument 31-103 *Registration Requirements, Exemptions and Ongoing Registrant Obligations*.

Taxation and Eligibility for Investment

Any discussion of taxation and related matters contained in this document does not purport to be a comprehensive description of all of the tax considerations that may be relevant to a Canadian investor when deciding to purchase the notes and, in particular, does not address any Canadian tax considerations. No representation or warranty is hereby made as to the tax consequences to a resident, or deemed resident, of Canada of an investment in the notes or with respect to the eligibility of the notes for investment by such investor under relevant Canadian federal and provincial legislation and regulations.

Rights of Action for Damages or Rescission

Securities legislation in certain of the Canadian jurisdictions provides certain purchasers of securities pursuant to an offering memorandum, including where the distribution involves an eligible foreign security as such term is defined in Ontario Securities Commission Rule 45-501 *Ontario Prospectus and Registration Exemptions* and in Multilateral Instrument 45-107 *Listing Representation and Statutory Rights of Action Disclosure Exemptions*, as applicable, with a remedy for damages or rescission, or both, in addition to any other rights they may have at law, where the offering memorandum, or other offering document that constitutes an offering memorandum, and any amendment thereto, contains a misrepresentation as defined under applicable Canadian securities laws. These remedies, or notice with respect to these remedies, must be exercised or delivered, as the case may be, by the purchaser within the time limits prescribed under, and are subject to limitations and defences under, applicable Canadian securities legislation. In addition, these remedies are in addition to and without derogation from any other right or remedy available at law to the investor.

Language of Documents

Upon receipt of this document, each Canadian investor hereby confirms that it has expressly requested that all documents evidencing or relating in any way to the sale of the securities described herein (including for greater certainty any purchase confirmation or any notice) be drawn up in the English language only. *Par la réception de ce document, chaque investisseur canadien confirme par les présentes qu'il a expressément exigé que tous les documents faisant foi ou se rapportant de quelque manière que ce soit à la vente des valeurs mobilières décrites aux présentes (incluant, pour plus de certitude, toute confirmation d'achat ou tout avis) soient rédigés en anglais seulement.*

European Economic Area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a Relevant Member State), each underwriter has represented and agreed that with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State (the Relevant Implementation Date) it has not made and will not make an offer of notes which are the subject of the offering contemplated by this prospectus 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 Jefferies LLC for any such offer; or

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(c) in any other circumstances falling within Article 3(2) of the Prospectus Directive, provided that no such offer of notes shall require us or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an offer of notes 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 for the notes, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State, the expression Prospectus Directive means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State), and includes any relevant implementing measure in the Relevant Member State and the expression 2010 PD Amending Directive means Directive 2010/73/EU.

United Kingdom

Each underwriter has represented and agreed that:

(a) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the FSMA) received by it in connection with the issue or sale of the notes in circumstances in which Section 21(1) of the FSMA does not apply to us; and

(b) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the notes in, from or otherwise involving the United Kingdom.

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LEGAL MATTERS

Certain legal matters relating to the notes offered hereby will be passed upon for us by Goodwin Procter LLP, Boston, Massachusetts. Skadden, Arps, Slate, Meagher & Flom LLP and Covington & Burling LLP are counsel to the underwriters with respect to this offering.

EXPERTS

The consolidated financial statements of Repligen Corporation appearing in Repligen Corporation's Annual Report (Form 10-K) for the year ended December 31, 2015, and the effectiveness of Repligen Corporation's internal control over financial reporting as of December 31, 2015 have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their reports thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the notes offered by this prospectus supplement. This prospectus supplement does not contain all the information set forth in the registration statement and its exhibits and schedules, portions of which have been omitted as permitted by the rules and regulations of the SEC. You should read the registration statement and its exhibits and schedules carefully for provisions that may be important to you.

We file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy any materials we file at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information about the Public Reference Room. The SEC also maintains a website at www.sec.gov that contains periodic and current reports, proxy and information statements, and other information regarding registrants that are filed electronically with the SEC.

These documents are also available, free of charge, through the Investors section of our website, which is located at www.repligen.com. Information contained on our website is not incorporated by reference into this prospectus supplement or the accompanying prospectus and you should not consider information on our website to be part of this prospectus supplement or the accompanying prospectus.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference the information and reports we file with it, which means that we can disclose important information to you by referring you to these documents. The information incorporated by reference is an important part of this prospectus supplement, and information that we file after the date hereof with the SEC will automatically update and supersede the information already incorporated by reference. We are incorporating by reference the documents listed below, which we have already filed with the SEC, and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, except as to any portion of any future report or document that is not deemed filed under such provisions, after the date of this prospectus supplement and prior to the termination of this offering:

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Quarterly Report on Form 10-Q for the quarter ended March 31, 2016, as filed with the SEC on May 5, 2016;

Annual Report on Form 10-K for the year ended December 31, 2015, as filed with the SEC on February 25, 2016;

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The information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2015 from our definitive proxy statement on Schedule 14A (other than information furnished rather than filed), which was filed with the SEC on April 11, 2016;

Current Reports on Form 8-K filed with the SEC on February 24, 2016, April 4, 2016, April 29, 2016 and May 12, 2016 (in each case, except for information contained therein which is furnished rather than filed); and

The description of our common stock contained in our registration statement on Form 8-A, which was filed with the SEC in paper format on May 27, 1986, including any amendment or report filed for the purpose of updating such description.

You may request a copy of these filings, and any exhibits we have specifically incorporated by reference as an exhibit in this prospectus supplement, at no cost by writing or telephoning us at the following:

Repligen Corporation

41 Seyon Street, Bldg.1, Suite 100

Waltham, MA, 02453

Attention: Secretary, (781) 250-0111

You may also access these documents, free of charge on the SEC's website at www.sec.gov or on our website at www.repligen.com. The information contained in, or that can be accessed through, our website is not part of this prospectus supplement.

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PROSPECTUS

REPLIGEN CORPORATION

Common Stock

Preferred Stock

Warrants

Units

Debt Securities

By this prospectus, we may offer and sell from time to time, in one or more offerings, common stock, preferred stock, warrants, debt securities or any combination thereof as described in this prospectus. The warrants may be convertible into or exercisable or exchangeable for common stock or preferred stock, the preferred stock may be convertible into or exchangeable for common stock and the debt securities may be convertible into or exchangeable for common stock or preferred stock. You should carefully read this prospectus, any prospectus supplement and any related free writing prospectus, as well as any documents incorporated in any of the foregoing by reference, before you invest in our securities. This prospectus may not be used to sell our securities unless accompanied by a prospectus supplement. The prospectus supplement or any related free writing prospectus may also add to, update, supplement or clarify information contained in this prospectus.

Our common stock is traded on the NASDAQ Global Select Market under the symbol RGEN.

We may offer and sell our securities to or through one or more agents, underwriters, dealers or other third parties or directly to one or more purchasers on a continuous or delayed basis. If agents, underwriters or dealers are used to sell our securities, we will name them and describe their compensation in a prospectus supplement. The price to the public of our securities and the net proceeds we expect to receive from the sale of such securities will also be set forth in a prospectus supplement.

INVESTING IN OUR SECURITIES INVOLVES A HIGH DEGREE OF RISK. YOU SHOULD CAREFULLY REVIEW THE RISKS AND UNCERTAINTIES REFERENCED UNDER THE HEADING RISK FACTORS ON PAGE 5 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 May 18, 2016.

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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.

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ABOUT THIS PROSPECTUS

This prospectus is part of an automatic shelf registration statement that we filed with the Securities and Exchange Commission, or the SEC, as a well-known seasoned issuer as defined in Rule 405 under the Securities Act of 1933, as amended, or the Securities Act. Under this shelf registration, we may offer shares of our common stock and preferred stock, various series of warrants to purchase common stock or preferred stock, debt securities or any combination thereof, from time to time in one or more offerings. This prospectus only provides you with a general description of the securities we may offer. Each time we offer our securities under this prospectus, we will provide a prospectus supplement that will contain more specific information about the specific terms of the offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. This prospectus may not be used to sell our securities unless accompanied by a prospectus supplement. Each such prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add, update or change information contained in this prospectus or in documents incorporated by reference into this prospectus. We urge you to carefully read this prospectus, any applicable prospectus supplement and any related free writing prospectus, together with the information incorporated herein by reference as described under the headings *Where You Can Find Additional Information* and *Incorporation of Certain Information by Reference* before you invest in our securities.

We have not authorized anyone to provide you with information in addition to or different from that contained or incorporated by reference into this prospectus, any applicable prospectus supplement and any related free writing prospectus. We take no responsibility for, and can provide no assurances as to the reliability of, any information not contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus that we may authorize to be provided to you. This prospectus is an offer to sell only the securities offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. You should assume that the information in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate only as of the date on the front of the document and that any information incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus, any applicable prospectus supplement or any related free writing prospectus, or any sale of a security.

This prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the heading *Where You Can Find Additional Information*.

Unless otherwise mentioned or unless the context requires otherwise, throughout this prospectus, any applicable prospectus supplement and any related free writing prospectus, the words *Repligen*, *we*, *us*, *our*, *the company* or similar references refer to Repligen Corporation and its subsidiaries; and the term *securities* refers collectively to our common stock, preferred stock, warrants to purchase common stock or preferred stock, debt securities, or any combination of the foregoing securities.

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. All trademarks, service marks and trade names included or incorporated by reference into this prospectus, any applicable *prospectus* supplement or any related free writing prospectus are the property of their respective owners.

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WHERE YOU CAN FIND ADDITIONAL INFORMATION

This prospectus is part of a registration statement that we have filed with the SEC. Certain information in the registration statement has been omitted from this prospectus in accordance with the rules of the SEC. We are subject to the information requirements of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and, in accordance therewith, file annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any document we file at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. You may call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room. These documents also may be accessed through the SEC's Electronic Data Gathering, Analysis and Retrieval system, or EDGAR, via electronic means, including the SEC's home page on the Internet (www.sec.gov).

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 Securities. 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 stockholder upon request and without charge. Written requests for such copies should be directed to Repligen Corporation, 41 Seyon Street, Bldg.1, Suite 100, Waltham, MA 02453, Attention: Secretary, or by telephone request to (781) 250-0111. Our website is located at <http://www.repligen.com>. Information contained on our website is not incorporated by reference into this prospectus and, therefore, is not part of this prospectus or any accompanying prospectus supplement.

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INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference the information and reports we file with it, which means that we can disclose important information to you by referring you to these documents. The information incorporated by reference is an important part of this prospectus, and information that we file after the date hereof with the SEC will automatically update and supersede the information already incorporated by reference. We are incorporating by reference the documents listed below, which we have already filed with the SEC, and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, except as to any portion of any future report or document that is not deemed filed under such provisions, after the date of this prospectus and prior to the termination of this offering:

Quarterly Report on Form 10-Q for the quarter ended March 31, 2016, as filed with the SEC on May 5, 2016;

Annual Report on Form 10-K for the year ended December 31, 2015, as filed with the SEC on February 25, 2016;

The information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2015 from our definitive proxy statement on Schedule 14A (other than information furnished rather than filed), which was filed with the SEC on April 11, 2016;

Current Reports on Form 8-K filed with the SEC on February 24, 2016, April 4, 2016 and May 12, 2016 (in each case, except for information contained therein which is furnished rather than filed); and

The description of our common stock contained in our registration statement on Form 8-A, which was filed with the SEC in paper format on May 27, 1986, including any amendment or report filed for the purpose of updating such description.

You may request a copy of these filings, and any exhibits we have specifically incorporated by reference as an exhibit in this prospectus, at no cost by writing or telephoning us at the following:

Repligen Corporation, 41 Seyon Street, Bldg.1, Suite 100, Waltham, MA, 02453, Attention: Secretary, (781) 250-0111.

You may also access these documents, free of charge on the SEC's website at www.sec.gov or on our website at www.repligen.com. The information contained in, or that can be accessed through, our website is not part of this prospectus.

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.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the documents that we incorporate by reference, contains forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. Any statements about our expectations, beliefs, plans, objectives, assumptions or future events or performance are not historical facts and may be forward-looking. These statements are often, but are not always, made through the use of words or phrases such as may, will, could, should, expects, intends, plans, anticipates, believes, estimates, predicts, continue, and similar expressions, or the negative of these terms, or similar expressions. Accordingly, these statements involve estimates, assumptions and uncertainties which could cause actual results to differ materially from those expressed in them. Any forward-looking statements are qualified in their entirety by reference to the factors discussed throughout this report, and in particular those factors referenced in the section Risk Factors.

This prospectus, including the sections entitled About this Prospectus and Risk Factors, contains forward-looking statements that are based on our management's belief and assumptions and on information currently available to our management. These statements relate to future events or our future financial performance, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements. Forward-looking statements include, but are not limited to, statements about: the acceptance by the market of our products, the implementation of our business model, strategic plans for our business, including potential acquisitions of businesses or new products, products and technology, the scope of protection we are able to establish and maintain for intellectual property rights covering our products and technology, estimates of our expenses, future revenues and capital requirements, our ability to maintain and establish key customer relationships, and our financial performance, developments relating to our competitors and our industry. Given these uncertainties, you should not place undue reliance on these forward-looking statements. You should read this prospectus, any supplements to this prospectus and the documents that we incorporate by reference in this prospectus with the understanding that our actual future results may be materially different from what we expect. Except as required by law, we do not undertake any obligation to update or revise any forward-looking statements contained in this prospectus or any supplement to this prospectus, whether as a result of new information, future events or otherwise.

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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 and (ii) other documents we file with the SEC that are deemed incorporated by reference into this prospectus.

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ABOUT THE COMPANY

We are a bioprocessing company focused on the development, production and commercialization of innovative products and solutions used to manufacture biologic drugs. Biologics, or principally monoclonal antibodies, recombinant proteins, and vaccines, are produced through a complex process involving the use of live cells to produce the drug, followed by multiple separation and purification processes, where they are used to enhance production yields for the manufacturer while lowering costs and reducing risks through increased process efficiencies.

For over twenty years, we have been a global market leader in recombinant and native forms of Protein A, a critical reagent used in the downstream purification of therapeutic monoclonal antibodies, or mAbs, the largest and fastest-growing class of biological drugs on the market. Through strategic acquisitions and internal product development, we have expanded our portfolio of products that we sell direct to end users (biopharmaceutical companies and contract manufacturing organizations). This expansion includes our acquisition of the MediaScout® pre-packed chromatography column manufacturing business, as well as our acquisition of the ATF System, a best-in-class device for generating extremely high cell concentrations (allowing improved drug yield and more robust, large scale manufacturing) and our development of OPUS®, our single-use pre-packed chromatography columns for the capture and purification of biologic drugs in clinical development.

We were incorporated in May 1981 under the laws of the State of Delaware. Our mailing address and executive offices are located at 41 Seyon Street, Waltham, MA 02453 and our telephone number at that address is (781) 250-0111. We maintain an Internet website at the following address: www.repligen.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 trades on the NASDAQ Global Select Market under the symbol RGEN.

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DESCRIPTION OF SECURITIES

We may offer shares of our common stock and preferred stock, various series of warrants to purchase common stock or preferred stock, debt securities, in one or more series, as either senior or subordinated debt or as senior or subordinated convertible debt, or any combination thereof from time to time in one or more offerings under this prospectus at prices and on terms to be determined at the time of any offering. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities under this prospectus, we will provide a prospectus supplement and/or free writing prospectus that will describe the specific amounts, prices and other important terms of the securities. The following description of our capital stock does not purport to be complete and is subject to, and qualified in its entirety by, our certificate of incorporation and by-laws. The terms of our securities may also be affected by Delaware law.

Common Stock. We may issue shares of our common stock from time to time. Holders of shares of our common stock are entitled to one vote for each share held of record on all matters to be voted on by stockholders and do not have cumulative voting rights. Subject to the rights of holders of any future series of undesignated preferred stock which may be designated, each share of the outstanding common stock is entitled to participate ratably in any distribution of net assets made to the stockholders in the event of our liquidation, dissolution or winding up and is entitled to participate equally in dividends if and when declared by our board of directors. There are no redemption, sinking fund, conversion or preemptive rights with respect to shares of common stock. All shares of common stock have equal rights and preferences.

Preferred Stock. We may issue shares of our preferred stock from time to time, in one or more series. Our board of directors will determine the rights, preferences and privileges of the shares of each wholly unissued series, and any qualifications, limitations or restrictions thereon, including dividend rights, conversion rights, preemptive rights, voting rights, terms of redemption or repurchase, liquidation preferences, sinking fund terms and the number of shares constituting any series or the designation of any series. Convertible preferred stock will be convertible into our common stock or exchangeable for other securities. Conversion may be mandatory or at the holder's option and would be at prescribed conversion rates.

If we sell any series of preferred stock under this prospectus, we will fix the rights, preferences and privileges of the preferred stock of such series, as well as any qualifications, limitations or restrictions thereon, in the certificate of designation relating to that series. We will file as an exhibit to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, the form of any certificate of designation that describes the terms of the series of preferred stock we are offering before the issuance of that series of preferred stock. We urge you to read the applicable prospectus supplement and any free writing prospectus that we may authorize to be provided to you related to the series of preferred stock being offered, as well as the complete certificate of designation that contains the terms of the applicable series of preferred stock.

Warrants. We may issue warrants for the purchase of common stock and/or preferred stock in one or more series. We may issue warrants independently or together with common stock and/or preferred stock, and the warrants may be attached to or separate from these securities. We urge you to read the applicable prospectus supplement and any free writing prospectus that we may authorize to be provided to you related to the particular series of warrants being offered, as well as the complete warrant agreements and warrant certificates that contain the terms of the warrants. Forms of the warrant agreements and forms of warrant certificates containing the terms of the warrants being offered will be filed as exhibits to the registration statement of which this prospectus is a part or will be incorporated by reference from reports that we file with the SEC.

We will evidence each series of warrants by warrant certificates that we will issue. Warrants may be issued under an applicable warrant agreement that we enter into with a warrant agent. We will indicate the name and address of the warrant agent, if applicable, in the prospectus supplement relating to the particular series of warrants being offered.

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Units. We may issue, in one or more series, units consisting of common stock, preferred stock, and/or warrants for the purchase of common stock and/or preferred stock in any combination. We urge you to read the applicable prospectus supplement and any free writing prospectus that we may authorize to be provided to you related to the series of units being offered, as well as the complete unit agreement that contains the terms of the units. We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, the form of unit agreement and any supplemental agreements that describe the terms of the series of units we are offering before the issuance of the related series of units.

We will evidence each series of units by unit certificates that we will issue. Units may be issued under a unit agreement that we enter into with a unit agent. We will indicate the name and address of the unit agent, if applicable, in the prospectus supplement relating to the particular series of units being offered.

Debt Securities. We may issue debt securities, in one or more series, as either senior or subordinated debt or as senior or subordinated convertible debt. While the terms we have summarized below will apply generally to any future debt securities we may offer under this prospectus, the applicable prospectus supplement or free writing prospectus will describe the specific terms of any debt securities offered through that prospectus supplement or free writing prospectus. The terms of any debt securities we offer under a prospectus supplement or free writing prospectus may differ from the terms we describe below.

We may evidence each series of debt securities we will issue by an indenture that we enter into with a trustee. We will indicate the name and address of the trustee, if applicable, in the prospectus supplement relating to the particular series of debt securities being offered. Unless the context requires otherwise, whenever we refer to the indentures, we also are referring to any supplemental indentures that specify the terms of a particular series of debt securities.

We will issue any senior debt securities under the senior indenture that we will enter into with the trustee named in the senior indenture. We will issue any subordinated debt securities under the subordinated indenture that we will enter into with the trustee named in the subordinated indenture. We have filed forms of these documents as exhibits to the registration statement, of which this prospectus is a part, and supplemental indentures and forms of debt securities containing the terms of the debt securities being offered will be filed as exhibits to the registration statement of which this prospectus is a part or will be incorporated by reference from reports that we file with the SEC.

The indentures will be qualified under the Trust Indenture Act of 1939, as amended, or the Trust Indenture Act. We use the term trustee to refer to either the trustee under the senior indenture or the trustee under the subordinated indenture, as applicable.

The following summaries of material provisions of the senior debt securities, the subordinated debt securities and the indentures are subject to, and qualified in their entirety by reference to, all of the provisions of the indenture applicable to a particular series of debt securities. We urge you to read the applicable prospectus supplement or free writing prospectus and any related free writing prospectuses related to the debt securities that we may offer under this prospectus, as well as the complete applicable indenture that contains the terms of the debt securities. Except as we may otherwise indicate, the terms of the senior indenture and the subordinated indenture are identical.

General

We will describe in the applicable prospectus supplement or free writing prospectus the terms of the series of debt securities being offered, including:

the title;

the principal amount being offered, and if a series, the total amount authorized and the total amount outstanding;

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any limit on the amount that may be issued;

whether or not we will issue the series of debt securities in global form, and, if so, the terms and who the depository will be;

the maturity date;

whether and under what circumstances, if any, we will pay additional amounts on any debt securities held by a person who is not a United States person for tax purposes, and whether we can redeem the debt securities if we have to pay such additional amounts;

the annual interest rate, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;

whether or not the debt securities will be secured or unsecured, and the terms of any secured debt;

the terms of the subordination of any series of subordinated debt;

the place where payments will be payable;

restrictions on transfer, sale or other assignment, if any;

our right, if any, to defer payment of interest and the maximum length of any such deferral period;

the date, if any, after which, the conditions upon which, and the price at which, we may, at our option, redeem the series of debt securities pursuant to any optional or provisional redemption provisions and the terms of those redemption provisions;

the date, if any, on which, and the price at which we are obligated, pursuant to any mandatory sinking fund or analogous fund provisions or otherwise, to redeem, or at the holder's option, to purchase, the series of debt securities and the currency or currency unit in which the debt securities are payable;

whether the indenture will require us to maintain any interest coverage, fixed charge, cash flow-based, asset-based or other financial ratios;

a discussion of certain material or special United States federal income tax considerations applicable to the debt securities;

information describing any book-entry features;

provisions for a sinking fund purchase or other analogous fund, if any;

the applicability of the provisions in the indenture on discharge;

whether the debt securities are to be offered at a price such that they will be deemed to be offered at an original issue discount as defined in paragraph (a) of Section 1273 of the Internal Revenue Code of 1986, as amended;

the denominations in which we will issue the series of debt securities, if other than denominations of \$1,000 and any integral multiple thereof;

the currency of payment of debt securities if other than U.S. dollars and the manner of determining the equivalent amount in U.S. dollars; and

any other specific terms, preferences, rights or limitations of, or restrictions on, the debt securities, including any additional events of default or covenants provided with respect to the debt securities, and any terms that may be required by us or advisable under applicable laws or regulations or advisable in connection with the marketing of the debt securities.

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Conversion or Exchange Rights

We will set forth in the applicable prospectus supplement or free writing prospectus the terms on which a series of debt securities may be convertible into or exchangeable for our common stock, our preferred stock or other securities (including securities of a third-party). We will include provisions as to whether conversion or exchange is mandatory, at the option of the holder or at our option. We may include provisions pursuant to which the number of shares of our common stock, our preferred stock or other securities (including securities of a third-party) that the holders of the series of debt securities receive would be subject to adjustment.

Consolidation, Merger or Sale

Unless we provide otherwise in the prospectus supplement or free writing prospectus applicable to a particular series of debt securities, the indentures will not contain any covenant that restricts our ability to merge or consolidate, or sell, convey, transfer or otherwise dispose of all or substantially all of our assets. However, any successor to or acquirer of such assets must assume all of our obligations under the indentures or the debt securities, as appropriate. If the debt securities are convertible into or exchangeable for other securities of ours or securities of other entities, the person with whom we consolidate or merge or to whom we sell all of our property must make provisions for the conversion of the debt securities into securities that the holders of the debt securities would have received if they had converted the debt securities before the consolidation, merger or sale.

Events of Default Under the Indenture

Unless we provide otherwise in the prospectus supplement or free writing prospectus applicable to a particular series of debt securities, the following are events of default under the indentures with respect to any series of debt securities that we may issue:

if we fail to pay interest when due and payable and our failure continues for 90 days and the time for payment has not been extended;

if we fail to pay the principal, premium or sinking fund payment, if any, when due and payable at maturity, upon redemption or repurchase or otherwise, and the time for payment has not been extended;

if we fail to observe or perform any other covenant contained in the debt securities or the indentures, other than a covenant specifically relating to another series of debt securities, and our failure continues for 90 days after we receive notice from the trustee or holders of at least 25% in aggregate principal amount of the outstanding debt securities of the applicable series; and

if specified events of bankruptcy, insolvency or reorganization occur.

We will describe in each applicable prospectus supplement or free writing prospectus any additional events of default relating to the relevant series of debt securities.

If an event of default with respect to debt securities of any series occurs and is continuing, other than an event of default specified in the last bullet point above, the trustee or the holders of at least 25% in aggregate principal amount

of the outstanding debt securities of that series, by notice to us in writing, and to the trustee if notice is given by such holders, may declare the unpaid principal, premium, if any, and accrued interest, if any, due and payable immediately. If an event of default specified in the last bullet point above occurs with respect to us, the unpaid principal, premium, if any, and accrued interest, if any, of each issue of debt securities then outstanding shall be due and payable without any notice or other action on the part of the trustee or any holder.

The holders of a majority in principal amount of the outstanding debt securities of an affected series may waive any default or event of default with respect to the series and its consequences, except defaults or events of default regarding payment of principal, premium, if any, or interest, unless we have cured the default or event of default in accordance with the indenture. Any waiver shall cure the default or event of default.

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Subject to the terms of the indentures, if an event of default under an indenture shall occur and be continuing, the trustee will be under no obligation to exercise any of its rights or powers under such indenture at the request or direction of any of the holders of the applicable series of debt securities, unless such holders have offered the trustee reasonable indemnity or security satisfactory to it against any loss, liability or expense. The holders of a majority in principal amount of the outstanding debt securities of any series will have the right to 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 the debt securities of that series, provided that:

the direction so given by the holder is not in conflict with any law or the applicable indenture; and

subject to its duties under the Trust Indenture Act, the trustee need not take any action that might involve it in personal liability or might be unduly prejudicial to the holders not involved in the proceeding.

A holder of the debt securities of any series will have the right to institute a proceeding under the indentures or to appoint a receiver or trustee, or to seek other remedies if:

the holder has given written notice to the trustee of a continuing event of default with respect to that series;

the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series have made written request, and such holders have offered reasonable indemnity to the trustee or security satisfactory to it against any loss, liability or expense or to be incurred in compliance with instituting the proceeding as trustee; and

the trustee does not institute the proceeding, and does not receive from the holders of a majority in aggregate principal amount of the outstanding debt securities of that series other conflicting directions within 90 days after the notice, request and offer.

These limitations do not apply to a suit instituted by a holder of debt securities if we default in the payment of the principal, premium, if any, or interest on, the debt securities, or other defaults that may be specified in the applicable prospectus supplement or free writing prospectus.

We will periodically file statements with the trustee regarding our compliance with specified covenants in the indentures.

Modification of Indenture; Waiver

Subject to the terms of the indenture for any series of debt securities that we may issue, we and the trustee may change an indenture without the consent of any holders with respect to the following specific matters:

to fix any ambiguity, defect or inconsistency in the indenture;

to comply with the provisions described above under Description of Debt Securities Consolidation, Merger or Sale;

to comply with any requirements of the SEC in connection with the qualification of any indenture under the Trust Indenture Act;

to add to, delete from or revise the conditions, limitations, and restrictions on the authorized amount, terms, or purposes of issue, authentication and delivery of debt securities, as set forth in the indenture;

to provide for the issuance of and establish the form and terms and conditions of the debt securities of any series as provided under Description of Debt Securities General, to establish the form of any certifications required to be furnished pursuant to the terms of the indenture or any series of debt securities, or to add to the rights of the holders of any series of debt securities;

to evidence and provide for the acceptance of appointment hereunder by a successor trustee;

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to provide for uncertificated debt securities and to make all appropriate changes for such purpose;

to add to our covenants such new covenants, restrictions, conditions or provisions for the benefit of the holders, to make the occurrence, or the occurrence and the continuance, of a default in any such additional covenants, restrictions, conditions or provisions an event of default or to surrender any right or power conferred to us in the indenture; or

to change anything that does not materially adversely affect the interests of any holder of debt securities of any series.

In addition, under the indentures, the rights of holders of a series of debt securities may be changed by us and the trustee with the written consent of the holders of at least a majority in aggregate principal amount of the outstanding debt securities of each series that is affected. However, subject to the terms of the indenture for any series of debt securities that we may issue or as otherwise provided in the prospectus supplement or free writing prospectus applicable to a particular series of debt securities, we and the trustee may make the following changes only with the consent of each holder of any outstanding debt securities affected:

extending the stated maturity of the series of debt securities;

reducing the principal amount, reducing the rate of or extending the time of payment of interest, or reducing any premium payable upon the redemption or repurchase of any debt securities; or

reducing the percentage of debt securities, the holders of which are required to consent to any amendment, supplement, modification or waiver.

Discharge

Each indenture provides that, subject to the terms of the indenture and any limitation otherwise provided in the prospectus supplement or free writing prospectus applicable to a particular series of debt securities, we can elect to be discharged from our obligations with respect to one or more series of debt securities, except for specified obligations, including obligations to:

register the transfer or exchange of debt securities of the series;

replace stolen, lost or mutilated debt securities of the series;

maintain paying agencies;

hold monies for payment in trust;

recover excess money held by the trustee;

compensate and indemnify the trustee; and

appoint any successor trustee.

In order to exercise our rights to be discharged, we must deposit with the trustee money or government obligations sufficient to pay all the principal of, any premium and interest on, the debt securities of the series on the dates payments are due.

Form, Exchange and Transfer

We will issue the debt securities of each series only in fully registered form without coupons and, unless we otherwise specify in the applicable prospectus supplement or free writing prospectus, in denominations of \$1,000 and any integral multiple thereof. The indentures provide that we may issue debt securities of a series in temporary or permanent global form and as book-entry securities that will be deposited with, or on behalf of, The Depository Trust Company or another depository named by us and identified in a prospectus supplement or free writing prospectus with respect to that series.

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At the option of the holder, subject to the terms of the indentures and the limitations applicable to global securities described in the applicable prospectus supplement or free writing prospectus, the holder of the debt securities of any series can exchange the debt securities for other debt securities of the same series, in any authorized denomination and of like tenor and aggregate principal amount.

Subject to the terms of the indentures and the limitations applicable to global securities set forth in the applicable prospectus supplement or free writing prospectus, holders of the debt securities may present the debt securities for exchange or for registration of transfer, duly endorsed or with the form of transfer endorsed thereon duly executed if so required by us or the security registrar, at the office of the security registrar or at the office of any transfer agent designated by us for this purpose. Unless otherwise provided in the debt securities that the holder presents for transfer or exchange, we will make no service charge for any registration of transfer or exchange, but we may require payment of any taxes or other governmental charges.

We will name in the applicable prospectus supplement or free writing prospectus the security registrar, and any transfer agent in addition to the security registrar, that we initially designate for any debt securities. We may at any time designate additional transfer agents or rescind the designation of any transfer agent or approve a change in the office through which any transfer agent acts, except that we will be required to maintain a transfer agent in each place of payment for the debt securities of each series.

If we elect to redeem the debt securities of any series, we will not be required to:

issue, register the transfer of, or exchange any debt securities of that series during a period beginning at the opening of business 15 days before the day of mailing of a notice of redemption of any debt securities that may be selected for redemption and ending at the close of business on the day of the mailing; or

register the transfer of or exchange any debt securities so selected for redemption, in whole or in part, except the unredeemed portion of any debt securities we are redeeming in part.

Information Concerning the Trustee

The trustee, other than during the occurrence and continuance of an event of default under an indenture, undertakes to perform only those duties as are specifically set forth in the applicable indenture. Upon an event of default under an indenture, the trustee must use the same degree of care as a prudent person would exercise or use in the conduct of his or her own affairs.

Subject to this provision, the trustee is under no obligation to exercise any of the powers given it by the indentures at the request of any holder of debt securities unless it is offered reasonable security and indemnity against the costs, expenses and liabilities that it might incur.

Payment and Paying Agents

Unless we otherwise indicate in the applicable prospectus supplement or free writing prospectus, we will make payment of the interest on any debt securities on any interest payment date to the person in whose name the debt securities, or one or more predecessor securities, are registered at the close of business on the regular record date for the interest.

We will pay principal of and any premium and interest on the debt securities of a particular series at the office of the paying agents designated by us, except that unless we otherwise indicate in the applicable prospectus supplement or free writing prospectus, we will make interest payments by check that we will mail to the holder or by wire transfer to certain holders. Unless we otherwise indicate in the applicable prospectus supplement or free writing prospectus, we will designate the corporate trust office of the trustee as our sole paying agent for payments with respect to debt securities of each series. We will name in the applicable prospectus supplement or

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free writing prospectus any other paying agents that we initially designate for the debt securities of a particular series. We will maintain a paying agent in each place of payment for the debt securities of a particular series.

All money we pay to a paying agent or the trustee for the payment of the principal of or any premium or interest on any debt securities that remains unclaimed at the end of two years after such principal, premium or interest has become due and payable will be repaid to us, and the holder of the debt security thereafter may look only to us for payment thereof.

Governing Law

The indentures and the debt securities will be governed by and construed in accordance with the laws of the State of New York, except to the extent that the Trust Indenture Act is applicable.

Ranking of Debt Securities

The subordinated debt securities will be subordinate and junior in priority of payment to certain of our other indebtedness to the extent described in a prospectus supplement or free writing prospectus. The subordinated indenture does not limit the amount of subordinated debt securities that we may issue. It also does not limit us from issuing any other secured or unsecured debt.

The senior debt securities will rank equally in right of payment to all our other senior unsecured debt. The senior indenture does not limit the amount of senior debt securities that we may issue. It also does not limit us from issuing any other secured or unsecured debt.

Anti-takeover Effects of Delaware Law, our Certificate of Incorporation and our By-Laws

Our certificate of incorporation and our by-laws include a number of provisions that may have the effect of encouraging persons considering unsolicited tender offers or other unilateral takeover proposals to negotiate with our board of directors rather than pursue non-negotiated takeover attempts. These provisions include the items described below.

Meetings of Stockholders

Our by-laws provide that a special meeting of the stockholders may be called by the President, the Chairman, the Board of Directors, or upon the written request of one or more stockholders holding in the aggregate at least 30% of the outstanding shares of our stock entitled to vote at such meeting; and only those matters set forth in the notice of the special meeting may be considered or acted upon at a special meeting of stockholders. Our by-laws limit the business that may be conducted at an annual meeting of stockholders to those matters properly brought before the meeting.

Blank Check Preferred Stock

Our certificate of incorporation provides for 5,000,000 authorized shares of preferred stock. The existence of authorized but unissued shares of preferred stock may enable our board of directors to render more difficult or to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise. For example, if in the due exercise of its fiduciary obligations, our board of directors were to determine that a takeover proposal is not in the best interests of us or our stockholders, our board of directors could cause shares of preferred stock to be issued without stockholder approval in one or more private offerings or other transactions that might dilute

the voting or other rights of the proposed acquirer or insurgent stockholder or stockholder group. In this regard, our certificate of incorporation grants our board of directors broad power to establish the rights and preferences of authorized and unissued shares of preferred stock. The issuance of shares of preferred stock could decrease the amount of earnings and assets available for distribution to holders of shares of common

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stock. The issuance may also adversely affect the rights and powers, including voting rights, of these holders and may have the effect of delaying, deterring or preventing a change in control of us.

Section 203 of the Delaware General Corporation Law

We are subject to the provisions of Section 203 of the Delaware General Corporation Law. In general,

Section 203 prohibits a publicly-held Delaware corporation from engaging in a business combination with an interested stockholder for a three-year period following the time that this stockholder becomes an interested stockholder, unless the business combination is approved in a prescribed manner. A business combination includes, among other things, a merger, asset or stock sale or other transaction resulting in a financial benefit to the interested stockholder. An interested stockholder is a person who, together with affiliates and associates, owns, or did own within three years prior to the determination of interested stockholder status, 15% or more of the corporation's voting stock.

Under Section 203, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions:

before the stockholder became interested, the board of directors approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;

upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, shares owned by persons who are directors and also officers, and employee stock plans, in some instances; or

at or after the time the stockholder became interested, the business combination was approved by the board of directors of the corporation and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

A Delaware corporation may opt out of these provisions with an express provision in its original certificate of incorporation or an express provision in its certificate of incorporation or by-laws resulting from a stockholders amendment approved by at least a majority of the outstanding voting shares. We have not opted out of these provisions. As a result, mergers or other takeover or change in control attempts of us may be discouraged or prevented.

Transfer Agent and Registrar

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

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The following table sets forth our ratio of earnings to fixed charges for the periods shown. You should read this table in conjunction with the financial statements and notes incorporated by reference in this prospectus.

	Three Months Ended		Fiscal Year Ended		Nine Months Ended	
	March 31,		December 31,		December 31,	
	2016	2015	2014	2013	2012	2011
Ratio of earnings to fixed charges	16.1x	20.5x	16.2x	35.9x	19.7x	(9.0)**

** Earnings for the nine months ended December 31, 2011 were insufficient to cover fixed charges by \$1,597,000.

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USE OF PROCEEDS

Except as described in any prospectus supplement or in any related free writing prospectus that we may authorize to be provided to you, the net proceeds received by us from our sale of the securities described in this prospectus will be added to our general funds and will be used for our general corporate purposes. From time to time, we may engage in additional public or private financings of a character and amount which we may deem appropriate.

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PLAN OF DISTRIBUTION

We may sell our securities from time to time in one or more transactions. We 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 or dealers acting with us or on behalf of us may also purchase our securities and reoffer them to the public. We may also offer and sell, or agree to deliver, our securities pursuant to, or in connection with, any option agreement or other contractual arrangement.

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

We 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 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 may use an underwriter or underwriters in the offer or sale of our securities.

If we 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 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 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 will include the name of the dealer and the terms of the transactions with the dealer in the applicable prospectus supplement.

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

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

We 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.

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

If we 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.

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These delayed delivery contracts will be subject only to the conditions that we describe in the prospectus supplement.

We 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 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.

In compliance with the guidelines of the Financial Industry Regulatory Authority, or FINRA, the maximum consideration or discount to be received by any FINRA member or independent broker dealer may not exceed 8.0% of the aggregate amount of the securities offered by this prospectus.

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LEGAL MATTERS

The validity of the securities being offered by this prospectus will be passed upon by Goodwin Procter LLP, Boston, Massachusetts.

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EXPERTS

The consolidated financial statements of Repligen Corporation appearing in Repligen Corporation's Annual Report (Form 10-K) for the year ended December 31, 2015, and the effectiveness of Repligen Corporation's internal control over financial reporting as of December 31, 2015 have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

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\$100,000,000

Repligen Corporation

% Convertible Senior Notes due 2021

PROSPECTUS SUPPLEMENT

Sole Book-Running Manager

Jefferies

, 2016