

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT
PURSUANT TO SECTIONS 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

Date of Report (Date of earliest event reported): **April 27, 2020**



Biogen Inc.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation)

0-19311

(Commission File Number)

33-0112644

(I.R.S. Employer Identification No.)

225 Binney Street, Cambridge, Massachusetts 02142

(Address of principal executive offices; Zip Code)

Registrant's telephone number, including area code: **(617) 679-2000**

Not Applicable

(Former name or former address, if changed since last report.)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, \$0.0005 par value	BIIB	The Nasdaq Global Select Market

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Item 8.01 Other Events.

On April 27, 2020, Biogen Inc. (the "Company") entered into an Underwriting Agreement (the "Underwriting Agreement") with Goldman Sachs & Co. LLC, BofA Securities, Inc. and J.P. Morgan Securities LLC, as representatives of the several underwriters named in Schedule I thereto, relating to the issuance and sale of \$3.0 billion aggregate principal amount of notes, consisting of \$1.5 billion aggregate principal amount of 2.250% Senior Notes due May 1, 2030 (the "2030 Notes") and \$1.5 billion aggregate principal amount of 3.150% Senior Notes due May 1, 2050 (together with the 2030 Notes, the "Notes").

On April 30, 2020, the Company completed the issuance and sale of the Notes. The Notes were issued pursuant to an indenture, dated September 15, 2015 (the "Base Indenture"), as supplemented by the Second Supplemental Indenture, dated April 30, 2020 (the "Second Supplemental Indenture" and, together with the Base Indenture, the "Indenture"), by and between the Company and U.S. Bank National Association, as trustee.

The Notes were registered pursuant to an automatic shelf registration statement on Form S-3 under the Securities Act of 1933, as amended, (Registration Statement No. 333-237819) (the "Registration Statement") that was filed with the Securities and Exchange Commission on April 24, 2020.

The Notes are the Company's senior unsecured obligations. The Notes may be redeemed at the Company's option at any time at 100% of the principal amount plus accrued interest and, until a specified period before maturity, a specified make-whole amount. The Notes contain a change-of-control provision that, under certain circumstances, may require the Company to offer to purchase the Notes at a price equal to 101% of the principal amount plus accrued and unpaid interest to the date of repurchase.

The Company intends to use the net proceeds from the sale of the Notes to redeem in full \$1.5 billion in aggregate principal amount of its outstanding 2.90% Senior Notes due September 15, 2020, and all accrued and unpaid interest thereon, to fund, together with cash on hand, repurchases of its common stock under the Company's stock repurchase plans and for working capital and other general corporate purposes.

A copy of the Underwriting Agreement and the Second Supplemental Indenture are attached hereto as Exhibits 1.1 and 4.2, respectively, and are incorporated herein by reference. The Base Indenture, included as Exhibit 4.1 of the Company's Current Report on Form 8-K, filed on September 16, 2015, is incorporated herein by reference. The descriptions of the Underwriting Agreement and the Indenture are summaries only and are qualified in their entirety by the terms of the Underwriting Agreement and Indenture, respectively.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits

<u>Exhibit No.</u>	<u>Description</u>
1.1	<u>Underwriting Agreement, dated April 27, 2020, by and among the Company, Goldman Sachs & Co. LLC, BofA Securities, Inc. and J.P. Morgan Securities LLC, as representatives of the several underwriters named in Schedule I thereto.</u>
4.1	<u>Indenture, dated September 15, 2015, between Biogen Inc. and U.S. Bank National Association (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed on September 16, 2015).</u>
4.2	<u>Second Supplemental Indenture, dated April 30, 2020, between the Company and U.S. Bank National Association, including the forms of Global Notes attached as Exhibit A and Exhibit B, respectively, thereto.</u>
5.1	<u>Opinion of Foley Hoag LLP as to the validity of the Notes.</u>
23.1	<u>Consent of Foley Hoag LLP (included in Exhibit 5.1).</u>
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

BIOGEN INC.

By: /s/ Michael Dambach
Name: Michael Dambach
Title: Vice President, Treasurer

Dated: April 30, 2020

Biogen Inc.

2.250% Senior Notes due 2030

3.150% Senior Notes due 2050

Underwriting Agreement

April 27, 2020

Goldman Sachs & Co. LLC
BofA Securities, Inc.
J.P. Morgan Securities LLC
As representatives of the several Underwriters
named in Schedule I hereto,

c/o Goldman Sachs & Co. LLC
200 West Street
New York, New York 10282-2198

BofA Securities, Inc.
One Bryant Park
New York, New York 10036-6728

J.P. Morgan Securities LLC
383 Madison Avenue
New York, New York 10179-0001

Ladies and Gentlemen:

Biogen Inc., a Delaware corporation (the “**Company**”), proposes, subject to the terms and conditions stated herein, to issue and sell to Goldman Sachs & Co. LLC, BofA Securities, Inc., J.P. Morgan Securities LLC and each of the other Underwriters named in Schedule I hereto (the “**Underwriters**”), for whom Goldman Sachs & Co. LLC, BofA Securities, Inc. and J.P. Morgan Securities LLC are acting as representatives (in such capacity, the “**Representatives**”), the respective amounts set forth in Schedule I of \$1,500,000,000 aggregate principal amount of the Company’s 2.250% Senior Notes due 2030 (the “**2030 Notes**”) and \$1,500,000,000 aggregate principal amount of the Company’s 3.150% Senior Notes due 2050 (the “**2050 Notes**”) and, together with the 2030 Notes, the “**Securities**”).

1. The Company represents and warrants to, and agrees with, each of the Underwriters that:

(i) The Company meets the requirements for use of Form S-3 under the Act (as defined below); an “**automatic shelf registration statement**” as defined under Rule 405 under the Securities Act of 1933, as amended (the “**Act**”), on Form S-3 (File No. 333- 237819) in respect of the Securities has been filed

with the Securities and Exchange Commission (the “**Commission**”) not earlier than three years prior to the date hereof; such registration statement, and any post-effective amendment thereto, became effective on filing; and no stop order suspending the effectiveness of such registration statement or any part thereof has been issued and, to the Company’s knowledge, no proceeding for that purpose has been initiated or threatened by the Commission, and no notice of objection of the Commission to the use of such registration statement or any post-effective amendment thereto pursuant to Rule 401(g)(2) under the Act has been received by the Company (the base prospectus filed as part of such registration statement, in the form in which it has most recently been filed with the Commission on or prior to the date of this Agreement, is hereinafter called the “**Basic Prospectus**”; any preliminary prospectus (including any preliminary prospectus supplement) relating to the Securities filed with the Commission pursuant to Rule 424(b) under the Act is hereinafter called a “**Preliminary Prospectus**”; the various parts of such registration statement, including all exhibits thereto but excluding Form T-1 and including any prospectus supplement relating to the Securities that is filed with the Commission and deemed by virtue of Rule 430B to be part of such registration statement, each as amended at the time such part of the registration statement became effective, are hereinafter collectively called the “**Registration Statement**”; the Basic Prospectus, as amended and supplemented immediately prior to the Applicable Time (as defined in Section 1(iii) hereof), is hereinafter called the “**Pricing Prospectus**”; the form of the final prospectus relating to the Securities filed with the Commission pursuant to Rule 424(b) under the Act in accordance with Section 5(i) hereof is hereinafter called the “**Prospectus**”; any reference herein to the Basic Prospectus, the Pricing Prospectus, any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include the documents incorporated by reference therein pursuant to Item 12 of Form S-3 under the Act, as of the date of such prospectus; any reference to any amendment or supplement to the Basic Prospectus, any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include any post-effective amendment to the Registration Statement, any prospectus supplement relating to the Securities filed with the Commission pursuant to Rule 424(b) under the Act and any documents filed under the Securities Exchange Act of 1934, as amended (the “**Exchange Act**”), and incorporated therein, in each case after the date of the Basic Prospectus, such Preliminary Prospectus or the Prospectus, as the case may be; any reference to any amendment to the Registration Statement shall be deemed to refer to and include any annual report of the Company filed pursuant to Section 13(a) or 15(d) of the Exchange Act after the effective date of the Registration Statement that is incorporated by reference in the Registration Statement; and any “**issuer free writing prospectus**” as defined in Rule 433 under the Act relating to the Securities is hereinafter called an “**Issuer Free Writing Prospectus**”);

(ii) No order preventing or suspending the use of any Preliminary Prospectus or any Issuer Free Writing Prospectus has been issued by the Commission, and each Preliminary Prospectus, at the time of filing thereof, conformed in all material respects to the requirements of the Act and the Trust

Indenture Act of 1939, as amended (the “**Trust Indenture Act**”), and the rules and regulations of the Commission thereunder, and did not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided, however, that this representation and warranty shall not apply to any statements or omissions made in reliance upon and in conformity with information furnished in writing to the Company by an Underwriter through the Representatives expressly for use therein;

(iii) For the purposes of this Agreement, the “**Applicable Time**” is 3:45 p.m. (Eastern time) on the date of this Agreement; the Pricing Prospectus as supplemented by the final term sheet prepared and filed pursuant to Section 5(i) hereof, taken together (collectively, the “**Pricing Disclosure Package**”) as of the Applicable Time, did not include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided, however, that this representation and warranty shall not apply to any statements or omissions made in reliance upon and in conformity with information furnished in writing to the Company by an Underwriter through the Representatives expressly for use therein; and each Issuer Free Writing Prospectus listed on Schedule II(a) hereto does not conflict with the information contained in the Registration Statement, the Pricing Prospectus or the Prospectus and each such Issuer Free Writing Prospectus, as supplemented by and taken together with the Pricing Disclosure Package as of the Applicable Time, did not include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided, however, that this representation and warranty shall not apply to statements or omissions made in an Issuer Free Writing Prospectus in reliance upon and in conformity with information furnished in writing to the Company by an Underwriter through the Representatives expressly for use therein;

(iv) The documents incorporated by reference in the Pricing Prospectus and the Prospectus, when they became effective or were filed with the Commission, as the case may be, conformed in all material respects to the requirements of the Act or the Exchange Act, as applicable, and the rules and regulations of the Commission thereunder, and none of such documents contained an untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein not misleading; any further documents so filed and incorporated by reference in the Prospectus or any further amendment or supplement thereto, when such documents become effective or are filed with the Commission, as the case may be, will conform in all material respects to the requirements of the Act or the Exchange Act, as applicable, and the rules and regulations of the Commission thereunder and will not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading; provided, however, that this representation and warranty shall not apply to any statements or omissions made in reliance upon and in conformity with information furnished in writing to the Company by an Underwriter through the Representatives expressly for use therein; and no such documents were filed with the Commission since the Commission’s close of business on the business day immediately prior to the date of this Agreement and prior to the execution of this Agreement, except as set forth on Schedule II(b) hereto;

(v) The Registration Statement conforms, and the Prospectus and any further amendments or supplements to the Registration Statement and the Prospectus will conform, in all material respects to the requirements of the Act and the Trust Indenture Act and the rules and regulations of the Commission thereunder and do not and will not, as of the applicable effective date as to each part of the Registration Statement and as of the applicable filing date and the Time of Delivery (as defined in Section 4(i) hereof) as to the Prospectus and any amendment or supplement thereto, contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading; provided, however, that this representation and warranty shall not apply to any statements or omissions made in reliance upon and in conformity with information furnished in writing to the Company by an Underwriter through the Representatives expressly for use therein;

(vi) Neither the Company nor any of its subsidiaries has sustained, since the date of the latest audited financial statements included or incorporated by reference in the Pricing Prospectus, any material loss or interference with its business from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor dispute or court or governmental action, order or decree, otherwise than as set forth or contemplated in the Pricing Prospectus; and, since the respective dates as of which information is given in the Registration Statement and the Pricing Prospectus, there has not been any change in the capital stock (other than changes due to grants, exercises, and terminations under Company incentive plans referred to in the Pricing Prospectus and in the documents incorporated by reference therein and other publicly announced share repurchase programs) or long-term debt of the Company or any of its subsidiaries or any material adverse change or any development that, in each case, is reasonably likely to result in a material adverse change, in or affecting the general affairs, management, financial position, stockholders' equity or results of operations of the Company and its subsidiaries taken as a whole (collectively, a "**Material Adverse Effect**"), otherwise than as set forth or contemplated in the Pricing Prospectus;

(vii) The Company and its subsidiaries have good and marketable title in fee simple to all real property and good and marketable title to all personal property owned by them, in each case free and clear of all liens, encumbrances and defects except such as are described in the Pricing Prospectus or such as would not reasonably be expected to have a Material Adverse Effect; and any real property and buildings held under lease by the Company and its subsidiaries are held by them under valid, subsisting and enforceable leases with such exceptions as would not reasonably be expected to have a Material Adverse Effect;

(viii) The Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of the State of Delaware, with power and authority (corporate and other) to own its properties and conduct its business as described in the Pricing Prospectus, and has been duly qualified as a foreign corporation for the transaction of business and is in good standing under the laws of each other jurisdiction in which it owns or leases properties or conducts any business so as to require such qualification, or is subject to no material liability or disability by reason of the failure to be so qualified in any such jurisdiction except where failure would not reasonably be expected to have a Material Adverse Effect; and each significant subsidiary of the Company (as defined in Rule 1-02 of Regulation S-X under the Act) (each, a “**Significant Subsidiary**”) has been duly incorporated and is validly existing as a corporation, limited liability company or other entity in good standing under the laws of its jurisdiction of organization;

(ix) The Company has an authorized capitalization as set forth in the Pricing Prospectus and all of the issued shares of capital stock of the Company have been duly and validly authorized and issued and are fully paid and non-assessable; and all of the issued shares of capital stock, membership interests or other capital securities of each Significant Subsidiary of the Company have been duly and validly authorized and issued, are (in the case of membership interests, to the extent applicable) fully paid and non-assessable and (except for directors’ qualifying shares) are owned directly or indirectly by the Company, free and clear of all liens, encumbrances, equities or claims;

(x) This Agreement has been duly authorized, executed and delivered by the Company;

(xi) The Securities have been duly authorized by the Company and, when executed and authenticated in accordance with the provisions of the Indenture (as defined below) and delivered to and paid for by the Underwriters in accordance with the terms of this Agreement, will be valid and legally binding obligations of the Company enforceable against the Company in accordance with their terms, subject to the Enforceability Exceptions (as defined below), and will be entitled to the benefits provided by the Indenture between the Company and U.S. Bank National Association (the “**Trustee**”), dated as of September 15, 2015 (the “**Base Indenture**”), as supplemented by a related supplemental indenture to be dated as of a date on or prior to the Time of Delivery (the “**First Supplemental Indenture**,” and, together with the Base Indenture, the “**Indenture**”) between the Company and the Trustee, under which the Securities are to be issued, which, in the case of the Base Indenture, was filed as an exhibit to the Current Report on Form 8-K of the Company filed on September 16, 2015; the Indenture has been duly authorized by the Company and duly qualified under the Trust Indenture Act and, when executed and delivered by the Company and the Trustee, will constitute, at the Time of Delivery, a valid and legally binding instrument, enforceable against the Company in accordance with its terms, subject, as to enforcement, to bankruptcy, insolvency, fraudulent transfer, reorganization, moratorium and other laws of general applicability relating to or affecting creditors’ rights and to general equity principles (collectively, the “**Enforceability Exceptions**”); and the Securities and the Indenture will conform to the descriptions thereof in the Pricing Disclosure Package and the Prospectus;

(xii) The issue and sale of the Securities and the compliance by the Company with all of the provisions of the Securities, the Indenture and this Agreement and the consummation of the transactions herein and therein contemplated will not conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any of the property or assets of the Company or any of its subsidiaries is subject, except as would not reasonably be expected to have a Material Adverse Effect, nor will such action result in any violation of the provisions of the Certificate of Incorporation or By-laws of the Company or any statute or any order, rule or regulation of any court or governmental agency or body having jurisdiction over the Company or any of its subsidiaries or any of their properties; and no consent, approval, authorization, order, registration or qualification of or with any such court or governmental agency or body is required for the issue and sale of the Securities or the consummation by the Company of the transactions contemplated by this Agreement or the Indenture except such as have been, or prior to the Time of Delivery will be, obtained under the Act and the Trust Indenture Act and such consents, approvals, authorizations, registrations or qualifications as may be required under state securities or Blue Sky laws in connection with the purchase and distribution of the Securities by the Underwriters;

(xiii) Neither the Company nor any of its subsidiaries is in default in the performance or observance of any obligation, covenant or condition contained in any indenture, mortgage, deed of trust, loan agreement, lease or other agreement or instrument to which it is a party or by which it or any of its properties may be bound other than as would not reasonably be expected to have a Material Adverse Effect, or in violation of (i) its organizational documents or (ii) any statute or any order, rule or regulation of any court or governmental agency or body having jurisdiction over the Company or any of its subsidiaries or any of their properties, except, in the case of clause (ii), for such violations that would not reasonably be expected to have a Material Adverse Effect;

(xiv) The statements set forth in the Pricing Prospectus and the Prospectus under the caption “**Description of Notes**”, insofar as they purport to constitute a summary of the terms of the Securities, under the caption “**Material U.S. Federal Income Tax Considerations**” and under the caption “**Underwriting**”, insofar as they purport to describe the provisions of the laws and documents referred to therein, fairly summarize in all material respects such laws and documents;

(xv) Other than as set forth in the Pricing Prospectus, there are no legal or governmental proceedings pending to which the Company or any of its subsidiaries is a party or of which any property of the Company or any of its subsidiaries is the subject which would, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect; and, to the Company's knowledge, no such proceedings are threatened or contemplated by governmental authorities or threatened by others;

(xvi) The Company is not and, after giving effect to the offering and sale of the Securities and the application of the proceeds thereof, will not be an "**investment company**", as such term is defined in the Investment Company Act of 1940, as amended (the "**Investment Company Act**");

(xvii) (i) (A) At the time of the filing of the Registration Statement, (B) at the time of the most recent amendment thereto for the purposes of complying with Section 10(a)(3) of the Act (whether such amendment was by post-effective amendment, incorporated report filed pursuant to Section 13 or 15(d) of the Exchange Act or form of prospectus) and (C) at the time the Company or any person acting on its behalf (within the meaning, for this clause only, of Rule 163(c) under the Act) made any offer relating to the Securities in reliance on the exemption of Rule 163 under the Act, the Company was a "**well-known seasoned issuer**" as defined in Rule 405 under the Act; and (ii) at the earliest time after the filing of the Registration Statement that the Company or another offering participant made a bona fide offer (within the meaning of Rule 164(h)(2) under the Act) of the Securities, and at the date hereof, the Company was not and is not an "**ineligible issuer**" as defined in Rule 405 under the Act;

(xviii) PricewaterhouseCoopers LLP, who have certified certain financial statements of the Company and its subsidiaries, and have audited the Company's internal control over financial reporting, are independent registered public accountants as required by the Act and the rules and regulations of the Commission thereunder;

(xix) The financial statements of the Company included in the Registration Statement, the Pricing Disclosure Package and the Prospectus, together with the related schedules and notes, present fairly, in all material respects, the financial position of the Company and its consolidated subsidiaries at the dates indicated and the statement of operations, stockholders' equity and cash flows of the Company and its consolidated subsidiaries for the periods specified; and said financial statements comply as to form with the accounting requirements of the Act and have been prepared in conformity with U.S. generally accepted accounting principles ("**GAAP**") applied on a consistent basis throughout the periods involved, except as may be stated in the related notes thereto; the supporting schedules, if any, present fairly, in all material respects the information

required to be stated therein; the selected financial data and the summary financial information included in the Registration Statement, the Pricing Disclosure Package and the Prospectus present fairly, in all material respects, the information shown therein and have been compiled on a basis consistent with that of the audited financial statements included therein; the interactive data in eXtensible Business Reporting Language incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus fairly present the information called for in all material respects and have been prepared in accordance with the Commission's rules and guidelines applicable thereto;

(xx) The Company and its subsidiaries, taken as a whole, maintain a system of internal control over financial reporting (as such term is defined in Rule 13a-15(f) under the Exchange Act) that complies with the requirements of the Exchange Act and has been designed by the Company's principal executive officer and principal financial officer, or under their supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP. The Company's internal control over financial reporting is effective and the Company is not aware of any material weaknesses in its internal control over financial reporting;

(xxi) Since the date of the latest audited financial statements included or incorporated by reference in the Pricing Prospectus, there has been no change in the Company's internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting;

(xxii) The Company and its subsidiaries, taken as a whole, maintain a system of internal accounting controls sufficient to provide reasonable assurances that: (A) transactions are executed in accordance with management's general or specific authorization; (B) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain accountability for assets; (C) access to assets is permitted only in accordance with management's general or specific authorization; and (D) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences; the Company and its subsidiaries, taken as a whole, maintain an effective system of disclosure controls and procedures (as defined in Rule 13a-15 and Rule 15d-15 under the Exchange Act) that are designed to ensure that the information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Commission's rules and forms, and is accumulated and communicated to the Company's management, including its principal executive officer or officers and principal financial officer or officers, as appropriate, to allow timely decisions regarding disclosure;

(xxiii) Except as disclosed in the Pricing Prospectus, and except where such failure would not reasonably be expected to have a Material Adverse Effect, the Company and its subsidiaries own, possess, license or have the right to use the patents, patent rights, licenses, inventions, copyrights, know-how (including trade secrets and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures), trademarks, service marks, trade names and other rights or interests in items of intellectual property as are necessary for the operation and conduct of the businesses now operated by them (the “**patent and proprietary rights**”); and except as disclosed in the Pricing Prospectus, the Company has not received notice of any infringement of or conflict with asserted rights of others with respect to any patent and proprietary rights, which infringement or conflict would reasonably be expected to result in a Material Adverse Effect;

(xxiv) Except as described in the Pricing Prospectus, the Company and its subsidiaries are in compliance with all statutes, rules, regulations, ordinances, orders, decrees and guidance applicable to the ownership, testing, in humans or laboratory models, development, manufacture, formulation, packaging, processing, recordkeeping, use, distribution, marketing, labeling, promotion, sale, offer for sale, storage, import, export or disposal of any product manufactured or distributed by or for the Company or any of its subsidiaries, except where the failure to so comply would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect;

(xxv) Except as disclosed in the Pricing Prospectus, and except as would not reasonably be expected to have a Material Adverse Effect, (A) the Company and its subsidiaries’ information technology assets and equipment, computers, systems, networks, hardware, software, websites, applications, and databases (including the data and information of their respective customers, employees, suppliers, vendors and any third-party data maintained, processed or stored by the Company and its subsidiaries, and any such data processed or stored by third parties on behalf of the Company and its subsidiaries) (collectively, “**IT Systems**”) are adequate for, and operate and perform as required in connection with, the operation of the business of the Company and its subsidiaries as currently conducted, free and clear of all bugs, errors, defects, Trojan horses, time bombs, malware and other corruptants; (B) the Company and its subsidiaries have used reasonable efforts to establish and maintain, and have established, maintained, implemented and complied with, reasonable information technology, information security, cyber security and data protection controls, policies and procedures, including oversight, access controls, encryption, technological and physical safeguards and business continuity/disaster recovery and security plans to protect against and prevent the breach, destruction, loss, disruption, outage, violation, unauthorized distribution, use, access, disablement, misappropriation or modification, or other compromise or misuse of or relating to any information technology system or personal, personally identifiable, sensitive, confidential or regulated data (“**Personal Data**”) used in connection with the operation of the Company’s and its subsidiaries’ businesses (“**Breach**”); (C) to the knowledge of

the Company, there has been no such Breach nor any incidents under internal review or investigations relating to the same and the Company and its subsidiaries have not been notified of and have no knowledge of any event or condition that would reasonably be expected to result in any such Breach; and (D) the Company and its subsidiaries are presently in compliance with all applicable laws or statutes and all judgments, orders, rules and regulations of any court or arbitrator or governmental or regulatory authority, internal policies and contractual obligations relating to the privacy and security of IT Systems and to the protection of such IT Systems from unauthorized use, access, misappropriation or modification;

(xxvi) Except as disclosed in the Pricing Prospectus, and except as would not reasonably be expected to have a Material Adverse Effect, (A) the Company and its subsidiaries have complied, and are presently in compliance with all applicable internal and external privacy policies, contractual obligations, industry standards, applicable state, federal and international data privacy and security laws and regulations, including without limitation, the Health Insurance Portability and Accountability Act, the European Union General Data Protection Regulation (EU 2016/679), and other statutes, judgments, orders, rules and regulations of any applicable court or arbitrator or other governmental or regulatory authority and any legal obligations regarding the collection, use, transfer, import, export, storage, protection, disposal, disclosure or other processing by the Company and its subsidiaries of Personal Data (collectively, the “**Data Security Obligations**”); (B) neither the Company nor any of its subsidiaries has received any notification of or complaint regarding, and are aware of any other facts that, individually or in the aggregate, would reasonably indicate non-compliance by the Company or its subsidiaries with any Data Security Obligation; (C) there is no pending or, to the knowledge of the Company, threatened, action, suit or proceeding by or before any applicable court or governmental agency, authority or body alleging non-compliance by the Company or any of its subsidiaries with any Data Security Obligation; (D) the Company and its subsidiaries have at all times taken steps reasonably necessary in accordance with industry standard practices (including, without limitation, implementing and monitoring compliance with adequate measures with respect to technical and physical security) designed to ensure compliance in all material respects with their policies and procedures relating to data privacy and security and the collection, use, transfer, import, export, storage, protection, disposal, disclosure or other processing of Personal Data that is subject to the Data Security Obligations (the “**Policies**”) to protect such Personal Data against loss and unauthorized access, use, modification, disclosure or other misuse; and (E) the Company and its subsidiaries have made all disclosures of their then-current Policies to their employees or other applicable third-party users or customers required by applicable laws and regulatory rules or requirements, and none of such disclosures made or contained in any Policy has, to the knowledge of the Company, been inaccurate or in violation of any applicable laws and regulatory rules or requirements.

(xxvii) Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus or as would not, singly or in the aggregate, result in a Material Adverse Effect, (A) neither the Company nor any of its subsidiaries is in violation of any federal, state, local or foreign statute, law, rule, regulation, ordinance, code, policy or rule of common law or any judicial or administrative interpretation thereof, including any judicial or administrative order, consent, decree or judgment, relating to pollution or protection of human health, the environment (including, without limitation, ambient air, surface water, groundwater, land surface or subsurface strata) or wildlife, including, without limitation, laws and regulations relating to the release or threatened release of chemicals, pollutants, contaminants, wastes, toxic substances, hazardous substances, petroleum or petroleum products (collectively, “**Hazardous Materials**”) or to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of Hazardous Materials (collectively, “**Environmental Laws**”), (B) the Company and its subsidiaries have all permits, authorizations and approvals required under any applicable Environmental Laws and are each in compliance with their requirements, (C) there are no pending or threatened administrative, regulatory or judicial actions, suits, demands, demand letters, claims, liens, notices of noncompliance or violation, investigation or proceedings relating to any Environmental Law against the Company or any of its subsidiaries and (D) there are no events or circumstances that would reasonably be expected to form the basis of an order for clean-up or remediation, or an action, suit or proceeding by any private party or governmental entity, against or affecting the Company or any of its subsidiaries relating to Hazardous Materials or any Environmental Laws;

(xxviii) Neither the Company nor any subsidiary of the Company has taken, directly or indirectly, any action which is designed, or would be expected, to cause or result in, or which constitutes, the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Securities;

(xxix) There is and has been no failure on the part of the Company or any of the Company’s directors or officers, in their capacities as such, to comply in all material respects with any provision of the Sarbanes-Oxley Act of 2002 and the rules and regulations promulgated in connection therewith, including Section 402 related to loans and Sections 302 and 906 related to certifications;

(xxx) None of the Company, any of its subsidiaries or, to the knowledge of the Company, any director, officer, agent, employee, affiliate or other person acting on behalf of the Company or any of its subsidiaries has taken any action, directly or indirectly, that would result in a violation by such persons of (i) the Foreign Corrupt Practices Act of 1977, as amended, and the rules and regulations thereunder (the “**FCPA**”), including, without limitation, making use of the mails or any means or instrumentality of interstate commerce corruptly in furtherance of an offer, payment, promise to pay or authorization of the payment of any money, or other property, gift, promise to give or authorization of the giving of anything

of value to any “foreign official” (as such term is defined in the FCPA) or any foreign political party or official thereof or any candidate for foreign political office, in contravention of the FCPA, (ii) the U.K. Bribery Act 2010 (the “**Bribery Act**”) or (iii) any other applicable anti-bribery or anti-corruption law, and the Company, its subsidiaries and, to the knowledge of the Company, its other affiliates have conducted their businesses in compliance with the FCPA, Bribery Act and any other applicable anti-bribery or anti-corruption law and have instituted and maintain policies and procedures designed to ensure continued compliance therewith;

(xxxix) The operations of the Company and its subsidiaries are and have been conducted at all times in material compliance with applicable financial recordkeeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, applicable money laundering statutes and applicable rules and regulations thereunder (collectively, the “**Money Laundering Laws**”), and no action, suit or proceeding by or before any governmental entity involving the Company or any of its subsidiaries with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened; and

(xxxixii) None of the Company, any of its subsidiaries or, to the knowledge of the Company, any director, officer, agent, employee, affiliate or other person acting on behalf of the Company or any of its subsidiaries is (A) an individual or entity (“**Person**”) currently the subject or target of any sanctions administered or enforced by the United States Government, including, without limitation, the U.S. Department of the Treasury’s Office of Foreign Assets Control, the U.S. Department of State and including, without limitation, the designation as a “specially designated national” or “blocked person,” the United Nations Security Council, the European Union, Her Majesty’s Treasury or other relevant sanctions authority (collectively, “**Sanctions**”) or (B) located, organized or resident in a country or territory that is the subject or target of Sanctions; and neither the Company nor its subsidiaries will, directly or indirectly, use the proceeds of the sale of the Securities, or lend, contribute or otherwise make available such proceeds to any subsidiaries, joint venture partners or other Person, to fund any activities of or business with any Person, or in any country or territory, that, at the time of such funding, is the subject of Sanctions or in any other manner that will result in a violation by any Person (including any Person participating in the transaction, whether as underwriter, advisor, investor or otherwise) of Sanctions.

2. Subject to the terms and conditions herein set forth, the Company agrees to issue and sell to each of the Underwriters, and each of the Underwriters agrees, severally and not jointly, to purchase from the Company, the principal amount of Securities set forth opposite the name of such Underwriter in Schedule I hereto at a purchase price of 99.523% of the principal amount of the 2030 Notes and 98.299% of the principal amount of the 2050 Notes, plus, in each case, accrued interest, if any, from April 30, 2020, to the Time of Delivery hereunder.

3. Upon the authorization by you of the release of the Securities, the several Underwriters propose to offer the Securities for sale upon the terms and conditions set forth in the Pricing Prospectus and the Prospectus.

4. (i) The Securities to be purchased by each Underwriter hereunder will be represented by one or more definitive global Securities in book-entry form, which will be deposited by or on behalf of the Company with The Depository Trust Company (“**DTC**”) or its designated custodian. The Company will deliver the Securities to the Representatives, for the account of each Underwriter, against payment by or on behalf of such Underwriter of the purchase price therefor by wire transfer of Federal (same-day) funds to the account specified by the Company to the Representatives, by causing DTC to credit the Securities to the account of the Representatives at DTC. The Company will cause the certificates representing the Securities to be made available to the Representatives for checking at least twenty-four hours prior to the Time of Delivery at the office of DTC or its designated custodian (the “**Designated Office**”). The time and date of such delivery and payment shall be 9:00 a.m., New York City time, on April 30, 2020, or such other time and date as you and the Company may agree upon in writing. Such time and date are herein called the “**Time of Delivery.**”

(ii) The documents to be delivered at the Time of Delivery by or on behalf of the parties hereto pursuant to Section 8 hereof, including the cross-receipt for the Securities and any additional documents requested by the Underwriters pursuant to Section 8(ix) hereof, will be delivered at the offices of Davis Polk & Wardwell LLP 450 Lexington Avenue, New York, NY 10017 (the “**Closing Location**”), and the Securities will be delivered at the Designated Office, all at the Time of Delivery. A meeting will be held at the Closing Location at 12:00 p.m., New York City time, on the New York Business Day next preceding the Time of Delivery, at which meeting the final drafts of the documents to be delivered pursuant to the preceding sentence will be available for review by the parties hereto. For the purposes of this Section 4, “**New York Business Day**” shall mean each Monday, Tuesday, Wednesday, Thursday and Friday which is not a day on which banking institutions in New York City are generally authorized or obligated by law or executive order to close.

5. The Company agrees with each of the Underwriters:

(i) To prepare the Prospectus in a form that you have not reasonably disapproved and to file such Prospectus pursuant to Rule 424(b) under the Act not later than the Commission’s close of business on the second business day following the date of this Agreement; to make no further amendment or any supplement to the Registration Statement, the Basic Prospectus or the Prospectus prior to the Time of Delivery which shall be reasonably disapproved by you promptly after reasonable notice thereof; to advise you, promptly after it receives notice thereof, of the time when any amendment to the Registration Statement has been filed or becomes effective or any amendment or supplement to the Prospectus has been filed and to furnish you with copies thereof; to prepare a final term sheet, containing solely a description of the Securities, in a form approved

by you and to file such term sheet pursuant to Rule 433(d) under the Act within the time required by such rule; to file promptly all other material required to be filed by the Company with the Commission pursuant to Rule 433(d) under the Act; to file promptly all reports and any definitive proxy or information statements required to be filed by the Company with the Commission pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act subsequent to the date of the Prospectus and for so long as the delivery of a prospectus (or in lieu thereof, the notice referred to in Rule 173(a) under the Act) is required in connection with the offering or sale of the Securities; to advise you, promptly after it receives notice thereof, of the issuance by the Commission of any stop order or of any order preventing or suspending the use of any Preliminary Prospectus or other prospectus in respect of the Securities, of any notice of objection of the Commission to the use of the Registration Statement or any post-effective amendment thereto pursuant to Rule 401(g)(2) under the Act, of the suspension of the qualification of the Securities for offering or sale in any jurisdiction, of the initiation or threatening of any proceeding for any such purpose, or of any request by the Commission for the amending or supplementing of the Registration Statement or the Prospectus or for additional information; and, in the event of the issuance of any stop order or of any order preventing or suspending the use of any Preliminary Prospectus or other prospectus or suspending any such qualification, to promptly use its reasonable best efforts to obtain the withdrawal of such order; and in the event of any such issuance of a notice of objection, promptly to take such steps including, without limitation, amending the Registration Statement or filing a new registration statement, at its own expense, as may be necessary to permit offers and sales of the Securities by the Underwriters (references herein to the Registration Statement shall include any such amendment or new registration statement);

(ii) If required by Rule 430B(h) under the Act, to prepare a form of prospectus in a form approved by you and to file such form of prospectus pursuant to Rule 424(b) under the Act not later than may be required by Rule 424(b) under the Act; and to make no further amendment or supplement to such form of prospectus which shall be reasonably disapproved by you promptly after reasonable notice thereof;

(iii) Promptly from time to time to take such action as you may reasonably request to qualify the Securities for offering and sale under the securities laws of such jurisdictions as you may request and to comply with such laws so as to permit the continuance of sales and dealings therein in such jurisdictions for as long as may be necessary to complete the distribution of the Securities, provided that in connection therewith the Company shall not be required to qualify as a foreign corporation or to file a general consent to service of process in any jurisdiction;

(iv) Prior to 10:00 a.m., New York City time, on the New York Business Day next succeeding the date of this Agreement and from time to time, to furnish the Underwriters with written and electronic copies of the Prospectus in

New York City in such quantities as you may reasonably request, and, if the delivery of a prospectus (or in lieu thereof, the notice referred to in Rule 173(a) under the Act) is required at any time prior to the expiration of nine months after the time of issue of the Prospectus in connection with the offering or sale of the Securities and if at such time any event shall have occurred as a result of which the Prospectus as then amended or supplemented would include an untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made when such Prospectus (or in lieu thereof, the notice referred to in Rule 173(a) under the Act) is delivered, not misleading, or, if for any other reason it shall be necessary during such same period to amend or supplement the Prospectus or to file under the Exchange Act any document incorporated by reference in the Prospectus in order to comply with the Act, the Exchange Act or the Trust Indenture Act, to notify you and upon your request to file such document and to prepare and furnish without charge to each Underwriter and to any dealer in securities as many written and electronic copies as you may from time to time reasonably request of an amended Prospectus or a supplement to the Prospectus which will correct such statement or omission or effect such compliance; and in case any Underwriter is required to deliver a prospectus (or in lieu thereof, the notice referred to in Rule 173(a) under the Act) in connection with sales of any of the Securities at any time nine months or more after the time of issue of the Prospectus, upon your request but at the expense of such Underwriter, to prepare and deliver to such Underwriter as many written and electronic copies as you may request of an amended or supplemented Prospectus complying with Section 10(a)(3) of the Act;

(v) To make generally available to its securityholders as soon as practicable, but in any event not later than sixteen months after the effective date of the Registration Statement (as defined in Rule 158(c) under the Act), an earnings statement of the Company and its subsidiaries (which need not be audited) complying with Section 11(a) of the Act and the rules and regulations of the Commission thereunder (including, at the option of the Company, Rule 158 under the Act);

(vi) During the period beginning from the date hereof and continuing to and including the later of the Time of Delivery and such earlier time as you may notify the Company, not to offer, sell, contract to sell, pledge, grant any option to purchase, make any short sale or otherwise dispose of, except as provided hereunder, any securities of the Company that are substantially similar to the Securities;

(vii) To pay the required Commission filing fees relating to the Securities within the time required by Rule 456(b)(1) under the Act without regard to the proviso therein and otherwise in accordance with Rules 456(b) and 457(r) under the Act; and

(viii) To use the net proceeds received by it from the sale of the Securities pursuant to this Agreement in the manner specified in the Pricing Prospectus under the caption “**Use of Proceeds.**”

6. (i) (A) The Company represents and agrees that, other than the final term sheet prepared and filed pursuant to Section 5(i) hereof, without your prior consent, it has not made and will not make any offer relating to the Securities that would constitute a “**free writing prospectus**” as defined in Rule 405 under the Act;

(B) each Underwriter, severally and not jointly, represents and agrees that, without your prior consent and the consent of the Company, other than one or more term sheets relating to the Securities containing customary information and conveyed to purchasers of Securities, it has not made and will not make any offer relating to the Securities that would constitute an “**issuer free writing prospectus**,” as defined in Rule 433 under the Act, or that would otherwise constitute a “**free writing prospectus**,” as defined in Rule 405, required to be filed with the Commission; and

(C) any such free writing prospectus the use of which has been consented to by the Company and you (including the final term sheet prepared and filed pursuant to Section 5(i) hereof) is listed on Schedule II(a) hereto;

(ii) The Company has complied and will comply with the requirements of Rule 433 under the Act applicable to any Issuer Free Writing Prospectus, including timely filing with the Commission or retention where required and legending; and

(iii) The Company agrees that if at any time following issuance of an Issuer Free Writing Prospectus any event occurred or occurs as a result of which such Issuer Free Writing Prospectus would conflict with the information in the Registration Statement, the Pricing Prospectus or the Prospectus or would include an untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances then prevailing, not misleading, the Company will give prompt notice thereof to you and, if requested by you, will prepare and furnish without charge to each Underwriter an Issuer Free Writing Prospectus or other document which will correct such conflict, statement or omission; provided, however, that this representation and warranty shall not apply to any statements or omissions in an Issuer Free Writing Prospectus made in reliance upon and in conformity with information furnished in writing to the Company by an Underwriter through the Representatives expressly for use therein.

7. The Company covenants and agrees with the several Underwriters that the Company will pay or cause to be paid the following: (i) the fees, disbursements and expenses of the Company’s counsel and accountants in connection with the registration

of the Securities under the Act and all other expenses in connection with the preparation, printing, reproduction and filing of the Registration Statement, the Basic Prospectus, any Preliminary Prospectus, any Issuer Free Writing Prospectus and the Prospectus and amendments and supplements thereto and the mailing and delivering of copies thereof to the Underwriters and dealers; (ii) the cost of printing or producing any Agreement among Underwriters, this Agreement, the Indenture, any Blue Sky memorandum, closing documents (including any compilations thereof) and any other documents in connection with the offering, purchase, sale and delivery of the Securities; (iii) all expenses in connection with the qualification of the Securities for offering and sale under state securities laws as provided in Section 5(iii) hereof, including the fees and disbursements of counsel for the Underwriters in connection with such qualification and in connection with any Blue Sky memorandum; (iv) fees charged by securities rating services for rating the Securities; (v) the filing fees incident to, and the fees and disbursements of counsel for the Underwriters in connection with, any required review by the Financial Industry Regulatory Authority, Inc. of the terms of the sale of the Securities, together with the expenses described in clause (iii) above in an amount not to exceed \$10,000; (vi) the cost of preparing the Securities; (vii) the fees and expenses of the Trustee and any agent of the Trustee and the fees and disbursements of counsel for the Trustee in connection with the Indenture and the Securities; and (viii) all other costs and expenses incident to the performance of its obligations hereunder which are not otherwise specifically provided for in this Section. It is understood, however, that, except as provided in this Section, and Sections 9 and 13 hereof, the Underwriters will pay all of their own costs and expenses, including the fees of their counsel, transfer taxes on resale of any of the Securities by them and any advertising expenses connected with any offers they may make.

8. The obligations of the Underwriters hereunder shall be subject, in their discretion, to the condition that all representations and warranties and other statements of the Company herein are, at and as of the Time of Delivery, true and correct, the condition that the Company shall have performed all of its obligations hereunder theretofore to be performed, and the following additional conditions:

(i) The Prospectus shall have been filed with the Commission pursuant to Rule 424(b) under the Act within the applicable time period prescribed for such filing by the rules and regulations under the Act and in accordance with Section 5(i) hereof; the final term sheet contemplated by Section 5(i) hereof, and any other material required to be filed by the Company pursuant to Rule 433(d) under the Act, shall have been filed with the Commission within the applicable time periods prescribed for such filings by Rule 433; no stop order suspending the effectiveness of the Registration Statement or any part thereof shall have been issued and no proceeding for that purpose shall have been initiated or threatened by the Commission and no notice of objection of the Commission to the use of the Registration Statement or any post-effective amendment thereto pursuant to Rule 401(g)(2) under the Act shall have been received; no stop order suspending or preventing the use of the Prospectus or any Issuer Free Writing Prospectus shall have been initiated or threatened by the Commission; and all requests for additional information on the part of the Commission shall have been complied with to your reasonable satisfaction;

(ii) Davis Polk & Wardwell LLP, counsel for the Underwriters, shall have furnished to you such written opinion or opinions, dated the date of the Time of Delivery, in form and substance satisfactory to you, and such counsel shall have received such papers and information as they may reasonably request to enable them to pass upon such matters;

(iii) Foley Hoag LLP, counsel for the Company, shall have furnished to you its written opinion or opinions, dated the date of the Time of Delivery, in form and substance reasonably satisfactory to you;

(iv) On the date of the Prospectus at a time prior to the execution of this Agreement, at 9:30 a.m., New York City time, on the effective date of any post-effective amendment to the Registration Statement filed subsequent to the date of this Agreement and also at the Time of Delivery, PricewaterhouseCoopers LLP shall have furnished to you a letter or letters, dated the respective dates of delivery thereof, in form and substance reasonably satisfactory to you, containing statements and information of the type ordinarily included in accountants' "**comfort letters**" to underwriters with respect to financial statements and certain financial information contained in the Registration Statement, Pricing Prospectus and the Prospectus. The letter to be delivered on the effective date of any post-effective amendment to the Registration Statement and as of the Time of Delivery shall reaffirm the statements made in the letter furnished on the date of the Prospectus, except that statements made therein as of a specified date subsequent to the date of the latest balance sheet and income statement of the Company shall be as of a date not more than three business days prior to the date of such post-effective amendment or Time of Delivery, as applicable;

(v) (i) Neither the Company nor any of its subsidiaries shall have sustained since the date of the latest audited financial statements included or incorporated by reference in the Pricing Prospectus any loss or interference with its business from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor dispute or court or governmental action, order or decree, otherwise than as set forth or contemplated in the Pricing Prospectus, and (ii) since the respective dates as of which information is given in the Pricing Prospectus there shall not have been any change in the capital stock or long-term debt of the Company or any of its subsidiaries or any change, or any development involving a prospective change, in or affecting the business, management, financial position, stockholders' equity or results of operations of the Company and its subsidiaries (other than changes due to grants, exercises, and terminations under Company incentive plans referred to in the Pricing Prospectus and in the documents incorporated by reference therein and other publicly announced share repurchase programs), otherwise than as set forth or contemplated in the Pricing Prospectus, the effect of which, in any such case described in clause (i) or (ii), is in your judgment so material and adverse as to make it impracticable or inadvisable to proceed with the public offering or the delivery of the Securities on the terms and in the manner contemplated in the Prospectus;

(vi) On or after the Applicable Time (i) no downgrading shall have occurred in the rating accorded the Company's debt securities by any **"nationally recognized statistical rating organization"** (as defined in Section 3(a)(62) of the Exchange Act), and (ii) no such organization shall have publicly announced that it has under surveillance or review, with possible negative implications, its rating of any of the Company's debt securities;

(vii) On or after the Applicable Time there shall not have occurred any of the following: (i) a suspension or material limitation in trading in securities generally on the New York Stock Exchange or the Nasdaq Global Select Market; (ii) a suspension or material limitation in trading in the Company's securities on the Nasdaq Global Select Market; (iii) a general moratorium on commercial banking activities declared by either Federal or New York State authorities or a material disruption in commercial banking or securities settlement or clearance services in the United States; (iv) the outbreak or escalation of hostilities involving the United States or the declaration by the United States of a national emergency or war or (v) the occurrence of any other calamity or crisis or any change in financial, political or economic conditions in the United States or elsewhere, if the effect of any such event specified in clause (iv) or (v) in your judgment makes it impracticable or inadvisable to proceed with the public offering or the delivery of the Securities on the terms and in the manner contemplated in the Prospectus;

(viii) The Company shall have complied with the provisions of Section 5(iv) hereof with respect to the furnishing of prospectuses on the New York Business Day next succeeding the date of this Agreement; and

(ix) The Company shall have furnished or caused to be furnished to you at the Time of Delivery certificates of officers of the Company satisfactory to you as to the accuracy of the representations and warranties of the Company herein at and as of such time, as to the performance by the Company of all of its obligations hereunder to be performed at or prior to such time, as to the matters set forth in subsections (i) and (v) of this Section and as to such other matters as you may reasonably request.

9. (i) The Company will indemnify and hold harmless each Underwriter against any losses, claims, damages or liabilities, joint or several, to which such Underwriter may become subject, under the Act or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, the Basic Prospectus, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus, or any amendment or supplement thereto, any Issuer Free Writing Prospectus or any **"issuer information"** filed or required to be filed pursuant to Rule 433(d) under the Act, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, and will reimburse each Underwriter for any reasonable legal or other expenses reasonably incurred by such Underwriter in

connection with investigating or defending any such action or claim as such expenses are incurred; provided, however, that the Company shall not be liable in any such case to the extent that any such loss, claim, damage or liability arises out of or is based upon an untrue statement or alleged untrue statement or omission or alleged omission made in the Registration Statement, the Basic Prospectus, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus, or any amendment or supplement thereto, or any Issuer Free Writing Prospectus, in reliance upon and in conformity with written information furnished to the Company by any Underwriter through the Representatives expressly for use therein.

(ii) Each Underwriter will, severally and not jointly, indemnify and hold harmless the Company against any losses, claims, damages or liabilities to which the Company may become subject, under the Act or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, the Basic Prospectus, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus, or any amendment or supplement thereto, or any Issuer Free Writing Prospectus, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, in each case to the extent, but only to the extent, that such untrue statement or alleged untrue statement or omission or alleged omission was made in the Registration Statement, the Basic Prospectus, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus or any such amendment or supplement thereto, or any Issuer Free Writing Prospectus, in reliance upon and in conformity with written information furnished to the Company by such Underwriter through the Representatives expressly for use therein and will reimburse the Company for any reasonable legal or other expenses reasonably incurred by the Company in connection with investigating or defending any such action or claim as such expenses are incurred.

(iii) Promptly after receipt by an indemnified party under subsection (i) or (ii) above of notice of the commencement of any action, such indemnified party shall, if a claim in respect thereof is to be made against the indemnifying party under such subsection, notify the indemnifying party in writing of the commencement thereof; but the omission so to notify the indemnifying party shall not relieve it from any liability which it may have to any indemnified party otherwise than under such subsection. The indemnifying party shall be entitled to participate therein, and, to the extent that it shall wish, jointly with any other indemnifying party under the same subsection, to assume the defense thereof and appoint counsel of the indemnifying party's choice at the indemnifying party's expense to represent the indemnified party in any action for which indemnification is or may be sought (in which case the indemnifying party shall not be responsible for the fees and expenses of any separate counsel for the indemnified party or parties or any other expenses thereafter incurred by the indemnified party in connection with the defense thereof, other than reasonable costs of investigation and except as set forth below); provided, however, that such

counsel shall be reasonably satisfactory to the indemnified party. Notwithstanding the indemnifying party's election to appoint counsel to represent the indemnified party in an action, the indemnified party shall have the right to employ separate counsel (including local counsel), and the indemnifying party shall bear the reasonable fees, costs and expenses of such separate counsel if (A) the use of counsel chosen by the indemnifying party to represent the indemnified party would present such counsel with a conflict of interest, (B) the actual or potential defendants in, or targets of, any such action include both the indemnified party and the indemnifying party and the indemnified party shall have reasonably concluded that there may be legal defenses available to it and/or other indemnified parties which are different from or additional to those available to the indemnifying party, (C) the indemnifying party has not employed counsel reasonably satisfactory to the indemnified party to represent the indemnified party within a reasonable time after notice of the institution of such action or (D) the indemnifying party shall authorize the indemnified party in writing to employ separate counsel at the expense of the indemnifying party; provided, however, that in no event shall the indemnifying parties be liable for fees and expenses of more than one counsel (in addition to one local counsel) separate from their own counsel for all indemnified parties in connection with any one action or separate but similar or related actions in the same jurisdiction arising out of the same general allegations or circumstances. No indemnifying party shall, without the written consent of the indemnified party, effect the settlement or compromise of, or consent to the entry of any judgment with respect to, any pending or threatened action or claim in respect of which indemnification or contribution may be sought hereunder (whether or not the indemnified party is an actual party to such action or claim) unless such settlement, compromise or judgment (A) includes an unconditional release of the indemnified party from all liability arising out of such action or claim and (B) does not include a statement as to or an admission of fault, culpability or a failure to act, by or on behalf of any indemnified party.

(iv) If the indemnification provided for in this Section 9 is unavailable to or insufficient to hold harmless an indemnified party under subsection (i) or (ii) above in respect of any losses, claims, damages or liabilities (or actions in respect thereof) referred to therein, then each indemnifying party shall contribute to the amount paid or payable by such indemnified party as a result of such losses, claims, damages or liabilities (or actions in respect thereof) in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Underwriters on the other from the offering of the Securities. If, however, the allocation provided by the immediately preceding sentence is not permitted by applicable law, then each indemnifying party shall contribute to such amount paid or payable by such indemnified party in such proportion as is appropriate to reflect not only such relative benefits but also the relative fault of the Company on the one hand and the Underwriters on the other in connection with the statements or omissions which resulted in such losses, claims, damages or liabilities (or actions in respect thereof), as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Underwriters on the other shall be deemed to be in the same proportion as

the total net proceeds from the offering (before deducting expenses) received by the Company bear to the total underwriting discounts and commissions received by the Underwriters, in each case as set forth in the table on the cover page of the Prospectus. The relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company on the one hand or the Underwriters on the other and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission. The Company and the Underwriters agree that it would not be just and equitable if contribution pursuant to this subsection (iv) were determined by pro rata allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation which does not take account of the equitable considerations referred to above in this subsection (iv). The amount paid or payable by an indemnified party as a result of the losses, claims, damages or liabilities (or actions in respect thereof) referred to above in this subsection (iv) shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending any such action or claim. Notwithstanding the provisions of this subsection (iv), no Underwriter shall be required to contribute any amount in excess of the amount by which the total price at which the Securities underwritten by it and distributed to the public were offered to the public exceeds the amount of any damages which such Underwriter has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' obligations in this subsection (iv) to contribute are several in proportion to their respective underwriting obligations and not joint.

(v) The obligations of the Company under this Section 9 shall be in addition to any liability which the Company may otherwise have and shall extend, upon the same terms and conditions, to each person, if any, who controls any Underwriter within the meaning of the Act and each affiliate, selling agent, officer and director of any Underwriter; and the obligations of the Underwriters under this Section 9 shall be in addition to any liability which the respective Underwriters may otherwise have and shall extend, upon the same terms and conditions, to each officer and director of the Company and to each person, if any, who controls the Company within the meaning of the Act.

10. (i) If any Underwriter shall default in its obligation to purchase the Securities, which it has agreed to purchase hereunder, you may in your discretion arrange for you or another party or other parties to purchase such Securities on the terms contained herein. If within thirty-six hours after such default by any Underwriter you do not arrange for the purchase of such Securities, then the Company shall be entitled to a further period of thirty-six hours within which to procure another party or other parties satisfactory to you to purchase such Securities on such terms. In the event that, within the

respective prescribed periods, you notify the Company that you have so arranged for the purchase of such Securities, or the Company notifies you that it has so arranged for the purchase of such Securities, you or the Company shall have the right to postpone the Time of Delivery for a period of not more than seven days, in order to effect whatever changes may thereby be made necessary in the Registration Statement or the Prospectus, or in any other documents or arrangements, and the Company agrees to file promptly any amendments or supplements to the Registration Statement or the Prospectus which in your opinion may thereby be made necessary. The term “**Underwriter**” as used in this Agreement shall include any person substituted under this Section with like effect as if such person had originally been a party to this Agreement with respect to such Securities.

(ii) If, after giving effect to any arrangements for the purchase of the Securities of a defaulting Underwriter or Underwriters by you and the Company as provided in subsection (i) above, the aggregate principal amount of such Securities which remains unpurchased does not exceed one eleventh of the aggregate principal amount of all the Securities, then the Company shall have the right to require each non-defaulting Underwriter to purchase the principal amount of Securities which such Underwriter agreed to purchase hereunder and, in addition, to require each non-defaulting Underwriter to purchase its pro rata share (based on the principal amount of Securities which such Underwriter agreed to purchase hereunder) of the Securities of such defaulting Underwriter or Underwriters for which such arrangements have not been made; but nothing herein shall relieve a defaulting Underwriter from liability for its default.

(iii) If, after giving effect to any arrangements for the purchase of the Securities of a defaulting Underwriter or Underwriters by you and the Company as provided in subsection (i) above, the aggregate principal amount of Securities which remains unpurchased exceeds one eleventh of the aggregate principal amount of all the Securities, or if the Company shall not exercise the right described in subsection (ii) above to require non-defaulting Underwriters to purchase Securities of a defaulting Underwriter or Underwriters, then this Agreement shall thereupon terminate, without liability on the part of any non-defaulting Underwriter or the Company, except for the expenses to be borne by the Company and the Underwriters as provided in Section 7 hereof and the indemnity and contribution agreements in Section 9 hereof; but nothing herein shall relieve a defaulting Underwriter from liability for its default.

11. (i) In the event that any Underwriter that is a Covered Entity (as defined below) becomes subject to a proceeding under a U.S. Special Resolution Regime (as defined below), the transfer from such Underwriter of this Agreement, and any interest and obligation in or under this Agreement, will be effective to the same extent as the transfer would be effective under the U.S. Special Resolution Regime if this Agreement, and any such interest and obligation, were governed by the laws of the United States or a state of the United States.

(ii) In the event that any Underwriter that is a Covered Entity or a BHC Act Affiliate (as defined below) of such Underwriter becomes subject to a

proceeding under a U.S. Special Resolution Regime, Default Rights (as defined below) under this Agreement that may be exercised against such Underwriter are permitted to be exercised to no greater extent than such Default Rights could be exercised under the U.S. Special Resolution Regime if this Agreement were governed by the laws of the United States or a state of the United States.

As used in this Section 11:

“**BHC Act Affiliate**” has the meaning assigned to the term “affiliate” in, and shall be interpreted in accordance with, 12 U.S.C. § 1841(k).

“**Covered Entity**” means any of the following:

- (i) a “covered entity” as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 252.82(b);
- (ii) a “covered bank” as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 47.3(b); or
- (iii) a “covered FSI” as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 382.2(b).

“**Default Right**” has the meaning assigned to that term in, and shall be interpreted in accordance with, 12 C.F.R. §§ 252.81, 47.2 or 382.1, as applicable.

“**U.S. Special Resolution Regime**” means each of (i) the Federal Deposit Insurance Act and the regulations promulgated thereunder and (ii) Title II of the Dodd-Frank Wall Street Reform and Consumer Protection Act and the regulations promulgated thereunder.

12. The respective indemnities, agreements, representations, warranties and other statements of the Company and the several Underwriters, as set forth in this Agreement or made by or on behalf of them, respectively, pursuant to this Agreement, shall remain in full force and effect, regardless of any investigation (or any statement as to the results thereof) made by or on behalf of any Underwriter or any controlling person of any Underwriter, or the Company, or any officer or director or controlling person of the Company, and shall survive delivery of and payment for the Securities.

13. If this Agreement shall be terminated pursuant to Section 10 hereof, the Company shall not then be under any liability to any Underwriter except as provided in Sections 7 and 9 hereof; but, if the Securities are not delivered by or on behalf of the Company as provided herein other than as a result of a failure of the conditions set forth in paragraph (vii) of Section 8, the Company will reimburse the Underwriters through you for all out-of-pocket expenses approved in writing by you, including fees and disbursements of counsel, reasonably incurred by the Underwriters in making preparations for the purchase, sale and delivery of the Securities, but the Company shall then be under no further liability to any Underwriter except as provided in Sections 7 and 9 hereof.

14. In all dealings hereunder, you shall act on behalf of each of the Underwriters, and the parties hereto shall be entitled to act and rely upon any statement, request, notice or agreement on behalf of any Underwriter made or given by you jointly or on behalf of you as the Representatives.

All statements, requests, notices and agreements hereunder shall be in writing, and if to the Underwriters shall be delivered or sent by mail or facsimile transmission to you as the Representatives in care of: (i) Goldman Sachs & Co. LLC, 200 West Street, New York, New York 10282-2198, Attention: Registration Department; (ii) BofA Securities, Inc., 50 Rockefeller Plaza, NY 10020, Attention: High Grade Debt Capital Markets Transaction Management/Legal, Facsimile: (212) 901-7881; and (iii) J.P. Morgan Securities LLC, 383 Madison Avenue, New York, NY 10179, Attn: Investment Grade Syndicate Desk, Fax: (212) 834-6081; and if to the Company shall be delivered or sent by mail or facsimile transmission to the address of the Company set forth in the Registration Statement, Attention: Secretary; provided, however, that any notice to an Underwriter pursuant to Section 9(iii) hereof shall be delivered or sent by mail or facsimile transmission to such Underwriter at its address set forth in its Underwriters' Questionnaire, which address will be supplied to the Company by you upon request. Any such statements, requests, notices or agreements shall take effect upon receipt thereof.

In accordance with the requirements of the USA Patriot Act (Title III of Pub. L. 107-56 (signed into law October 26, 2001)), the Underwriters are required to obtain, verify and record information that identifies their respective clients, including the Company, which information may include the name and address of their respective clients, as well as other information that will allow the underwriters to properly identify their respective clients.

15. This Agreement shall be binding upon, and inure solely to the benefit of, the Underwriters, the Company and, to the extent provided in Sections 9 and 12 hereof, the officers and directors of the Company and each person who controls the Company or any Underwriter, and their respective heirs, executors, administrators, successors and assigns, and no other person shall acquire or have any right under or by virtue of this Agreement. No purchaser of any of the Securities from any Underwriter shall be deemed a successor or assign by reason merely of such purchase.

16. Time shall be of the essence of this Agreement. As used herein, the term "**business day**" shall mean any day when the Commission's office in Washington, D.C. is open for business.

17. The Company acknowledges and agrees that (i) the purchase and sale of the Securities pursuant to this Agreement is an arm's-length commercial transaction between the Company, on the one hand, and the several Underwriters, on the other, (ii) in connection therewith and with the process leading to such transaction each Underwriter is acting solely as a principal and not the agent or fiduciary of the Company, (iii) no Underwriter has assumed an advisory or fiduciary responsibility in favor of the Company with respect to the offering contemplated hereby or the process leading thereto

(irrespective of whether such Underwriter has advised or is currently advising the Company on other matters) or any other obligation to the Company except the obligations expressly set forth in this Agreement, (iv) the Underwriters and their respective affiliates may be engaged in a broad range of transactions that involve interests that differ from those of the Company, (v) the Underwriters have not provided any legal, accounting, financial, regulatory or tax advice with respect to the offering of the Securities and (vi) the Company has consulted its own legal, accounting, financial, regulatory and tax advisors to the extent it deemed appropriate. The Company agrees that it will not claim that the Underwriters, or any of them, has rendered advisory services of any nature or respect, or owes a fiduciary or similar duty to the Company, in connection with such transaction or the process leading thereto.

18. THIS AGREEMENT AND ANY CLAIM, CONTROVERSY OR DISPUTE ARISING UNDER OR RELATED TO THIS AGREEMENT SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK WITHOUT REGARD TO ITS CHOICE OF LAW PROVISIONS.

19. Each of the Company and the Underwriters hereby irrevocably waives, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to this Agreement or the transactions contemplated hereby.

20. This Agreement may be executed by any one or more of the parties hereto in any number of counterparts, each of which shall be deemed to be an original, but all such respective counterparts shall together constitute one and the same instrument. Delivery of an executed counterpart of a signature page to this Agreement by facsimile or other electronic transmission shall be effective as delivery of a manually executed counterpart thereof.

21. Notwithstanding anything herein to the contrary, the Company is authorized to disclose to any persons the U.S. federal and state income tax treatment and tax structure of the potential transaction and all materials of any kind (including tax opinions and other tax analyses) provided to the Company relating to that treatment and structure, without the Underwriters, imposing any limitation of any kind. However, any information relating to the tax treatment and tax structure shall remain confidential (and the foregoing sentence shall not apply) to the extent necessary to enable any person to comply with securities laws. For this purpose, "**tax structure**" is limited to any facts that may be relevant to that treatment.

22. This Agreement constitutes the entire agreement of the parties to this Agreement and supersedes all prior written or oral and all contemporaneous oral agreements, understandings and negotiations with respect to the subject matter hereof. This Agreement shall not become effective until the execution of this Agreement by the parties hereto. This Agreement may not be amended or modified unless in writing by all of the parties hereto, and no condition herein (express or implied) may be waived unless waived in writing by each party whom the condition is meant to benefit.

Each of the parties hereto acknowledges that it is a sophisticated business person who was adequately represented by counsel during negotiations regarding the provisions hereof, including, without limitation, the indemnification and contribution provisions of Section 9, and is fully informed regarding said provisions. Each of the parties hereto further acknowledges that the provisions of Section 9 hereto fairly allocate the risks in light of the ability of the parties to investigate the Company, its affairs and its business in order to assure that adequate disclosure has been made in the Registration Statement, the Pricing Disclosure Package and the Prospectus (and any amendments and supplements thereto), as required by the Act and the Exchange Act.

If the foregoing is in accordance with your understanding of our agreement, please sign and return to the Company a counterpart hereof, whereupon this instrument, along with all counterparts, will become a binding agreement between the Underwriters and the Company in accordance with its terms.

Very truly yours,

Biogen Inc.

By: /s/ Michael Dambach

Name: Michael Dambach

Title: Vice President, Treasurer

[Signature Page to the Underwriting Agreement]

Accepted as of the date hereof:

Goldman Sachs & Co. LLC

By: /s/ Adam T. Greene
Name: Adam T. Greene
Title: Managing Director

BofA Securities, Inc.

By: /s/ Douglas A Muller
Name: Douglas A Muller
Title: Managing Director

J.P. Morgan Securities LLC

By: /s/ Som Bhattacharyya
Name: Som Bhattacharyya
Title: Executive Director

For themselves and as Representatives of the other Underwriters.

[Signature Page to the Underwriting Agreement]

SCHEDULE I

<u>Underwriter</u>	<u>Principal Amount of 2030 Notes</u>	<u>Principal Amount of 2050 Notes</u>
Goldman Sachs & Co. LLC	\$ 360,000,000	\$ 360,000,000
BofA Securities, Inc.	322,500,000	322,500,000
J.P. Morgan Securities LLC	322,500,000	322,500,000
Morgan Stanley & Co. LLC	105,000,000	105,000,000
Citigroup Global Markets Inc.	82,500,000	82,500,000
Deutsche Bank Securities Inc.	82,500,000	82,500,000
Mizuho Securities USA LLC	82,500,000	82,500,000
U.S. Bancorp Investments, Inc.	82,500,000	82,500,000
Wells Fargo Securities, LLC	30,000,000	30,000,000
Academy Securities, Inc.	15,000,000	15,000,000
Loop Capital Markets LLC	15,000,000	15,000,000
Total	<u>\$ 1,500,000,000</u>	<u>\$ 1,500,000,000</u>

SCHEDULE II

(a) Issuer Free Writing Prospectuses not included in the Pricing Disclosure Package:

Electronic roadshow posted as of April 24, 2020.

(b) Additional Documents Incorporated by Reference: None.

BIOGEN INC.,

as Issuer

and

U.S. Bank National Association,

as Trustee

Second Supplemental Indenture

Dated as of April 30, 2020

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SECOND SUPPLEMENTAL INDENTURE

SUPPLEMENTAL INDENTURE (this “Second Supplemental Indenture”), dated as of April 30, 2020, between BIOGEN INC., a Delaware corporation (the “Company”), and U.S. Bank National Association, a national association, as Trustee (the “Trustee”).

RECITALS OF THE COMPANY

WHEREAS, the Company and the Trustee executed and delivered an Indenture, dated as of September 15, 2015 (the “Indenture”), to provide for the issuance by the Company from time to time of Securities to be issued in one or more Series as provided in the Indenture;

WHEREAS, the issuance and sale of \$1,500,000,000 aggregate principal amount of a new Series of the Securities of the Company designated as its 2.250% Senior Notes due May 1, 2030 (the “Notes due 2030”) and \$1,500,000,000 aggregate principal amount of a new Series of the Securities of the Company designated as its 3.150% Senior Notes due May 1, 2050 (the “Notes due 2050”) and, together with the Notes due 2030, the “Notes”) have been authorized by resolutions adopted by the Board of Directors of the Company;

WHEREAS, the Company desires to issue and sell \$3,000,000,000 aggregate principal amount of the Notes on the date hereof;

WHEREAS, Sections 2.2 and 8.1 of the Indenture provide that the Company, when authorized by a Board Resolution, and the Trustee may amend or supplement the Indenture to provide for the issuance of and to establish the form or terms and conditions of Securities of any Series as permitted by the Indenture;

WHEREAS, the Company desires to establish the form, terms and conditions of the Notes; and

WHEREAS, all things necessary to make this Second Supplemental Indenture a valid supplement to the Indenture according to its terms and the terms of the Indenture have been done;

NOW, THEREFORE, for and in consideration of the premises stated herein and the purchase of the Notes by the Holders thereof, the parties hereto hereby enter into this Second Supplemental Indenture, for the equal and proportionate benefit of all Holders of the Notes, as follows:

ARTICLE I

DEFINITIONS SECTION

Section 1.1. Certain Terms Defined in the Indenture.

For purposes of this Second Supplemental Indenture, all capitalized terms used but not defined herein shall have the meanings ascribed to such terms in the Indenture, as amended hereby.

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Section 1.2. Definitions.

For the benefit of the Holders of the Notes, Section 1.1 of the Indenture shall be amended by adding the following new definitions:

“Attributable Debt” means, with respect to a Sale and Leaseback Transaction, an amount equal to the lesser of (1) the fair market value of the property (as determined in good faith by the Company’s board of directors); and (2) the present value of the total net amount of rent payments to be made under the lease during its remaining term, discounted at the rate of interest set forth or implicit in the terms of the lease, compounded semi-annually. The calculation of the present value of the total net amount of rent payments is subject to adjustments specified in the indenture.

“Change of Control” means the occurrence of any of the following: (1) the consummation of any transaction (including, without limitation, any merger or consolidation) the result of which is that any “person” (as such term is used in Section 13(d) of the Exchange Act) (other than the Company or one of its Subsidiaries) becomes the beneficial owner (as defined in Rules 13d-3 and 13d-5 under the Exchange Act), directly or indirectly, of more than 50% of the Voting Stock of the Company or other Voting Stock into which the Voting Stock of the Company is reclassified, consolidated, exchanged or changed, measured by voting power rather than number of shares; provided, however, that a Person shall not be deemed beneficial owner of, or to own beneficially, (A) any Securities tendered pursuant to a tender or exchange offer made by or on behalf of such Person or any of such Person’s Affiliates until such tendered Securities are accepted for purchase or exchange thereunder, or (B) any Securities if such beneficial ownership (i) arises solely as a result of a revocable proxy delivered in response to a proxy or consent solicitation made pursuant to the applicable rules and regulations under the Exchange Act, and (ii) is not also then reportable on Schedule 13D (or any successor schedule) under the Exchange Act; (2) the direct or indirect sale, transfer, conveyance or other disposition (other than by way of merger or consolidation), in one or more series of related transactions, of all or substantially all of the assets of the Company and the assets of its Subsidiaries, taken as a whole, to one or more “persons” (as such term is used in Section 13(d) of the Exchange Act) (other than to the Company or one of its Subsidiaries) (a “Transferee”), provided, however, that none of the circumstances in this clause (2) will be a Change of Control if the Persons that beneficially own the Company’s Voting Stock immediately prior to the transaction own, directly or indirectly, shares representing a majority of the total Voting Stock as measured by voting power rather than number of shares of the Transferee; (3) the Company consolidates with, or merges with or into, any “person” (as such term is used in Section 13(d) of the Exchange Act) or any such Person consolidates with, or merges with or into, the Company, in either case, pursuant to a transaction in which any of the Company’s outstanding Voting Stock or the Voting Stock of such other Person is converted into or exchanged for cash, securities or other property, other than pursuant to a transaction in which shares of the Company’s Voting Stock outstanding immediately prior to the transaction constitute, or are converted into or exchanged for, a majority of the Voting Stock of the surviving Person immediately after giving effect to such transaction; or (4) the adoption of a plan relating to the Company’s liquidation or dissolution.

“Change of Control Triggering Event” means the occurrence of both a Change of Control and a Rating Event.

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“Comparable Treasury Issue” means the U.S. Treasury security or securities selected by an Independent Investment Banker as having an actual or interpolated maturity comparable to the remaining term of the Notes of the applicable Series (“Remaining Life”) to be redeemed that would be utilized, at the time of selection and in accordance with customary financial practice, in pricing new issues of corporate debt securities of a comparable maturity to the remaining term of such Notes.

“Comparable Treasury Price” means, with respect to any Notes of a Series on any Redemption Date, (A) the average of the Reference Treasury Dealer Quotations for such Redemption Date, after excluding the highest and lowest such Reference Treasury Dealer Quotations, or (B) if the Independent Investment Banker obtains fewer than four such Reference Treasury Dealer Quotations, the average of all such quotations.

“Consolidated Total Assets” means, with respect to any Person as of any date, the amount of total assets as shown on the consolidated balance sheet of such Person for the most recent fiscal quarter for which financial statements have been filed with the Securities and Exchange Commission, prepared in accordance with accounting principles generally accepted in the United States.

“Fitch” means Fitch Inc., or any successor thereto.

“Global Notes” means, individually and collectively, each of the Notes in the form of Global Securities issued to DTC or its nominee, substantially in the form of Exhibits A, B and C.

“Independent Investment Banker” means one of the Reference Treasury Dealers appointed by the Company.

“Investment Grade Rating” means a rating equal to or higher than Baa3 (or the equivalent) by Moody’s and BBB- (or the equivalent) by S&P or Fitch, and the equivalent investment grade credit rating from any additional rating agency or Rating Agencies selected by the Company.

“Lien” means any pledge, mortgage, lien, encumbrance or other security interest.

“Moody’s” means Moody’s Investors Service, Inc. or any successor thereto.

“Par Call Date” means (1) with respect to the Notes due 2030, three months prior to the maturity date of the Notes due 2030 and (2) with respect to the Notes due 2050, six months prior to the maturity date of the Notes due 2050.

“Principal Property” means (1) any manufacturing facility, together with the land upon which it is erected and fixtures comprising a part thereof, owned or leased by the Company or any Subsidiary and located within the continental United States and having a net book value which, on the date the determination as to whether a property is a Principal Property is being made, exceeds 1% of the Company’s Consolidated Total Assets other than any such facility or a portion thereof which the Company’s board of directors determines in good faith, at any time on or prior to such date, is not of material importance to the total business conducted, or assets owned, by the Company and its Subsidiaries as an entirety or (2) any shares of stock or Indebtedness of any Subsidiary owning a Principal Property.

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“Rating Agencies” means (1) each of Fitch, Moody’s and S&P and (2) if any of Fitch, Moody’s and S&P ceases to rate the Notes or fails to make a rating of the Notes publicly available for reasons outside of the control of the Company, a “nationally recognized statistical rating organization” within the meaning of Rule 15c3-1(c)(2)(vi)(F) under the Exchange Act selected by the Company (as certified by a resolution of the Board of Directors of the Company) and which is reasonably acceptable to the Trustee as a replacement agency for Fitch, Moody’s or S&P, or all of them, as the case may be.

“Rating Event” means with respect to any Series of Notes, the rating on such Notes is lowered by at least two of the three Rating Agencies and such Notes are rated below an Investment Grade Rating by at least two of the three Rating Agencies, on any day during the period commencing on the earlier of the date of the first public notice of the occurrence of a Change of Control or the Company’s intention to effect a Change of Control and ending 60 days following consummation of such Change of Control (which period will be extended so long as the rating of the applicable Series of Notes is under publicly announced consideration for a possible downgrade by any of the Rating Agencies).

“Reference Treasury Dealer” means each of Goldman Sachs & Co. LLC, BofA Securities, Inc. and J.P. Morgan Securities LLC, or their respective affiliates, which are primary U.S. Government securities dealers in The City of New York, and their respective successors plus three other primary U.S. Government securities dealers in The City of New York selected by the Company; provided, however, that if any of the foregoing or their affiliates shall cease to be a primary U.S. Government securities dealer in The City of New York (a “Primary Treasury Dealer”), the Company will substitute therefor another Primary Treasury Dealer.

“Reference Treasury Dealer Quotations” means, with respect to each Reference Treasury Dealer and any Redemption Date, the average, as determined by the Independent Investment Banker, of the bid and asked prices for the applicable Comparable Treasury Issue (expressed in each case as a percentage of its principal amount) quoted in writing to the Trustee by the Reference Treasury Dealers at 3:30 p.m. New York time on the third Business Day preceding such Redemption Date.

“Sale and Leaseback Transaction” means any arrangement with any Person providing for the leasing by the Company or any Subsidiary of the Company of any property that has been or is to be sold or transferred by the Company or such Subsidiary, as the case may be, to such Person.

“Subsidiary” of any Person means (1) a corporation, a majority of the outstanding voting stock of which is, at the time, directly or indirectly, owned by such Person by one or more Subsidiaries of such Person, or by such Person and one or more Subsidiaries thereof or (2) any other Person (other than a corporation), including, without limitation, a partnership or joint venture, in which such Person, one or more Subsidiaries thereof or such Person and one or more Subsidiaries thereof, directly or indirectly, at the date of determination thereof, has at least majority ownership interest entitled to vote in the election of directors, managers or trustees thereof (or other Person performing similar functions).

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“S&P” means Standard & Poor’s Ratings Services, a Standard & Poor’s Financial Services LLC business, or any successor thereto.

“Treasury Rate” means, with respect to any Redemption Date: (1) the rate per annum equal to the yield, under the heading which represents the average for the immediately preceding week, appearing in the most recently published statistical release designated “H.15(519)” or any successor publication which is published weekly by the Board of Governors of the Federal Reserve System and which establishes yields on actively traded U.S. Treasury securities adjusted to constant maturity under the caption “Treasury Constant Maturities” for the maturity corresponding to the Comparable Treasury Issue; provided that, if no maturity is within three months before or after the Remaining Life of the Notes to be redeemed, yields for the two published maturities most closely corresponding to the Comparable Treasury Issue shall be determined and the Treasury Rate shall be interpolated or extrapolated from those yields on a straight-line basis, rounding to the nearest month; or (2) if such release (or any successor release) is not published during the week preceding the calculation date or does not contain such yields, the rate per year equal to the semiannual equivalent yield to maturity or interpolated (on a day count basis) of the Comparable Treasury Issue, assuming a price for the applicable Comparable Treasury Issue (expressed as a percentage of its principal amount) equal to the applicable Comparable Treasury Price for such Redemption Date. The Treasury Rate shall be calculated on the third business day preceding the Redemption Date.

“Voting Stock” means, with respect to any specified “person” (as that term is used in Section 13(d) of the Exchange Act) as of any date, the capital stock of such person that is at the time entitled to vote generally in the election of the board of directors of such person.

ARTICLE II

FORM AND TERMS OF THE NOTES

Section 2.1. Form and Dating.

The Notes due 2030 and the Trustee’s certificate of authentication shall be substantially in the form of Exhibit A attached hereto. The Notes due 2050 and the Trustee’s certificate of authentication shall be substantially in the form of Exhibit B attached hereto. The Notes shall be executed on behalf of the Company by an Officer of the Company. The Notes may have notations, legends or endorsements required by law, stock exchange rules or usage. Each Note shall be dated the date of its authentication. The Notes and any beneficial interest in the Notes shall be in minimum denominations of \$2,000 and integral multiples of \$1,000 in excess thereof.

The terms and notations contained in the Notes shall constitute, and are hereby expressly made, a part of the Indenture as supplemented by this Second Supplemental Indenture and the Company and the Trustee, by their execution and delivery of this Second Supplemental Indenture, expressly agree to such terms and provisions and to be bound thereby.

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(a) Global Notes. The Notes of each Series designated herein shall be issued initially in the form of one or more fully registered Global Securities, which shall be deposited on behalf of the purchasers of the Notes represented thereby with The Depository Trust Company, New York, New York ("DTC") and registered in the name of Cede & Co., DTC's nominee, duly executed by the Company, authenticated by the Trustee and with guarantees endorsed thereon as hereinafter provided. The aggregate principal amount of outstanding Notes may from time to time be increased or decreased by adjustments made on the records of the Trustee and DTC or its nominee as hereinafter provided.

The Global Notes may not be transferred except by DTC, in whole and not in part, to another nominee of DTC or to a successor of DTC or its nominee. If at any time DTC for the Notes notifies the Company that DTC is unwilling to continue as the depository for the Global Notes or ceases to be a clearing agency, or if the Company so elects or if there is an Event of Default under the Notes, then the Company shall execute, and the Trustee shall, upon receipt of a Company Order for authentication, authenticate and deliver, Definitive Notes in an aggregate principal amount equal to the principal amount of the Global Notes in exchange for such Global Note, which DTC will distribute to its participants.

(b) Book-Entry Provisions. This Section 2.1(b) shall apply only to the Global Notes deposited with or on behalf of DTC.

The Company shall execute and the Trustee shall, in accordance with this Section 2.1(b), authenticate and deliver the Global Notes that shall be registered in the name of DTC or the nominee of DTC and shall be delivered by the Trustee to DTC or pursuant to DTC's instructions.

Depository participants shall have no rights either under the Indenture or with respect to any Global Notes held on their behalf by DTC or under such Global Notes. DTC shall be treated by the Company, the Trustee and any agent of the Company or the Trustee as the absolute owner of such Global Note for all purposes under the Indenture. Notwithstanding the foregoing, nothing herein shall prevent the Company or the Trustee from giving effect to any written certification, proxy or other authorization furnished by DTC or impair, as between DTC and the depository participants, the operation of customary practices of such DTC governing the exercise of the rights of an owner of a beneficial interest in the Global Notes.

(c) Definitive Notes. Notes issued in certificated form shall be substantially in the form of Exhibit A or Exhibit B, as applicable, attached hereto, but without including the text referred to therein as applying only to Global Notes. Except as provided above in subsection (a), owners of beneficial interests in the Global Notes will not be entitled to receive physical delivery of certificated Notes.

(d) Transfer and Exchange of the Notes. The transfer and exchange of beneficial interests in the Global Notes shall be effected through DTC, in accordance with the Indenture and the procedures of DTC therefor. Beneficial interests in the Global Notes may be transferred to Persons who take delivery thereof in the form of a beneficial interest in the Global Notes.

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(e) Paying Agent. The Company appoints the Trustee as the initial agent of the Company for the payment of the principal of (and premium, if any) and interest on the Notes and the Corporate Trust Office of the Trustee in St. Paul, Minnesota, be and hereby is, designated as the office or agency where the Notes may be presented for payment and where notices to or demands upon the Company in respect of the Notes and the Indenture pursuant to which the Notes are to be issued may be served.

Section 2.2. Terms of the Notes.

The following terms relating to the Notes are hereby established:

(a) Title. The Notes due 2030 shall constitute a Series of Securities having the title “2.250% Senior Notes due 2030” and the Notes due 2050 shall constitute a separate Series of Securities having the title “3.150% Senior Notes due 2050”.

(b) Principal Amount. The aggregate principal amount of the Notes due 2030 that may be initially authenticated and delivered under the Indenture (except for Notes due 2030 authenticated and delivered upon registration of, transfer of, or in exchange for, or in lieu of, other Notes due 2030 pursuant to Sections 2.7, 2.8, 2.11, 3.6 or 8.5 of the Indenture) shall be \$1,500,000,000. The aggregate principal amount of the Notes due 2050 that may be initially authenticated and delivered under the Indenture (except for Notes due 2050 authenticated and delivered upon registration of, transfer of, or in exchange for, or in lieu of, other Notes due 2050 pursuant to Sections 2.7, 2.8, 2.11, 3.6 or 8.5 of the Indenture) shall be \$1,500,000,000. The Company may from time to time, without the consent of the Holders of Notes of any Series, issue additional Notes (in any such case “Additional Notes”) of any Series having the same ranking and the same interest rate, maturity and other terms as the Notes of that Series. Any additional Notes of a Series and the existing Notes of that Series will constitute a single Series under the Indenture and all references to the relevant Notes shall include the Additional Notes unless the context otherwise requires; provided, that if the Additional Notes of any Series are not fungible with the Notes of such Series for U.S. federal income tax purposes, the Additional Notes will have a separate CUSIP number.

(c) Issuance Price. The Notes due 2030 shall be issued at a price to the public of 99.973% of the principal amount of such Series and the Notes due 2050 shall be issued at a price to the public of 99.174% of the principal amount of such Series, plus, in each case, accrued interest, if any, from April 30, 2020 to the Original Issue Date (as defined in the Note of the applicable Series).

(d) Maturity Date. The entire outstanding principal of the Notes due 2030 shall be payable on May 1, 2030 and the entire outstanding principal of the Notes due 2050 shall be payable on May 1, 2050.

(e) Interest Rate; Place and Method of Payment. The rate at which the Notes due 2030 shall bear interest shall be 2.250% per annum and the rate at which the Notes due 2050 shall bear interest shall be 3.150% per annum; the date from which interest shall accrue on the Notes shall be April 30, 2020, or the most recent Interest Payment Date to which interest has been paid or provided for; the Interest Payment Dates for the Notes shall be November 1 and May 1 of each year, beginning November 1, 2020; the interest so payable, and punctually paid or duly provided for, on any Interest Payment Date, will be paid, in immediately available funds, to

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the Persons in whose names the Notes (or one or more predecessor Securities) is registered at the close of business on the Regular Record Date for such interest, which shall be October 15 or April 15, as the case may be, next preceding such Interest Payment Date. Any such interest not punctually paid or duly provided for shall forthwith cease to be payable to the respective Holders on such Regular Record Date, and such defaulted interest, may be paid to the Persons in whose names the Notes (or one or more predecessor Securities) is registered at the close of business on a special record date for the payment of such defaulted interest to be fixed by the Trustee, notice whereof shall be given to Holders of Notes not less than 15 days prior to such special record date, or may be paid at any time in any other lawful manner not inconsistent with requirements of any securities exchange on which the Notes may be listed, and upon such notice as may be required by such exchange, all as more fully provided in said Indenture. Payment of principal and interest on this Note will be made at the Corporate Trust Office of the Trustee or such other office or agency of the Company as may be designated for such purpose, in such coin or currency of the United States of America as at the time of payment is legal tender for payment of public and private debts; provided, however, that each installment of interest and principal on the Notes may at the Company's option be paid in immediately available funds by transfer to an account maintained by the payee located in the United States.

- (f) Optional Redemption. The Notes of each Series are redeemable at the option of the Company on the terms and conditions described in Section 2.3 hereof.
- (g) Sinking Fund Obligation. There is no sinking fund obligation.
- (h) Mandatory Redemption or Repurchase. The Company shall be required to make an offer to repurchase the Notes of any Series upon the occurrence of a Change of Control Triggering Event on the terms and conditions described in Section 2.4 hereof.
- (i) Form and Denomination of Notes. The Notes of each Series shall be issued in registered form in the denominations specified in Section 2.1 hereof.
- (j) Principal Payable Upon Acceleration. The entire principal amount of, and premium, if any, on all the Notes of any Series then outstanding is payable upon acceleration of such Notes in accordance with Section 6.2 of the Indenture.
- (k) Currency. The currency of denomination of the Notes is United States Dollars. Payment of principal of and interest and premium, if any, on the Notes will be made in United States Dollars.
- (l) Payment Not Made by Reference to Index. Payments of principal of or interest or premium, if any, on the Notes of any Series shall not be determined by reference to any index.
- (m) Notes Unsecured. Except as otherwise required pursuant to Section 2.5 hereof, the Notes are not secured by any collateral.
- (n) Additional/Different Covenants. In addition to the covenants set forth in Indenture, the Company shall be subject to the obligations set forth in Sections 2.3, 2.4, 2.5, 2.6 and 2.7 hereof.

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(o) Modification to Events of Default. There is no addition to, deletion of or change in (i) any Events of Default as applicable to the Notes of any Series as set forth under the Indenture or (ii) the right of the Trustee or the requisite Holders of any Series of Notes to declare the principal amount thereof due and payable pursuant to Section 6.2 of the Indenture.

(p) Conversion. No Notes of any Series are convertible or exchangeable for shares of common stock or preferred stock of the Company.

(q) Depositories and Agents. The Notes of each Series shall be deposited with The Depository Trust Company, acting as depository, as described in Section 2.1(a) hereof. The Company appoints the Trustee as initial paying agent for the Notes as described in Section 2.1(e) hereof. There is no interest rate calculation agent, exchange rate calculation agent or other agent with respect to the Notes of any Series other than those appointed herein.

(r) Subordination. The Notes are not subordinated in right of payment to any other unsecured Indebtedness of the Company.

(s) Defeasance. The Notes of any Series are defeasible pursuant to Article 9 of the Indenture.

Section 2.3. Optional Redemption.

(a) The provisions of Article 3 of the Indenture shall apply to the Notes, except that, solely with respect to the Notes, the third sentence of Section 3.1 of the Indenture shall be substituted with the following:

“If a Series of Securities is redeemable and the Company elects to redeem such Securities of a Series, it shall notify the Trustee of the Redemption Date and the principal amount of Securities to be redeemed at least 15 days (unless a shorter notice period shall be satisfactory to the Trustee) before the Redemption Date.”

(b) At any time prior to the Par Call Date applicable to a Series of Notes, from time to time, the Notes are redeemable, as a whole or in part, at the Company’s option, on at least 10 days, but not more than 60 days, prior notice mailed to the registered address of each Holder of the Notes to be redeemed (or otherwise delivered in accordance with the applicable procedures of DTC), at a redemption price equal to the greater of: (i) 100% of principal amount of the Notes to be redeemed, or (ii) the sum of the present values of the remaining scheduled payments (through the Par Call Date assuming for such purpose that such Notes matured on the applicable Par Call Date) of interest and principal thereon (exclusive of interest accrued and unpaid to, but not including, the date of redemption) discounted to the date of redemption on a semiannual basis, assuming a 360-day year consisting of twelve 30-day months, at the Treasury Rate plus 25 basis points, in the case of Notes due 2030, and 30 basis points, in the case of Notes due 2050, plus, in either case, accrued and unpaid interest to, but not including, the date of redemption.

(c) In addition, at any time on or after the Par Call Date applicable to a Series of Notes, the Notes may be redeemed, as a whole or in part, at the Company’s option, on at least 10 days, but not more than 60 days, prior notice mailed to the registered address of each Holder of the Notes to be redeemed (or otherwise delivered in accordance with the applicable procedures of DTC), at a redemption price equal to 100% of the principal amount of the Notes to be redeemed on the Redemption Date plus accrued and unpaid interest to, but not including, the date of redemption.

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(d) On and after the Redemption Date for the Notes of any Series, interest will cease to accrue on the Notes of such Series or any portion thereof called for redemption, unless the Company defaults in the payment of the redemption price. On or before the Redemption Date for the Notes of such Series, the Company will deposit with a Paying Agent, or the Trustee, funds sufficient to pay the redemption price of the Notes to be redeemed on such date. If less than all of the Notes of a Series are to be redeemed, the Notes of that Series to be redeemed will be selected by DTC in accordance with its standard procedures. If the Notes to be redeemed are not global notes then held by DTC, or DTC prescribes no method of selection, the Trustee will select the Notes to be redeemed on a pro rata basis, by lot, or by any other method the Trustee deems fair and appropriate and subject to and otherwise in accordance with the procedures of DTC. Any redemption or notice of redemption may, at the Company's discretion, be subject to one or more conditions precedent, and, at the Company's discretion, the Redemption Date may be delayed until such time as any or all such conditions shall be satisfied. The Company will provide written notice to the Trustee prior to the close of business two Business Days prior to the Redemption Date if any such redemption has been rescinded or delayed, and upon receipt the Trustee shall provide such notice to each Holder of the Notes in the same manner in which the notice of redemption was given.

Section 2.4. Repurchase of Notes Upon a Change of Control.

(a) If a Change of Control Triggering Event occurs with respect to the Notes of a Series, unless the Company has exercised its option to redeem the Notes of such Series as described above, the Company will be required to make an offer (the "Change of Control Offer") to each Holder of the Notes of such Series to repurchase all or any part (equal to \$2,000 or an integral multiple of \$1,000 in excess thereof) of that Holder's Notes of such Series on the terms set forth in such Notes. In the Change of Control Offer, the Company will be required to offer payment in cash equal to 101% of the aggregate principal amount of Notes repurchased, plus accrued and unpaid interest, if any, on the Notes repurchased to but not including the date of repurchase (the "Change of Control Payment"). With respect to the Notes of each Series, within 30 days following any Change of Control Triggering Event or, at the Company's option, prior to any Change of Control, but after public announcement of the transaction that constitutes or may constitute the Change of Control, a notice will be mailed (or otherwise delivered in accordance with the applicable procedures of DTC) to Holders of the Notes of the applicable Series describing the transaction that constitutes or may constitute the Change of Control Triggering Event and offering to repurchase the Notes of such Series on the date specified in the notice, which date will be no earlier than 10 days and no later than 60 days from the date such notice is mailed (or otherwise delivered in accordance with the applicable procedures of DTC) or, if the notice is mailed (or otherwise delivered) prior to the Change of Control, no earlier than 10 days and no later than 60 days from the date on which the Change of Control Triggering Event occurs (the "Change of Control Payment Date"). The notice will, if mailed (or otherwise delivered) prior to the date of consummation of the Change of Control, state that the offer to purchase is conditioned on the Change of Control Triggering Event occurring on or prior to the Change of Control Payment Date.

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(b) On the Change of Control Payment Date, the Company shall, to the extent lawful:

(1) accept for payment all Notes or portions of Notes properly tendered pursuant to the Change of Control Offer;

(2) deposit with the Paying Agent an amount equal to the Change of Control Payment in respect of all Notes or portions of Notes properly tendered; and

(3) deliver or cause to be delivered to the Trustee the Notes properly accepted together with an Officers' Certificate stating the aggregate principal amount of Notes or portions of Notes being repurchased.

(c) The Company shall not be required to make a Change of Control Offer upon the occurrence of a Change of Control Triggering Event if a third party makes such an offer in the manner, at the times and otherwise in compliance with the requirements for an offer made by the Company and the third party repurchases all Notes properly tendered and not withdrawn under its offer. In addition, the Company shall not repurchase any Notes if there has occurred and is continuing on the Change of Control Payment Date an Event of Default under the Indenture, other than an Event of Default arising as a result of a default in the payment of the Change of Control Payment upon a Change of Control Triggering Event.

(d) The Company shall comply in all material respects with the requirements of Rule 14e-1 under the Exchange Act and any other securities laws and regulations thereunder to the extent such laws and regulations are applicable in connection with the repurchase of the Notes as a result of a Change of Control Triggering Event. To the extent that the provisions of any such securities laws or regulations conflict with the Change of Control Offer provisions of the Notes, the Company shall comply with the applicable securities laws and regulations and shall not be deemed to have breached its obligations under the Change of Control Offer provisions of the Notes by virtue of any such conflict.

Section 2.5. Limitation on Liens.

For the benefit of the Holders of the Notes, a new Section 4.7 shall be added to the Indenture as follows:

“Other than as provided in Section 4.9, the Company shall not, and shall not permit any Subsidiaries of the Company to, create or assume any Indebtedness secured by any Lien on any of the Company's or such Subsidiary's respective Principal Properties unless the Notes are secured by such Lien equally and ratably with, or prior to, the Indebtedness secured by such Lien. This restriction does not apply to Indebtedness that is secured by (i) Liens existing on the date of the issuance of the Notes; (ii) Liens securing only the Notes; (iii) Liens on property or shares of stock in respect of Indebtedness of a Person existing at the time such Person becomes a Subsidiary of the Company or is merged into or consolidated with, or its assets are acquired by, the Company or any Subsidiary of the Company (provided that such Lien was not incurred in anticipation of such transaction and was in existence prior to such transaction) so long as such

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Lien does not extend to any other property and the Indebtedness so secured is not increased; (iv) Liens to secure Indebtedness incurred for the purpose of all or any part of a property's purchase price or cost of construction or additions, repairs, alterations, or other improvements; provided that (1) the principal amount of any Indebtedness secured by such Lien does not exceed 100% of such property's purchase price or cost, (2) such Lien does not extend to or cover any other property other than the property so purchased, constructed or on which such additions, repairs, alterations or other improvements were so made, and (3) such Lien is incurred prior to or within 270 days after the acquisition of such property or the completion of construction or such additions, repairs, alterations or other improvements and the full operation of such property thereafter; (v) Liens in favor of the United States or any state thereof, or any instrumentality of either, to secure certain payments pursuant to any contract or statute; (vi) Liens for taxes or assessments or other governmental charges or levies which are not overdue for a period exceeding 60 days unless such Liens are being contested in good faith and for which adequate reserves are being maintained, to the extent required by generally accepted accounting principles; (vii) title exceptions, easements, licenses, leases and other similar Liens that are not consensual and that do not materially impair the use of the property subject thereto; (viii) Liens to secure obligations under worker's compensation laws, unemployment compensation, old-age pensions and other social security benefits or similar legislation; (ix) Liens arising out of legal proceedings, including Liens arising out of judgments or awards; (x) warehousemen's, materialmen's, carrier's, landlord's and other similar Liens for sums not overdue for a period exceeding 60 days unless such Liens are being contested in good faith and for which adequate reserves are being maintained, to the extent required by generally accepted accounting principles; (xi) Liens incurred to secure the performance of statutory obligations, surety or appeal bonds, performance or return-of-money bonds, insurance, self-insurance or other obligations of a like nature incurred in the ordinary course of business; (xii) Liens that are rights of set-off relating to the establishment of depository relations with banks not given in connection with the issuance of Indebtedness; (xiii) Liens arising out of conditional sale, title retention, consignment or similar arrangements for the sale of goods entered into by the Company or any of its Subsidiaries in the ordinary course of business; (xiv) Liens in favor of the Company or the favor of any of its Subsidiaries; or (xv) Liens to secure any extension, renewal, refinancing or refunding (or successive extensions, renewals, refinancings or refundings), in whole or in part, of any Indebtedness secured by Liens referred to in clauses (i) to (xv) or Liens created in connection with any amendment, consent or waiver relating to such Indebtedness, so long as such Lien does not extend to any other Principal Property and the Indebtedness so secured does not exceed the fair market value (as determined by the Company's board of directors) of the assets subject to such Liens at the time of such extension, renewal, refinancing or refunding, or such amendment, consent or waiver, as the case may be."

Section 2.6. Limitation on Sale and Leaseback Transactions.

For the benefit of the Holders of the Notes a new Section 4.8 shall be added to the Indenture as follows:

"Other than as provided under Section 4.9, the Company shall not, and shall not permit any of its Subsidiaries to, enter into any Sale and Leaseback Transaction with respect to any of the Company's or such Subsidiary's respective Principal Properties, the acquisition or completion of construction and commencement of full operations of which has occurred more

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than 270 days prior thereto, unless (i) such transaction is entered into prior to the first issue date of the Notes; (ii) such transaction is for the sale and leasing back to the Company of any property by one of its Subsidiaries; (iii) the Company or such Subsidiary is entitled to incur Indebtedness secured by a mortgage on the property to be leased in an amount equal to the Attributable Debt with respect to such Sale and Leaseback Transaction without equally and ratably securing the Notes pursuant to the first sentence of Section 4.7; (iv) the lease is for a period not in excess of five years, including renewal rights; or (v) the Company or the Subsidiary, prior to or within 270 days after the sale of such property in connection with the Sale and Leaseback Transaction is completed, applies the net cash proceeds of the sale of the property leased to (1) the retirement of the Notes or debt of the Company ranking equally with the Notes or to the retirement of any debt of a Subsidiary of the Company, or (2) the acquisition of another Principal Property.”

Section 2.7. Exempted Liens and Sale and Leaseback Transactions.

For the benefit of the Holders of the Notes a new Section 4.9 shall be added to the Indenture as follows:

“Notwithstanding the restrictions described under Sections 4.7 or 4.8, the Company or any Subsidiary of the Company may create or assume any Liens or enter into any Sale and Leaseback Transactions not otherwise permitted as described above, if the sum of the following does not exceed 15% of Consolidated Total Assets (i) the outstanding Indebtedness secured by such Liens (not including any Liens permitted under Section 4.7 which amount does not include any Liens permitted under the provisions of this Section 4.9); plus (ii) all Attributable Debt in respect of such Sale and Leaseback Transaction entered into (not including any Sale and Leaseback Transactions permitted under Section 4.8 which amount does not include any Sale and Leaseback Transactions permitted under the provisions of this Section 4.9), measured, in each case, at the time such Lien is incurred or any such Sale and Leaseback Transaction is entered into by the Company or such Subsidiary of the Company.”

Section 2.8. Other Amendments.

For the benefit of the Holders of the Notes Section 2.3 of the Indenture shall be amended by amending and restating the first paragraph of such Section in its entirety as follows:

“The Securities shall be executed on behalf of the Company by an Officer of the Company. Such signature may be either manual or facsimile.”

ARTICLE III

MISCELLANEOUS

Section 3.1. Trust Indenture Act Controls.

If any provision of this Second Supplemental Indenture limits, qualifies or conflicts with another provision which is required to be included in this Second Supplemental Indenture by the TIA, the required provision shall control. If any provision of this Second Supplemental Indenture modifies or excludes any provision of the TIA which may be so modified or excluded, the latter provision shall be deemed to apply to this Second Supplemental Indenture as so modified or to be excluded, as the case may be.

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Section 3.2. Governing Law.

This Second Supplemental Indenture and the Notes shall be governed by and construed in accordance with the laws of the State of New York.

Section 3.3. Multiple Counterparts.

The parties may sign multiple counterparts of this Second Supplemental Indenture. Each signed counterpart shall be deemed an original, but all of them together represent one and the same Second Supplemental Indenture.

Section 3.4. Severability.

Each provision of this Second Supplemental Indenture shall be considered separable and if for any reason any provision which is not essential to the effectuation of the basic purpose of this Second Supplemental Indenture or the Notes shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby and a Holder shall have no claim therefor against any party hereto.

Section 3.5. Ratification.

The Indenture, as supplemented and amended by this Second Supplemental Indenture, is in all respects ratified and confirmed. The Indenture and this Second Supplemental Indenture shall be read, taken and construed as one and the same instrument. All provisions included in this Second Supplemental Indenture supersede any conflicting provisions included in the Indenture unless not permitted by law. The Trustee accepts the trusts created by the Indenture, as supplemented by this Second Supplemental Indenture, and agrees to perform the same upon the terms and conditions of the Indenture, as supplemented by this Second Supplemental Indenture.

Section 3.6. Effectiveness.

The provisions of this Second Supplemental Indenture shall become effective as of the date hereof.

Section 3.7. Notices, Approvals, etc.

Notices, approvals, consents, requests and any communications hereunder must be in writing (provided that any communication sent to the Trustee hereunder must be in the form of a document that is signed manually or by way of a digital signature provided by Adobe or DocuSign (or such other digital signature provider as specified in writing to the Trustee by the authorized representative), in English. The Company agrees to assume all risks arising out of the use of digital signatures and electronic methods to submit communications to the Trustee, including without limitation the risk of the Trustee acting on unauthorized instructions, and the risk of interception and misuse by third parties.

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IN WITNESS WHEREOF, the parties hereto have caused this Second Supplemental Indenture to be duly executed as of the date first above written.

BIOGEN INC.

By: /s/ Michael Dambach

Name: Michael Dambach

Title: Vice President, Treasurer

U.S. BANK NATIONAL ASSOCIATION, as Trustee

By: /s/ Laura S. Cawley

Name: Laura S. Cawley

Title: Vice President

EXHIBIT A

FORM OF 2.250% SENIOR NOTE DUE 2030

THIS NOTE IS A GLOBAL SECURITY WITHIN THE MEANING OF THE INDENTURE HEREINAFTER REFERRED TO AND IS REGISTERED IN THE NAME OF DTC OR A NOMINEE OF DTC. THIS NOTE IS EXCHANGEABLE FOR NOTES REGISTERED IN THE NAME OF A PERSON OTHER THAN DTC OR ITS NOMINEE ONLY IN THE LIMITED CIRCUMSTANCES DESCRIBED IN THE INDENTURE, AND MAY NOT BE TRANSFERRED EXCEPT AS A WHOLE BY DTC TO A NOMINEE OF DTC, BY A NOMINEE OF DTC TO DTC OR ANOTHER NOMINEE OF DTC OR BY DTC OR ANY SUCH NOMINEE TO A SUCCESSOR DEPOSITARY OR A NOMINEE OF SUCH A SUCCESSOR DEPOSITARY.

UNLESS THIS GLOBAL SECURITY IS PRESENTED BY AN AUTHORIZED REPRESENTATIVE OF THE DEPOSITORY TRUST COMPANY, A NEW YORK CORPORATION (“DTC”), TO THE ISSUER OR ITS AGENT FOR REGISTRATION OF TRANSFER, EXCHANGE OR PAYMENT, AND ANY GLOBAL SECURITY ISSUED IS REGISTERED IN THE NAME OF CEDE & CO. OR IN SUCH OTHER NAME AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF DTC (AND ANY PAYMENT IS MADE TO CEDE & CO. OR TO SUCH OTHER ENTITY AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF DTC), ANY TRANSFER, PLEDGE OR OTHER USE HEREOF FOR VALUE OR OTHERWISE BY OR TO ANY PERSON IS WRONGFUL INASMUCH AS THE REGISTERED OWNER HEREOF, CEDE & CO., HAS AN INTEREST HEREIN.

BIOGEN INC.

2.250% Senior Note due 2030

REGISTERED	PRINCIPAL AMOUNT
No. Specimen	\$ []
CUSIP: []	
ISIN: []	

Biogen Inc., a Delaware corporation (herein called the “Company,” which term includes any successor Person under the Indenture hereinafter referred to), for value received, hereby promises to pay to Cede & Co., or registered assigns, the principal sum of \$[] on May 1, 2030 (the “Maturity Date”) (except to the extent redeemed or repaid prior to the Maturity Date) and to pay interest thereon from April 30, 2020 (the “Original Issue Date”) or from the most recent Interest Payment Date to which interest has been paid or duly provided for semi-annually at the rate of 2.250% per annum, on November 1 and May 1 (each such date, an “Interest Payment Date”), commencing November 1, 2020, until the principal hereof is paid or made available for payment.

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Payment of Interest. The interest so payable, and punctually paid or made available for payment, on any Interest Payment Date, will, as provided in the Indenture, be paid, in immediately available funds, to the Person in whose name this Note (or one or more Predecessor Securities) is registered at the close of business on October 15 or April 15 (whether or not a Business Day, as defined in the Indenture), as the case may be, next preceding such Interest Payment Date (the “Regular Record Date”). Any such interest not punctually paid or duly provided for (“Defaulted Interest”) will forthwith cease to be payable to the Holder on such Regular Record Date, and such Defaulted Interest, may be paid to the Person in whose name this Note (or one or more Predecessor Securities) is registered at the close of business on a special record date (the “Special Record Date”) for the payment of such Defaulted Interest to be fixed by the Trustee, notice whereof shall be given to Holders of Notes not less than fifteen days prior to such Special Record Date, or may be paid at any time in any other lawful manner not inconsistent with requirements of any securities exchange on which the Notes may be listed, and upon such notice as may be required by such exchange, all as more fully provided in said Indenture.

Place of Payment. Payment of principal, premium, if any, and interest on this Note will be made at the Corporate Trust Office of the Trustee or such other office or agency of the Company as may be designated for such purpose, in such coin or currency of the United States of America as at the time of payment is legal tender for payment of public and private debts; provided, however, that each installment of interest, premium, if any, and principal on this Note may at the Company’s option be paid in immediately available funds by transfer to an account maintained by the payee located in the United States.

Time of Payment. In any case where any Interest Payment Date, the Maturity Date or any date fixed for redemption or repayment of the Notes shall not be a Business Day, then (notwithstanding any other provision of the Indenture or this Note), payment of principal or interest, if any, need not be made on such date, but may be made on the next succeeding Business Day with the same force and effect as if made on such Interest Payment Date, the Maturity Date or the date so fixed for redemption or repayment, and no interest shall accrue in respect of the delay.

General. This Note is one of a duly authorized issue of Securities of the Company, issued and to be issued in one or more Series under an indenture, dated as of September 15, 2015 (the “Base Indenture”), between the Company and U.S. Bank National Association (herein called the “Trustee,” which term includes any successor trustee under the Indenture with respect to a Series of which this Note is a part), as supplemented by a Second Supplemental Indenture thereto, dated as of April 30, 2020 (the “Second Supplemental Indenture” and, together with the Base Indenture, the “Indenture”). Reference is hereby made to the Indenture for a statement of the respective rights, limitations of rights, duties and immunities thereunder of the Company, the Trustee and the Holders of the Securities, and of the terms upon which the Securities are, and are to be, authenticated and delivered. This Note is one of a duly authorized Series of Securities designated as “2.250% Senior Notes due 2030” (collectively, the “Notes”), initially limited in aggregate principal amount to \$1,500,000,000.

Further Issuance. The Company may from time to time, without the consent of the Holders of the Notes, issue additional Securities (the “Additional Securities”) of this Series having the same ranking and the same interest rate, maturity and other terms as the Notes. Any Additional Securities of this Series and the Notes will constitute a single Series under the Indenture and all references to the Notes shall include the Additional Securities unless the context otherwise requires.

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Events of Default. If an Event of Default with respect to the Notes shall have occurred and be continuing, the principal of the Notes may be declared due and payable in the manner and with the effect provided in the Indenture.

Sinking Fund. The Notes are not subject to any sinking fund.

Optional Redemption. The Notes will be redeemable at any time, at the option of the Company, in whole or from time to time in part, upon not less than 10 nor more than 60 days' prior notice, on any date prior to their Maturity at a redemption price, calculated pursuant to the Indenture, which includes accrued interest thereon, if any, to, but not including, the Redemption Date. In the case of any partial redemption, selection of the Notes for redemption will be made by the Trustee by such methods, as the Trustee in its sole discretion shall deem fair and appropriate. If any Note is to be redeemed in part only, the notice of redemption relating to such Note shall state the portion of the principal amount thereof to be redeemed. A new Note in principal amount equal to the unredeemed portion thereof will be issued in the name of the Holder thereof upon cancellation of this Note.

Repurchase upon a Change of Control Triggering Event. Upon the occurrence of a Change of Control Triggering Event with respect to the Notes, the Company shall be required to make an offer to repurchase the Notes on the terms set forth in the Indenture.

Defeasance and Covenant Defeasance. The Indenture contains provisions for defeasance at any time of (a) the entire indebtedness of the Company on this Note and (b) certain restrictive covenants and the related Defaults and Events of Default, upon compliance by the Company with certain conditions set forth therein, which provisions apply to this Note.

Modification and Waivers; Obligations of the Company Absolute. The Indenture permits, with certain exceptions as therein provided, the amendment thereof and the modification of the rights and obligations of the Company and the rights of the Holders of the Securities of each Series. Such amendment may be effected under the Indenture at any time by the Company, and the Trustee with the consent of the Holders of not less than a majority in aggregate principal amount of the outstanding Notes of each Series affected thereby. The Indenture also contains provisions permitting the Holders of not less than a majority in aggregate principal amount of the Securities at the time outstanding, on behalf of the Holders of all outstanding Securities, to waive compliance by the Company with certain provisions of the Indenture. Furthermore, provisions in the Indenture permit the Holders of not less than a majority in aggregate principal amount of the outstanding Securities of individual Series to waive on behalf of all of the Holders of Securities of such individual Series certain past defaults under the Indenture and their consequences. Any such consent or waiver shall be conclusive and binding upon the Holder of this Note and upon all future Holders of this Note and of any Note issued upon the registration of transfer hereof or in exchange hereof or in lieu hereof, whether or not notation of such consent or waiver is made upon this Note.

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No reference herein to the Indenture and no provision of this Note or of the Indenture shall alter or impair the obligation of the Company, which is absolute and unconditional, to pay the principal of and interest on this Note at the time, place, and rate, and in the coin or currency, herein prescribed.

Limitation on Suits. As set forth in, and subject to, the provisions of the Indenture, no Holder of any Note will have any right to institute any proceeding with respect to the Indenture or for any remedy thereunder, unless such Holder shall have previously given to the Trustee written notice of a continuing Event of Default with respect to this Series, the Holders of not less than 25% in aggregate principal amount of the outstanding Notes shall have made written request, and offered indemnity and/or security, to the Trustee to institute such proceedings as trustee, and the Trustee shall not have received from the Holders of a majority in principal amount of the outstanding Notes a direction inconsistent with such request and shall have failed to institute such proceeding within 60 days; provided, however, that such limitations do not apply to a suit instituted by the Holder hereof for the enforcement of payment of the principal of or interest on this Note on or after the respective due dates expressed herein.

Authorized Denominations. The Notes are issuable only in registered form without coupons in denominations of \$2,000 or any integral multiple of \$1,000 in excess thereof.

Registration of Transfer or Exchange. As provided in the Indenture and subject to certain limitations herein and therein set forth, the transfer of this Note is registrable in the register of the Notes maintained by the Registrar upon surrender of this Note for registration of transfer, at the office or agency of the Company in any place where the principal of and interest on this Note are payable, duly endorsed by, or accompanied by a written instrument of transfer in form satisfactory to the Company and the Registrar, duly executed by the Holder hereof or his attorney duly authorized in writing, and thereupon one or more new Notes, of authorized denominations and for the same aggregate principal amount, will be issued to the designated transferee or transferees.

As provided in the Indenture and subject to certain limitations herein and therein set forth, the Notes are exchangeable for a like aggregate principal amount of Notes of different authorized denominations, as requested by the Holders surrendering the same.

No service charge shall be made for any such registration of transfer or exchange, but the Company may require payment of a sum sufficient to cover any tax or other governmental charge payable in connection therewith.

Prior to due presentment of this Note for registration of transfer, the Company, the Trustee and any agent of the Company or the Trustee may treat the Holder as the owner hereof for all purposes, whether or not this Note be overdue, and neither the Company, the Trustee nor any such agent shall be affected by notice to the contrary.

Defined Terms. All terms used in this Note, which are defined in the Indenture and are not otherwise defined herein, shall have the meanings assigned to them in the Indenture.

Governing Law. This Note shall be governed by and construed in accordance with the laws of the State of New York.

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Unless the certificate of authentication hereon has been executed by the Trustee by manual signature, this Note shall not be entitled to any benefit under the Indenture or be valid or obligatory for any purpose.

[Remainder of page intentionally left blank.]

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IN WITNESS WHEREOF, the Company has caused this instrument to be duly executed and its seal to be hereunto affixed.

Dated: April [], 2020

BIOGEN INC.

By: _____

Name:

Title:

TRUSTEE'S CERTIFICATE OF AUTHENTICATION

This is one of the Notes of the Series designated and referred to in the within-mentioned Indenture, as such is supplemented by the within-mentioned Second Supplemental Indenture.

U.S. BANK NATIONAL ASSOCIATION, as Trustee

By: _____

Name:

Title:

Dated: April [], 2020

ASSIGNMENT

FOR VALUE RECEIVED, the undersigned hereby sell(s), assign(s) and transfer(s) unto

PLEASE INSERT SOCIAL SECURITY NUMBER OR OTHER IDENTIFYING NUMBER OF ASSIGNEE

(Please print or typewrite name and address,
including postal zip code, of assignee)

the within Note and all rights thereunder, and hereby irrevocably constitutes and appoints

to transfer said Note on the books of the Trustee, with full power of substitution in the premises.

Dated: _____

NOTICE: The signature to this assignment must correspond with the
name as written upon the face of the within Note in every particular,
without alteration or enlargement or any change whatsoever.

—

Signature Guarantee

EXHIBIT B

FORM OF 3.150% SENIOR NOTE DUE 2050

THIS NOTE IS A GLOBAL SECURITY WITHIN THE MEANING OF THE INDENTURE HEREINAFTER REFERRED TO AND IS REGISTERED IN THE NAME OF DTC OR A NOMINEE OF DTC. THIS NOTE IS EXCHANGEABLE FOR NOTES REGISTERED IN THE NAME OF A PERSON OTHER THAN DTC OR ITS NOMINEE ONLY IN THE LIMITED CIRCUMSTANCES DESCRIBED IN THE INDENTURE, AND MAY NOT BE TRANSFERRED EXCEPT AS A WHOLE BY DTC TO A NOMINEE OF DTC, BY A NOMINEE OF DTC TO DTC OR ANOTHER NOMINEE OF DTC OR BY DTC OR ANY SUCH NOMINEE TO A SUCCESSOR DEPOSITARY OR A NOMINEE OF SUCH A SUCCESSOR DEPOSITARY.

UNLESS THIS GLOBAL SECURITY IS PRESENTED BY AN AUTHORIZED REPRESENTATIVE OF THE DEPOSITORY TRUST COMPANY, A NEW YORK CORPORATION (“DTC”), TO THE ISSUER OR ITS AGENT FOR REGISTRATION OF TRANSFER, EXCHANGE OR PAYMENT, AND ANY GLOBAL SECURITY ISSUED IS REGISTERED IN THE NAME OF CEDE & CO. OR IN SUCH OTHER NAME AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF DTC (AND ANY PAYMENT IS MADE TO CEDE & CO. OR TO SUCH OTHER ENTITY AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF DTC), ANY TRANSFER, PLEDGE OR OTHER USE HEREOF FOR VALUE OR OTHERWISE BY OR TO ANY PERSON IS WRONGFUL INASMUCH AS THE REGISTERED OWNER HEREOF, CEDE & CO., HAS AN INTEREST HEREIN.

BIOGEN INC.

3.150% Senior Note due 2050

REGISTERED	PRINCIPAL AMOUNT
No. Specimen	[\$]
CUSIP: []	
ISIN: []	

Biogen Inc., a Delaware corporation (herein called the “Company,” which term includes any successor Person under the Indenture hereinafter referred to), for value received, hereby promises to pay to Cede & Co., or registered assigns, the principal sum of \$[] on May 1, 2050 (the “Maturity Date”) (except to the extent redeemed or repaid prior to the Maturity Date) and to pay interest thereon from April 30, 2020 (the “Original Issue Date”) or from the most recent Interest Payment Date to which interest has been paid or duly provided for semi-annually at the rate of 3.150% per annum, on May 1 and November 1 (each such date, an “Interest Payment Date”), commencing November 1, 2020, until the principal hereof is paid or made available for payment.

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Payment of Interest. The interest so payable, and punctually paid or made available for payment, on any Interest Payment Date, will, as provided in the Indenture, be paid, in immediately available funds, to the Person in whose name this Note (or one or more Predecessor Securities) is registered at the close of business on October 15 or April 15 (whether or not a Business Day, as defined in the Indenture), as the case may be, next preceding such Interest Payment Date (the “Regular Record Date”). Any such interest not punctually paid or duly provided for (“Defaulted Interest”) will forthwith cease to be payable to the Holder on such Regular Record Date, and such Defaulted Interest, may be paid to the Person in whose name this Note (or one or more Predecessor Securities) is registered at the close of business on a special record date (the “Special Record Date”) for the payment of such Defaulted Interest to be fixed by the Trustee, notice whereof shall be given to Holders of Notes not less than fifteen days prior to such Special Record Date, or may be paid at any time in any other lawful manner not inconsistent with requirements of any securities exchange on which the Notes may be listed, and upon such notice as may be required by such exchange, all as more fully provided in said Indenture.

Place of Payment. Payment of principal, premium, if any, and interest on this Note will be made at the Corporate Trust Office of the Trustee or such other office or agency of the Company as may be designated for such purpose, in such coin or currency of the United States of America as at the time of payment is legal tender for payment of public and private debts; provided, however, that each installment of interest, premium, if any, and principal on this Note may at the Company’s option be paid in immediately available funds by transfer to an account maintained by the payee located in the United States.

Time of Payment. In any case where any Interest Payment Date, the Maturity Date or any date fixed for redemption or repayment of the Notes shall not be a Business Day, then (notwithstanding any other provision of the Indenture or this Note), payment of principal or interest, if any, need not be made on such date, but may be made on the next succeeding Business Day with the same force and effect as if made on such Interest Payment Date, the Maturity Date or the date so fixed for redemption or repayment, and no interest shall accrue in respect of the delay.

General. This Note is one of a duly authorized issue of Securities of the Company, issued and to be issued in one or more Series under an indenture, dated as of September 15, 2015 (the “Base Indenture”), between the Company and U.S. Bank National Association (herein called the “Trustee,” which term includes any successor trustee under the Indenture with respect to a Series of which this Note is a part), as supplemented by a Second Supplemental Indenture thereto, dated as of April 30, 2020 (the “Second Supplemental Indenture” and, together with the Base Indenture, the “Indenture”). Reference is hereby made to the Indenture for a statement of the respective rights, limitations of rights, duties and immunities thereunder of the Company, the Trustee and the Holders of the Securities, and of the terms upon which the Securities are, and are to be, authenticated and delivered. This Note is one of a duly authorized Series of Securities designated as “3.150% Senior Notes due 2050” (collectively, the “Notes”), initially limited in aggregate principal amount to \$1,500,000,000.

Further Issuance. The Company may from time to time, without the consent of the Holders of the Notes, issue additional Securities (the “Additional Securities”) of this Series having the same ranking and the same interest rate, maturity and other terms as the Notes. Any Additional Securities of this Series and the Notes will constitute a single Series under the Indenture and all references to the Notes shall include the Additional Securities unless the context otherwise requires.

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Events of Default. If an Event of Default with respect to the Notes shall have occurred and be continuing, the principal of the Notes may be declared due and payable in the manner and with the effect provided in the Indenture.

Sinking Fund. The Notes are not subject to any sinking fund.

Optional Redemption. The Notes will be redeemable at any time, at the option of the Company, in whole or from time to time in part, upon not less than 10 nor more than 60 days' prior notice, on any date prior to their Maturity at a redemption price, calculated pursuant to the Indenture, which includes accrued interest thereon, if any, to, but not including, the Redemption Date. In the case of any partial redemption, selection of the Notes for redemption will be made by the Trustee by such methods, as the Trustee in its sole discretion shall deem fair and appropriate. If any Note is to be redeemed in part only, the notice of redemption relating to such Note shall state the portion of the principal amount thereof to be redeemed. A new Note in principal amount equal to the unredeemed portion thereof will be issued in the name of the Holder thereof upon cancellation of this Note.

Repurchase upon a Change of Control Triggering Event. Upon the occurrence of a Change of Control Triggering Event with respect to the Notes, the Company shall be required to make an offer to repurchase the Notes on the terms set forth in the Indenture.

Defeasance and Covenant Defeasance. The Indenture contains provisions for defeasance at any time of (a) the entire indebtedness of the Company on this Note and (b) certain restrictive covenants and the related Defaults and Events of Default, upon compliance by the Company with certain conditions set forth therein, which provisions apply to this Note.

Modification and Waivers; Obligations of the Company Absolute. The Indenture permits, with certain exceptions as therein provided, the amendment thereof and the modification of the rights and obligations of the Company and the rights of the Holders of the Securities of each Series. Such amendment may be effected under the Indenture at any time by the Company, and the Trustee with the consent of the Holders of not less than a majority in aggregate principal amount of the outstanding Notes of each Series affected thereby. The Indenture also contains provisions permitting the Holders of not less than a majority in aggregate principal amount of the Securities at the time outstanding, on behalf of the Holders of all outstanding Securities, to waive compliance by the Company with certain provisions of the Indenture. Furthermore, provisions in the Indenture permit the Holders of not less than a majority in aggregate principal amount of the outstanding Securities of individual Series to waive on behalf of all of the Holders of Securities of such individual Series certain past defaults under the Indenture and their consequences. Any such consent or waiver shall be conclusive and binding upon the Holder of this Note and upon all future Holders of this Note and of any Note issued upon the registration of transfer hereof or in exchange hereof or in lieu hereof, whether or not notation of such consent or waiver is made upon this Note.

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No reference herein to the Indenture and no provision of this Note or of the Indenture shall alter or impair the obligation of the Company, which is absolute and unconditional, to pay the principal of and interest on this Note at the time, place, and rate, and in the coin or currency, herein prescribed.

Limitation on Suits. As set forth in, and subject to, the provisions of the Indenture, no Holder of any Note will have any right to institute any proceeding with respect to the Indenture or for any remedy thereunder, unless such Holder shall have previously given to the Trustee written notice of a continuing Event of Default with respect to this Series, the Holders of not less than 25% in aggregate principal amount of the outstanding Notes shall have made written request, and offered indemnity and/or security, to the Trustee to institute such proceedings as trustee, and the Trustee shall not have received from the Holders of a majority in principal amount of the outstanding Notes a direction inconsistent with such request and shall have failed to institute such proceeding within 60 days; provided, however, that such limitations do not apply to a suit instituted by the Holder hereof for the enforcement of payment of the principal of or interest on this Note on or after the respective due dates expressed herein.

Authorized Denominations. The Notes are issuable only in registered form without coupons in denominations of \$2,000 or any integral multiple of \$1,000 in excess thereof.

Registration of Transfer or Exchange. As provided in the Indenture and subject to certain limitations herein and therein set forth, the transfer of this Note is registrable in the register of the Notes maintained by the Registrar upon surrender of this Note for registration of transfer, at the office or agency of the Company in any place where the principal of and interest on this Note are payable, duly endorsed by, or accompanied by a written instrument of transfer in form satisfactory to the Company and the Registrar, duly executed by the Holder hereof or his attorney duly authorized in writing, and thereupon one or more new Notes, of authorized denominations and for the same aggregate principal amount, will be issued to the designated transferee or transferees.

As provided in the Indenture and subject to certain limitations herein and therein set forth, the Notes are exchangeable for a like aggregate principal amount of Notes of different authorized denominations, as requested by the Holders surrendering the same.

No service charge shall be made for any such registration of transfer or exchange, but the Company may require payment of a sum sufficient to cover any tax or other governmental charge payable in connection therewith.

Prior to due presentment of this Note for registration of transfer, the Company, the Trustee and any agent of the Company or the Trustee may treat the Holder as the owner hereof for all purposes, whether or not this Note be overdue, and neither the Company, the Trustee nor any such agent shall be affected by notice to the contrary.

Defined Terms. All terms used in this Note, which are defined in the Indenture and are not otherwise defined herein, shall have the meanings assigned to them in the Indenture.

Governing Law. This Note shall be governed by and construed in accordance with the laws of the State of New York.

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Unless the certificate of authentication hereon has been executed by the Trustee by manual signature, this Note shall not be entitled to any benefit under the Indenture or be valid or obligatory for any purpose.

[Remainder of page intentionally left blank.]

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IN WITNESS WHEREOF, the Company has caused this instrument to be duly executed and its seal to be hereunto affixed.

Dated: April [], 2020

BIOGEN INC.

By: _____

Name:

Title:

TRUSTEE'S CERTIFICATE OF AUTHENTICATION

This is one of the Notes of the Series designated and referred to in the within-mentioned Indenture, as such is supplemented by the within-mentioned Second Supplemental Indenture.

U.S. BANK NATIONAL ASSOCIATION, as Trustee

By: _____

Name:

Title:

Dated: April [], 2020

ASSIGNMENT

FOR VALUE RECEIVED, the undersigned hereby sell(s), assign(s) and transfer(s) unto

PLEASE INSERT SOCIAL SECURITY NUMBER OR OTHER IDENTIFYING NUMBER OF ASSIGNEE

(Please print or typewrite name and address,
including postal zip code, of assignee)

the within Note and all rights thereunder, and hereby irrevocably constitutes and appoints

to transfer said Note on the books of the Trustee, with full power of substitution in the premises.

Dated: _____

NOTICE: The signature to this assignment must correspond with the name as written upon the face of the within Note in every particular, without alteration or enlargement or any change whatsoever.

Signature Guarantee



Seaport West
155 Seaport Boulevard
Boston, MA 02210-2600
617 832 1000 *main*
617 832 7000 *fax*

April 30, 2020

Biogen Inc.
225 Binney Street
Cambridge, Massachusetts 02142

Re: \$1,500,000,000 2.250% Senior Notes due 2030
\$1,500,000,000 3.150% Senior Notes due 2050

Ladies and Gentlemen:

We have acted as counsel for Biogen Inc., a Delaware corporation (the “**Company**”), in connection with the offer and sale of \$1,500,000,000 aggregate principal amount of its 2.250% Senior Notes due 2030 and \$1,500,000,000 aggregate principal amount of its 3.150% Senior Notes due 2050 (collectively, the “**Notes**”), pursuant to the Underwriting Agreement dated as of April 27, 2020 (the “**Underwriting Agreement**”) among the Company and Goldman, Sachs & Co. LLC, BofA Securities, Inc. and J.P. Morgan Securities LLC, as representatives of the several underwriters named in Schedule I to the Underwriting Agreement. The Notes are being issued pursuant to the Indenture dated as of September 15, 2015 (the “**Base Indenture**”) between the Company and U.S. Bank National Association, as trustee (the “**Trustee**”), as amended and supplemented by the Second Supplemental Indenture dated as of April 30, 2020 (the “**Supplemental Indenture**,” and, together with the Base Indenture, the “**Indenture**”) between the Company and the Trustee, as trustee.

As such counsel, we have assisted in the preparation and filing with the Securities and Exchange Commission (the “**Commission**”) of (i) the Company’s shelf registration statement on Form S-3 (File No. 333-237819) (the “**Registration Statement**”) under the Securities Act of 1933, as amended (the “**Securities Act**”), filed by the Company on April 24, 2020 and (ii) the prospectus dated April 24, 2020 (the “**Base Prospectus**”) that constitutes a part of the Registration Statement, as supplemented by the prospectus supplement dated April 27, 2020 (the “**Prospectus Supplement**,” and, collectively with the Base Prospectus, the “**Prospectus**”) filed by the Company pursuant to Rule 424(b) under the Securities Act on April 28, 2020, in each case related to the offering of the Notes.

In connection with this opinion, we have examined originals or copies, certified or otherwise identified to our satisfaction, of (i) the amended and restated certificate of incorporation of the Company, as amended to the date hereof and on file with the Secretary of State of the State of Delaware, (ii) the amended and restated by-laws of the Company, as

amended to the date hereof, (iii) the Registration Statement, including the Base Prospectus and the documents and information incorporated by reference therein, (iv) the Prospectus, (v) the Indenture, (vi) the Notes, (vii) the Form T-1 of the Trustee filed with the Commission with respect to the transaction, (viii) such records of the corporate proceedings of the Company as we have deemed material, and (ix) such other certificates, receipts, records and documents as we have deemed necessary or appropriate for purposes of this opinion.

In our examination, we have assumed the legal capacity of all natural persons, the genuineness of all signatures, the authenticity of all documents submitted to us as originals and the conformity to authentic original documents of all documents submitted to us as copies. As to facts material to the opinions, statements and assumptions expressed herein, we have, with your consent, relied upon oral or written statements and representations of officers and other representatives, and other information, of the Company and others. We have not independently verified such factual matters.

Our opinion expressed below is qualified to the extent that (i) the enforceability or validity of any provision of any agreement, instrument or document or any rights granted thereunder may be subject to or affected by any bankruptcy, insolvency, reorganization, moratorium, preference, fraudulent conveyance, fraudulent transfer or similar law relating to or affecting the rights and remedies of creditors generally which may be in effect from time to time, (ii) the remedy of specific performance or any other equitable remedy may be unavailable in any jurisdiction or may be withheld as a matter of judicial discretion, (iii) equitable principles and principles of public policy may be applied in construing or enforcing any of the provisions of any agreement, instrument or document, (iv) the enforceability, validity or binding effect of any remedial provision of any agreement, instrument or document may be limited by applicable law, including, but not limited to, the application of principles of materiality, reasonableness, good faith and fair dealing, which may limit particular rights and remedies but not so as to interfere materially with the practical realization of the benefits intended to be provided by such agreement, instrument or document, and (v) rights to indemnification and contribution may be limited by federal and state securities laws or public policy.

In rendering the opinions set forth below, we have assumed that (i) the Trustee is duly organized, validly existing and in good standing under the laws of its jurisdiction of organization, (ii) the Trustee has the requisite organizational and legal power and authority to execute and deliver and to perform its obligations under the Indenture, (iii) the Trustee is duly qualified to engage in the activities contemplated by the Indenture, (iv) the Indenture has been duly authorized, executed and delivered by the Trustee and constitutes the legally valid and binding obligations of the Trustee, enforceable against the Trustee in accordance with its terms, and (v) the Trustee is in compliance, generally and with respect to acting as a trustee under the Indenture, with all applicable laws and regulations.

We are opining herein only as to the federal laws of the United States, the internal laws of the State of New York and the Delaware General Corporation Law, and we express no opinion with respect to the laws of any other jurisdiction or, in the case of Delaware, any other laws, or as to any matters of municipal law or the laws of any other local agencies within any state.

On the basis of, and subject to, the foregoing, we are of the opinion that when the Notes have been duly executed by the Company, duly authenticated by the Trustee in accordance with the terms of the Indenture and delivered to the purchasers thereof against payment of the consideration therefor in accordance with the terms of the Underwriting Agreement, the Notes will constitute binding obligations of the Company.

This opinion is based upon currently existing statutes, rules and regulations and judicial decisions and is rendered as of the date hereof, and we disclaim any obligation to advise you of any change in any of the foregoing sources of law or subsequent developments in law or changes in facts or circumstances which might affect any matters or opinions set forth herein.

We consent to your filing this opinion as an exhibit to the Registration Statement and to the references to our firm in each of the Base Prospectus and the Prospectus Supplement under the heading "Legal Matters." In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations thereunder.

Very truly yours,

FOLEY HOAG LLP

By: /s/ John D. Hancock
A partner