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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549**

**FORM 8-K**

**CURRENT REPORT  
Pursuant to Section 13 OR 15(d)  
of The Securities Exchange Act of 1934**

Date of Report (Date of earliest event reported): **February 11, 2020**

**MODERNA, INC.**

(Exact name of registrant as specified in its charter)

**Delaware**  
(State or other jurisdiction  
of incorporation)

**001-38753**  
(Commission  
File Number)

**81-3467528**  
(IRS Employer  
Identification No.)

**200 Technology Square  
Cambridge, MA**  
(Address of principal executive offices)

**02139**  
(Zip code)

(Registrant's telephone number, including area code): **(617) 714-6500**

**N/A**  
(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 203.425)
- 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:

<u>Title of each class</u>	<u>Trading symbol(s)</u>	<u>Name of each exchange on which registered</u>
Common stock, par value \$0.0001 per share	MRNA	The NASDAQ Stock Market LLC

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

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.

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**Item 1.01 Entry into a Material Definitive Agreement.**

On February 11, 2020, Moderna, Inc. (the “Company”) entered into an underwriting agreement (the “Underwriting Agreement”) with Goldman Sachs & Co. LLC and Morgan Stanley & Co. LLC, as representatives of the underwriters (the “Underwriters”), to issue and sell 26,315,790 shares of common stock, par value \$0.0001 per share (the “Common Stock”), of the Company in a public offering, at a price to the public of \$19.00 per share, pursuant to a Registration Statement on Form S-3 (File No. 333-236348) (the “Registration Statement”) and a related prospectus, including the related prospectus supplement, filed with the Securities and Exchange Commission (the “Offering”). In addition, the Company granted the Underwriters an option to purchase, for a period of 30 calendar days from February 11, 2020, up to an additional 3,947,368 shares of Common Stock. The Company estimates that the net proceeds from the Offering will be approximately \$478.1 million, or approximately \$549.9 million if the Underwriters exercise in full their option to purchase the additional shares of Common Stock, after deducting underwriting discounts and estimated offering expenses. All of the shares in the offering are being sold by the Company. The foregoing description of the Underwriting Agreement is qualified in its entirety by reference to the complete text of the Underwriting Agreement, a copy of which is filed as Exhibit 1.1 to this Current Report on Form 8-K and is incorporated herein by reference.

The Offering is expected to close on or about February 14, 2020, subject to customary closing conditions. A copy of the legal opinion of Goodwin Procter LLP relating to the legality of the Common Stock sold is filed as Exhibit 5.1 to this Current Report on Form 8-K.

**Item 8.01 Other Events.**

On February 11, 2020, the Company issued a press release announcing the pricing of the Offering. A copy of this press release is attached to this Current Report on Form 8-K as Exhibit 99.1 and is incorporated herein by reference.

**Item 9.01 Financial Statements and Exhibits.**

(d) Exhibits

<u>Exhibit No.</u>	<u>Description</u>
1.1	<a href="#"><u>Underwriting Agreement, dated as of February 11, 2020, by and among Moderna, Inc. and Goldman Sachs &amp; Co. LLC and Morgan Stanley &amp; Co. LLC, as representatives of the underwriters</u></a>
5.1	<a href="#"><u>Opinion of Goodwin Procter LLP</u></a>
23.1	<a href="#"><u>Consent of Goodwin Procter LLP (contained in Exhibit 5.1)</u></a>
99.1	<a href="#"><u>Press Release issued by Moderna, Inc. on February 11, 2020</u></a>

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**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.

Date: February 12, 2020

**MODERNA, INC.**

By: /s/ Lori Henderson

Lori Henderson

General Counsel and Secretary

**26,315,790 Shares**

**MODERNA, INC.**

**COMMON STOCK (PAR VALUE \$0.0001 PER SHARE)**

**UNDERWRITING AGREEMENT**

February 11, 2020

Goldman Sachs & Co. LLC  
Morgan Stanley & Co. 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

c/o Morgan Stanley & Co. LLC  
1585 Broadway  
New York, New York 10036

Ladies and Gentlemen:

Moderna, Inc., a Delaware corporation (the “**Company**”), proposes to issue and sell to the several Underwriters named in Schedule I hereto (the “**Underwriters**”), for whom Goldman Sachs & Co. LLC and Morgan Stanley & Co. LLC are acting as representatives (the “**Representatives**”), 26,315,790 shares of its common stock, par value \$0.0001 per share (the “**Firm Shares**”). The Company also proposes to issue and sell to the several Underwriters not more than an additional 3,947,368 shares of its common stock, par value \$0.0001 per share (the “**Additional Shares**”), if and to the extent that the Representatives shall have determined to exercise, on behalf of the Underwriters, the right to purchase such shares of common stock granted to the Underwriters in Section 2 hereof. The Firm Shares and the Additional Shares are hereinafter collectively referred to as the “**Shares**.” The shares of common stock, par value \$0.0001 per share, of the Company to be outstanding after giving effect to the sales contemplated hereby are hereinafter referred to as the “**Common Stock**.”

The Company has filed with the Securities and Exchange Commission (the “**Commission**”) an automatic shelf registration statement as defined in Rule 405 (“**Rule 405**”) under the Securities Act of 1933, as amended (the “**Securities Act**”), including a prospectus, on Form S-3ASR (File No. 333-236348) relating to securities (the “**Shelf Securities**”), including the Shares, to be issued from time to time by the Company. The various parts of the registration statement, including all exhibits thereto (but excluding Form T-1), any prospectus supplement relating to the Securities that is filed with the Commission and the information (if any) deemed to be part of the registration statement at the time of effectiveness pursuant to Rule 430A or Rule 430B under the Securities Act, each as amended at the time such part of the registration statement became effective, are

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hereinafter collectively referred to as the “**Registration Statement**.” 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 underwriting agreement (the “**Agreement**”), is hereinafter referred to as 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 Securities Act is hereinafter called a “**Preliminary Prospectus**.” The Basic Prospectus, as amended and supplemented by the prospectus supplement specifically relating to the Shares in the form first used to confirm sales of Shares (or in the form first made available to the Underwriters by the Company to meet requests of purchasers pursuant to Rule 173 under the Securities Act) is hereinafter referred to as the “**Pricing Prospectus**.” The form of the final prospectus relating to the Securities filed with the Commission pursuant to Rule 424(b) under the Securities Act in accordance with Section 5(a) hereof is hereinafter called the “**Prospectus**.”

For purposes of this Agreement, “**free writing prospectus**” has the meaning set forth in Rule 405, “**Time of Sale Prospectus**” means the Pricing Prospectus together with the free writing prospectuses, if any, each identified in Schedule II hereto and the pricing information set forth in Schedule II hereto, and “**broadly available road show**” means a “bona fide electronic road show” as defined in Rule 433(h)(5) under the Securities Act that has been made available without restriction to any person. As used herein, the terms Registration Statement, Basic Prospectus, Preliminary Prospectus, Time of Sale Prospectus and Prospectus shall include the documents, if any, incorporated by reference therein as of the date hereof. The terms “**supplement**,” “**amendment**” and “**amend**” as used herein with respect to (a) the Basic Prospectus, the Time of Sale Prospectus, any Preliminary Prospectus or the Prospectus shall 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 Securities Act and all documents subsequently filed by the Company with the Commission pursuant to the Securities Exchange Act of 1934, as amended (the “**Exchange Act**”), that are deemed to be incorporated by reference therein, in each case after the date of the Basic Prospectus, such Preliminary Prospectus, or the Prospectus, as the case may be and (b) 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.

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

(a) The Registration Statement, and any post-effective amendment thereto, became effective upon filing; the filing date of the Registration Statement was not earlier than the date three years before the execution date of this Agreement; no stop order suspending the effectiveness of the Registration Statement or any part thereof has been issued or is in effect and no proceeding for such purpose or pursuant to Section 8A under the Securities Act is pending before or, to the Company’s knowledge, threatened by the Commission; and no

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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 Securities Act has been received by the Company. (i) At the time of filing the Registration Statement, (ii) at the time of the most recent amendment thereto for the purposes of complying with Section 10(a)(3) of the Securities Act or otherwise (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), (iii) at the time the Company or any person acting on its behalf (within the meaning, for this clause only, of Rule 163(c) of the Securities Act) made any offer relating to the Shares in reliance on the exemption of Rule 163 of the Securities Act and (iv) at the date hereof, the Company was and is a “well-known seasoned issuer” as defined in Rule 405, including not having been and not being an “ineligible issuer” as defined in Rule 405. The Registration Statement is an “automatic shelf registration statement,” as defined in Rule 405, and the Shares, since their registration on the Registration Statement, have been and remain eligible for registration by the Company on a Rule 405 “automatic shelf registration statement.” The Company has not received from the Commission any notice pursuant to Rule 401(g)(2) of the Securities Act objecting to the use of the automatic shelf registration statement form.

(b) (i) Each document, if any, filed or to be filed pursuant to the Exchange Act, and incorporated by reference in the Time of Sale Prospectus or the Prospectus, complied or will comply when so filed in all material respects with the Exchange Act and the applicable rules and regulations of the Commission thereunder, (ii) the Registration Statement, when it became effective, did not contain and, as amended or supplemented, if applicable, as of the date of such amendment or supplement, will not contain any 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, (iii) the Registration Statement and the Prospectus comply and, as amended or supplemented, if applicable, as of the date of such amendment or supplement, will comply in all material respects with the Securities Act and the applicable rules and regulations of the Commission thereunder, (iv) the Time of Sale Prospectus does not, and at the time of each sale of the Shares in connection with the offering when the Prospectus is not yet available to prospective purchasers and at the Closing Date (as defined in Section 4), the Time of Sale Prospectus, as then amended or supplemented by the Company, if applicable, will not, contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading, (v) each broadly available road show, if any, when considered together with the Time of Sale Prospectus, does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading and (vi) the Prospectus, as of its date, does not contain and, as amended or supplemented, if applicable, as of the date of such amendment or supplement, will not contain

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any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading, except that the representations and warranties set forth in this paragraph do not apply to statements or omissions in the Registration Statement, the Basic Prospectus, the Time of Sale Prospectus or the Prospectus based upon Underwriter Information (as defined in Section 8(b) herein).

(c) (i) 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)) of the Shares and (ii) as of the date hereof, the Company is not an “ineligible issuer” in connection with the offering pursuant to Rules 164, 405 and 433 under the Securities Act. Any free writing prospectus that the Company is required to file pursuant to Rule 433(d) under the Securities Act has been, or will be, filed with the Commission in accordance with the requirements of the Securities Act and the applicable rules and regulations of the Commission thereunder. Each free writing prospectus that the Company has filed, or is required to file, pursuant to Rule 433(d) under the Securities Act or that was prepared by or on behalf of or used or referred to by the Company complies or will comply in all material respects with the requirements of the Securities Act and the applicable rules and regulations of the Commission thereunder. Except for the free writing prospectuses, if any, identified in Schedule II hereto, and electronic road shows, if any, each furnished to each of the Representatives before first use, the Company has not prepared, used or referred to, and will not, without the prior consent of each of the Representatives, prepare, use or refer to, any free writing prospectus.

(d) The Company has been duly incorporated, is validly existing as a corporation in good standing under the laws of the jurisdiction of its incorporation, has the corporate power and authority to own or lease its properties and to conduct its business as described in each of the Registration Statement, the Basic Prospectus, the Time of Sale Prospectus and the Prospectus and is duly qualified to transact business and is in good standing in each jurisdiction in which the conduct of its business or its ownership or leasing of property requires such qualification, except to the extent that the failure to be so qualified or be in good standing would not be reasonably likely to have a material adverse effect on the Company and its subsidiaries, taken as a whole.

(e) Each subsidiary of the Company has been duly incorporated, organized or formed, is validly existing as a corporation or other business entity in good standing under the laws of the jurisdiction of its incorporation, organization or formation (to the extent the concept of good standing is applicable in such jurisdiction), has the corporate or other business entity power and authority to own or lease its property and to conduct its business as described in each of the Registration Statement, the Basic Prospectus, the Time of Sale Prospectus and the Prospectus and is duly qualified to transact business and is in good standing in each jurisdiction (to the extent the concept of good

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standing is applicable in such jurisdiction) in which the conduct of its business or its ownership or leasing of property requires such qualification, except to the extent that the failure to be so qualified or be in good standing would not reasonably be likely to have a material adverse effect on the Company and its subsidiaries, taken as a whole; all of the issued shares of capital stock or other equity interests of each subsidiary of the Company have been duly and validly authorized and issued, are fully paid and non-assessable (to the extent that such concepts are applicable in such jurisdiction) and are owned directly or indirectly by the Company, free and clear of all liens, encumbrances, equities or claims, other than as disclosed in the Registration Statement.

(f) This Agreement has been duly authorized, executed and delivered by the Company.

(g) The authorized capital stock of the Company conforms as to legal matters to the description thereof contained in each of the Registration Statement, the Basic Prospectus, the Time of Sale Prospectus and the Prospectus.

(h) The shares of Common Stock outstanding prior to the issuance of the Shares have been duly authorized and are validly issued, fully paid and non-assessable.

(i) The Shares have been duly authorized and, when issued, delivered and paid for in accordance with the terms of this Agreement, will be validly issued, fully paid and non-assessable, and the issuance of such Shares will not be subject to any preemptive or similar rights that have not been validly waived.

(j) Neither the execution and delivery by the Company of, and the performance by the Company of its obligations under this Agreement, nor the issuance and sale of the Shares, will contravene any provision of (i) applicable law (ii) the certificate of incorporation or by-laws of the Company, (iii) any agreement or other instrument binding upon the Company or any of its subsidiaries that is material to the Company and its subsidiaries, taken as a whole, or (iv) any judgment, order or decree of any governmental body, agency or court having jurisdiction over the Company or any subsidiary, except, in the case of clauses (i), (iii) and (iv), as would not individually or in the aggregate, reasonably be expected to have a material adverse effect on the Company and its subsidiaries, taken as a whole, or on the power and ability of the Company to perform its obligations under this Agreement. No consent, approval, authorization or order of, or qualification with, any governmental body, agency or court is required for the performance by the Company of its obligations under this Agreement, except such as may be required by the securities or Blue Sky laws of the various states or foreign jurisdictions or the rules and regulations of the Financial Industry Regulatory Authority (“**FINRA**”) or the Nasdaq Global Select Market in connection with the offer and sale of the Shares.

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(k) There has not occurred any material adverse change, or any development that would reasonably be expected to result in a material adverse change, in the condition, financial or otherwise, or in the earnings, business or operations of the Company and its subsidiaries, taken as a whole, from that set forth in the Time of Sale Prospectus.

(l) There are no legal or governmental proceedings pending or, to the knowledge of the Company, threatened to which the Company or any of its subsidiaries is a party or to which any of the properties of the Company or any of its subsidiaries is subject (i) other than proceedings accurately described in all material respects in each of the Registration Statement, the Time of Sale Prospectus and the Prospectus and proceedings that would not reasonably be expected to have a material adverse effect on the Company and its subsidiaries, taken as a whole, or on the power or ability of the Company to perform its obligations under this Agreement or to consummate the transactions contemplated by each of the Registration Statement, the Time of Sale Prospectus and the Prospectus or (ii) that are required to be described in the Registration Statement, the Time of Sale Prospectus or the Prospectus and are not so described in all material respects; and there are no statutes, regulations, contracts or other documents to which the Company or any of its subsidiaries is subject or bound that are required to be described in the Registration Statement, the Time of Sale Prospectus or the Prospectus or to be filed as exhibits to the Registration Statement that are not described in all material respects or filed as required.

(m) Each Preliminary Prospectus filed as part of the Registration Statement as originally filed or as part of any amendment thereto, or filed pursuant to Rule 424 under the Securities Act, complied when so filed in all material respects with the Securities Act and the applicable rules and regulations of the Commission thereunder.

(n) The Company is not, and after giving effect to the offering and sale of the Shares and the application of the proceeds thereof as described in each of the Registration Statement, the Basic Prospectus, the Time of Sale Prospectus and the Prospectus will not be, required to register as an “investment company” as such term is defined in the Investment Company Act of 1940, as amended.

(o) The Company and its subsidiaries (i) are in compliance with any and all applicable foreign, federal, state and local laws and regulations relating to the protection of human health and safety, the environment or hazardous or toxic substances or wastes, pollutants or contaminants (“**Environmental Laws**”), (ii) have received all permits, licenses or other approvals required of them under applicable Environmental Laws to conduct their respective businesses and (iii) are in compliance with all terms and conditions of any such permit, license or approval, except where such noncompliance with Environmental Laws, failure to receive required permits, licenses or other approvals or failure to comply with the terms and conditions of such permits,

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licenses or approvals would not, singly or in the aggregate, reasonably be expected to have a material adverse effect on the Company and its subsidiaries, taken as a whole.

(p) There are no costs or liabilities associated with Environmental Laws (including, without limitation, any capital or operating expenditures required for clean-up, closure of properties or compliance with Environmental Laws or any permit, license or approval, any related constraints on operating activities and any potential liabilities to third parties) which would, singly or in the aggregate, reasonably be expected to have a material adverse effect on the Company and its subsidiaries, taken as a whole.

(q) The Company and each of its subsidiaries (i) is, and since January 1, 2017 has been in compliance in all material respects with all statutes, rules and regulations applicable to the Company's business, including but not limited to statutes, rules and regulations related to the ownership, testing, development, registration, licensure, manufacture, processing, use, recordkeeping, filing of reports, storage, import, export or disposal of any product candidate developed or manufactured by or on behalf of the Company or such subsidiary, including, without limitation, the Federal Food, Drug and Cosmetic Act (21 U.S.C. § 301 et seq.), the Public Health Service Act (42 U.S.C. § 262 et seq.), the Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009, the regulations promulgated pursuant to such laws, including, without limitation, 21 C.F.R. Parts 50, 54, 56, 58 and 312, the U.S. Animal Welfare Act and comparable state laws, and all other local, state, federal, national and foreign laws, rules, and regulations, applicable to the Company or any of its subsidiaries (collectively, the "**Applicable Laws**"), in each case except where such noncompliance with Applicable Laws would not, singly or in the aggregate, reasonably be expected to have a material adverse effect on the Company and its subsidiaries, taken as a whole; (ii) has not received any written notice from any court or arbitrator or governmental or regulatory authority or third party alleging or asserting material noncompliance with any Applicable Laws or any licenses, exemptions, certificates, approvals, clearances, authorizations, permits, registrations and supplements or amendments thereto required by any such Applicable Laws ("**Authorizations**"); (iii) possesses all material Authorizations and such Authorizations are valid and in full force and effect and is not in violation of any term of any such Authorizations, except where such violation, would not, singly or in the aggregate, reasonably be expected to have a material adverse effect on the Company and its subsidiaries, taken as a whole; (iv) has not received any written notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action, or notice of adverse finding, any FDA Form 483, warning letter, untitled letter or other communication, from any governmental or regulatory authority alleging or asserting noncompliance with any Applicable Laws or Authorizations, nor, to the knowledge of the Company, is any such claim, action, suit, proceeding, hearing, enforcement, investigation,

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arbitration or other action or communication threatened; (v) has not received written notice from any court or arbitrator or governmental or regulatory authority that such court, arbitrator or authority has taken, is taking or intends to take action to materially limit, suspend, materially modify or revoke any Authorizations, nor, to the knowledge of the Company, is any such limitation, suspension, modification or revocation threatened; (vi) has filed, obtained, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Applicable Laws or Authorizations and that all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were complete and accurate on the date filed in all material respects (or were corrected or supplemented by a subsequent submission); and (vii) is not a party to any corporate integrity agreements, monitoring agreements, consent decrees, settlement orders, or similar agreements with or imposed by any governmental or regulatory authority.

(r) (i) The preclinical studies and clinical trials conducted by or on behalf of or sponsored by the Company or any of its subsidiaries, or in which the Company or any of its subsidiaries has participated, that are described in each of the Registration Statement, the Time of Sale Prospectus and the Prospectus or the results of which are referred to in the Time of Sale Prospectus or the Prospectus, or are intended to be submitted to the U.S. Food and Drug Administration (“**FDA**”), the European Medicines Agency (the “**EMA**”) or similar foreign, state, and local governmental or regulatory authorities (collectively, the “**Regulatory Authorities**”), were and, if ongoing, are being conducted in all material respects in accordance with the protocols established for each such preclinical study or clinical trial and with all Applicable Laws; (ii) the descriptions in each of the Registration Statement, the Time of Sale Prospectus and the Prospectus of the results of such studies and trials are accurate and complete in all material respects and fairly present the data derived from such studies and trials; (iii) the Company has no knowledge of any other clinical trials the results of which are inconsistent with or otherwise could reasonably be expected to discredit or call into question the results described or referred to in the Time of Sale Prospectus or the Prospectus; (iv) neither the Company nor any of its subsidiaries has received any written notices, correspondence or other communication from any Regulatory Authority or any other governmental agency or any institutional review board or ethics committee, or other similar entity which could lead to the termination, suspension, or material modification of any preclinical studies or clinical trials that are described in the Registration Statement, the Time of Sale Prospectus or the Prospectus or the results of which are referred to in the Registration Statement, the Time of Sale Prospectus or the Prospectus; nor is the Company aware of any facts that would form a reasonable basis for any such termination, suspension, or material modification.

(s) Neither the Company nor any of its subsidiaries, nor, to the knowledge of the Company, any of its or any of its subsidiaries’ officers,

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directors or managing employees (as defined in 42 U.S.C. § 1320a-5(b)), is or has been excluded, suspended or debarred from participation in any Federal Health Care Program, (as defined at 42 U.S.C. §1320a-7(b)(f)), debarred by FDA or comparable authorities pursuant to 21 U.S.C. § 335a or similar laws, or made subject to any pending or, to the knowledge of the Company, threatened or contemplated action which could reasonably be expected to result in such exclusion, suspension or debarment.

(t) The Company's manufacturing facilities and operations, including its manufacturing facility at Norwood, MA, and, to the actual knowledge of the Company's Chief Executive Officer, Chief Financial Officer, and Chief Technical Operations and Quality Officer, in each case without any further inquiry or diligence, the manufacturing facilities and operations of its suppliers, are operated in compliance in all material respects with all Applicable Laws.

(u) None of the Company's or any of its subsidiaries' product candidates has received marketing approval from any Regulatory Authority.

(v) Except as described in the Time of Sale Prospectus and the Prospectus, there are no contracts, agreements or understandings between the Company and any person granting such person the right to require the Company to file a registration statement under the Securities Act with respect to any securities of the Company or to require the Company to include such securities with the Shares registered pursuant to the Registration Statement.

(w) (i) Neither the Company, nor its subsidiaries or the Company's controlled affiliates, nor any of its or their directors, officers, or employees, nor, to the Company's knowledge, any agent or representative of the Company, its subsidiaries or controlled affiliates, has taken or will take any action in furtherance of an offer, payment, promise to pay, or authorization or approval of the payment, giving or receipt of money, property, gifts or anything else of value, directly or indirectly, to any government official (including any officer or employee of a government or government-owned or controlled entity or of a public international organization, or any person acting in an official capacity for or on behalf of any of the foregoing, or any political party or party official or candidate for political office) in order to influence official action, or to any person in violation of any applicable anti-corruption laws; (ii) the Company and its subsidiaries and the Company's controlled affiliates have conducted their businesses in compliance with applicable anti-corruption laws and have instituted and maintained and will continue to maintain policies and procedures reasonably designed to promote and achieve compliance with such laws and with the representations and warranties contained herein; and (iii) neither the Company nor its subsidiaries will use, directly or indirectly, the proceeds of the offering in furtherance of an offer, payment, promise to pay, or authorization of the payment or giving of money, or anything else of value, to any person in violation of any applicable anti-corruption laws.

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(x) The operations of the Company and its subsidiaries are and have been conducted at all times in material compliance with all applicable financial recordkeeping and reporting requirements, including those of the Bank Secrecy Act, as amended by Title III of the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (USA PATRIOT Act), and the applicable anti-money laundering statutes of jurisdictions where the Company and its subsidiaries conduct business, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the “**Anti-Money Laundering Laws**”), and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its subsidiaries with respect to the Anti-Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(y) (i) None of the Company, any of its subsidiaries, or any director, officer, or employee thereof, or, to the Company’s knowledge, any agent, controlled affiliate or representative of the Company or any of its subsidiaries, is an individual or entity (“**Person**”) that is, or is owned or controlled by one or more Persons that are:

(A) the subject of any sanctions administered or enforced by the U.S. Department of the Treasury’s Office of Foreign Assets Control, 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 of Sanctions (including, without limitation, Crimea, Cuba, Iran, North Korea and Syria).

(ii) The Company will not, directly or indirectly, use the proceeds of the offering, or lend, contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other Person:

(A) to fund or facilitate any activities or business of or with any Person or in any country or territory that, at the time of such funding or facilitation, is the subject of Sanctions; or

(B) in any other manner that will result in a violation of Sanctions by any Person (including any Person participating in the offering, whether as underwriter, advisor, investor or otherwise).

(iii) The Company and its subsidiaries have not knowingly engaged in, are not now knowingly engaged in, and will not engage in, any dealings or transactions with any Person, or in any country or territory, that at the time of the dealing or transaction is or was the subject of Sanctions.

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(z) Subsequent to the respective dates as of which information is given in each of the Registration Statement, the Basic Prospectus, the Time of Sale Prospectus and the Prospectus, (i) the Company and its subsidiaries have not incurred any material liability or obligation, direct or contingent, nor entered into any material transaction; (ii) the Company has not purchased any of its outstanding capital stock (other than from its employees or other service providers in connection with the termination of their service pursuant to plans or agreements, as applicable), nor declared, paid or otherwise made any dividend or distribution of any kind on its capital stock other than ordinary and customary dividends; and (iii) there has not been any material change in the capital stock, short-term debt or long-term debt of the Company and its subsidiaries, except in each case as described in each of the Registration Statement, the Basic Prospectus, the Time of Sale Prospectus and the Prospectus, respectively.

(aa) 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 which is material to the business of the Company and its subsidiaries, in each case free and clear of all liens, encumbrances and defects except such as are described in the Time of Sale Prospectus or such as do not materially affect the value of such property and do not interfere with the use made and proposed to be made of such property by the Company and its subsidiaries; and any real property and buildings held under lease by the Company and its subsidiaries are held by them under valid, subsisting and, to the Company's knowledge, enforceable leases with such exceptions as are not material and do not materially interfere with the use made and proposed to be made of such property and buildings by the Company and its subsidiaries, in each case except as described in the Time of Sale Prospectus.

(bb) The Company and its subsidiaries own or possess rights in or to, or can acquire (or can acquire rights in or to) on reasonable terms, all material 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 and trade names currently employed by them in connection with the business now operated by them, and neither the Company nor any of its subsidiaries has received any notice of infringement of or conflict with asserted rights of others with respect to any of the foregoing which, singly or in the aggregate, if the subject of an unfavorable decision, ruling or finding, would have a material adverse effect on the Company and its subsidiaries, taken as a whole.

(cc) Except as disclosed in the Time of Sale Prospectus and the Prospectus, the Company and its subsidiaries own or have valid, binding and enforceable licenses or other rights under the patents and patent applications, copyrights, trademarks, trademark registrations, service marks, service mark

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registrations, trade names, service names and know-how (including trade secrets and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures) and all other technology and intellectual property rights that (A) are described in the Registration Statement, the Time of Sale Prospectus and the Prospectus as owned by or licensed to the Company or its subsidiaries or (B), to the Company's knowledge, are necessary for, or used in the conduct, or the proposed conduct, of the business of the Company and its subsidiaries in the manner described in the Registration Statement, the Time of Sale Prospectus and the Prospectus (collectively, the "**Company Intellectual Property**") and the Company and its subsidiaries own or have valid, binding and enforceable licenses or other rights to practice such Company Intellectual Property; except as disclosed in the Time of Sale Prospectus and the Prospectus, the intellectual property owned by the Company or any of its subsidiaries is free and clear of all material liens and encumbrances; to the knowledge of the Company, the patents, trademarks and copyrights owned or licensed by the Company or any of its subsidiaries are valid, enforceable and subsisting; the Company and its subsidiaries have complied in all material respects with the terms of each agreement pursuant to which intellectual property has been licensed to the Company or any subsidiary, and all such agreements that have not expired or been intentionally terminated by the Company or any subsidiary are in full force and effect. Other than as disclosed in the Time of Sale Prospectus and the Prospectus, (i) neither the Company nor any of its subsidiaries is obligated to pay a material royalty, grant a license or provide other material consideration to any third party in connection with the Company Intellectual Property, (ii) no action, suit, claim or other proceeding is pending, or, to the knowledge of the Company, is threatened (in writing), alleging that the Company or any of its subsidiaries is infringing, misappropriating, diluting or otherwise violating any rights of others with respect to any of the Company's or any of its subsidiaries' product candidates, processes or intellectual property, (iii) no action, suit, claim or other proceeding is pending, or, to the knowledge of the Company, is threatened, challenging the validity, enforceability, scope, registration, ownership or use of any of the patents or patent applications included in the Company Intellectual Property, or challenging the Company's or any of its subsidiaries' rights in or to any Company Intellectual Property, (iv) neither the Company nor any of its subsidiaries has received notice of any written claim of infringement, misappropriation or conflict with any asserted rights of others with respect to any of the Company's or any of its subsidiaries' product candidates, technology, processes or Company Intellectual Property, (v) to the knowledge of the Company, the development, manufacture, sale, and any currently proposed use of any of the product candidates or processes of the Company or any of its subsidiaries referred to in the Time of Sale Prospectus or the Prospectus do not currently, and will not upon commercialization, to the knowledge of the Company, infringe any right or valid patent claim of any third party in any material respect, (vi) no third party has any ownership right in or to any patents within the Company Intellectual Property that is owned by the Company or any of its subsidiaries, other than any co-owner of any patent

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constituting Company Intellectual Property who is listed on the records of the U.S. Patent and Trademark Office and any co-owner of any patent application constituting Company Intellectual Property who is named in such patent application, and, to the knowledge of the Company, no third party has any ownership right in or to any patent within the Company Intellectual Property that is exclusively licensed to the Company or any of its subsidiaries, other than any co-owner of any patent constituting Company Intellectual Property who is listed on the records of the U.S. Patent and Trademark Office and any co-owner of any patent application constituting Company Intellectual Property who is named in such patent application, (vii) the Company and its subsidiaries have taken reasonable measures to protect their confidential information and trade secrets and to maintain and safeguard the confidentiality of the confidential information and trade secrets within the Company Intellectual Property, including the execution of appropriate nondisclosure and confidentiality agreements, (viii) to the knowledge of the Company, no employee, consultant or independent contractor of the Company or any of its subsidiaries is in or has ever been in violation in any material respect of any term of any employment contract, patent disclosure agreement, invention assignment agreement, non-competition agreement, non-solicitation agreement, nondisclosure agreement or any restrictive covenant to or with a former employer or independent contractor where the basis of such violation relates to such employee's employment or independent contractor's engagement with the Company or any of its subsidiaries or actions undertaken while employed or engaged with the Company or any of its subsidiaries, and (ix) to the knowledge of the Company, there is no infringement by third parties of any Company Intellectual Property that would have a material adverse effect on the Company and its subsidiaries, taken as a whole.

(dd) All patents and patent applications within the Company Intellectual Property owned by or exclusively licensed to the Company or any of its subsidiaries have, to the knowledge of the Company, been duly and properly filed and maintained; to the knowledge of the Company, no person having a duty of candor to the U.S. Patent and Trademark Office (“USPTO”) with respect to the prosecution of such patents and patent applications has breached such duty; and the Company is not aware of any failure to disclose to the USPTO facts that were required to be disclosed to the USPTO and that would preclude the grant of a patent in connection with any such application or could form the basis of a finding of invalidity with respect to any patents that have issued with respect to such applications.

(ee) (i) The Company and each of its subsidiaries use and have used all software and other materials distributed under a “free,” “open source,” or similar licensing model (including but not limited to the MIT License, Apache License, GNU General Public License, GNU Lesser General Public License and GNU Affero General Public License) (“**Open Source Software**”) in compliance with all license terms applicable to such Open Source Software except where the failure to comply would not reasonably be expected to result

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in a Material Adverse Effect; and (ii) except for the Open Source Software itself and otherwise such as would not reasonably be expected to result in a Material Adverse Effect, neither the Company nor any of its subsidiaries has used or distributed any Open Source Software in any manner that requires or has required (A) the Company or any of its subsidiaries to permit reverse engineering of any software code or other technology owned by the Company or any of its subsidiaries or (B) any software code or other technology owned by the Company or any of its subsidiaries to be (1) disclosed or distributed in source code form, (2) licensed for the purpose of making derivative works or (3) redistributed at no charge.

(ff) (i) The Company and each of its subsidiaries have complied and are presently in compliance with all internal and external privacy policies, contractual obligations, industry standards, applicable laws, statutes, judgments, orders, rules and regulations of any court or arbitrator or other governmental or regulatory authority and any other legal obligations, in each case, relating to the collection, use, transfer, import, export, storage, protection, disposal and disclosure by the Company or any of its subsidiaries of personal, personally identifiable, household, sensitive, confidential or regulated data (“**Data Security Obligations**”, and such data, “**Data**”) except where the failure to comply would not reasonably be expected to result in a Material Adverse Effect; (ii) the Company has not received any notification of or complaint regarding and is unaware of any other facts that, individually or in the aggregate, would reasonably indicate non-compliance with any Data Security Obligation; and (iii) of there is no action, suit or proceeding by or before any court or governmental agency, authority or body pending or, to the Company’s knowledge, threatened alleging non-compliance with any Data Security Obligation.

(gg) The Company and each of its subsidiaries have taken all commercially reasonable technical and organizational measures necessary to protect the information technology systems and Data used in connection with the operation of the Company’s and its subsidiaries’ businesses. Without limiting the foregoing, the Company and its subsidiaries have used commercially 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 that are designed to protect against and prevent breach, destruction, loss, unauthorized distribution, use, access, disablement, misappropriation or modification, or other compromise or misuse of or relating to any information technology system or Data used in connection with the operation of the Company’s and its subsidiaries’ businesses (“**Breach**”). There has been no such material Breach, 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.

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(hh) No material labor dispute with the employees of the Company or any of its subsidiaries exists, except as described in the Time of Sale Prospectus, or, to the knowledge of the Company, is imminent; and the Company is not aware of any existing, threatened or imminent labor disturbance by the employees of any of its principal suppliers, manufacturers or contractors that could have a material adverse effect on the Company and its subsidiaries, taken as a whole.

(ii) Each employee benefit plan, within the meaning of Section 3(3) of the Employee Retirement Income Security Act of 1974, as amended (“**ERISA**”) that the Company or any member of its “Controlled Group” (defined as any organization which is under common control with the Company within the meaning of Section 414 of the Internal Revenue Code of 1986, as amended (the “**Code**”)) sponsors or maintains (each, a “**Plan**”) has been maintained, in all material respects, in compliance with its terms and the requirements of any applicable statutes, orders, rules and regulations, including but not limited to ERISA and the Code.

(jj) The Company and each of its subsidiaries are insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as, in the Company’s reasonable judgment, are prudent and customary in the businesses in which they are engaged; neither the Company nor any of its subsidiaries has been refused any insurance coverage sought or applied for; and neither the Company nor any of its subsidiaries has any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost that would not reasonably be expected to have a material adverse effect on the Company and its subsidiaries, taken as a whole, except as described in the Time of Sale Prospectus.

(kk) The Company and its subsidiaries possess, and are in material compliance with the terms of, all applications, certificates, approvals, registrations, licenses, authorizations and permits issued by the appropriate federal, state or foreign regulatory authorities necessary to conduct their respective businesses (collectively, “**Permits**”), except where the failure to possess such Permits, individually or in the aggregate, would not reasonably be expected to have a material adverse effect on the Company and its subsidiaries, taken as whole. All Permits are in full force and effect and neither the Company nor any of its subsidiaries is in violation of any term of any Permit in any material respect. Each of the Company and its subsidiaries has fulfilled and performed all of its respective obligations with respect to the Permits in all material respects and, to the knowledge of the Company, no event has occurred which allows, or after notice or lapse of time would allow, revocation or termination thereof or results in any other impairment of the rights of the holder of any Permit. Neither the Company nor any of its subsidiaries has received any notice of proceedings relating to the revocation or modification of any such Permit which, singly or in the aggregate, if the subject of an unfavorable

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decision, ruling or finding, would reasonably be expected to have a material adverse effect on the Company and its subsidiaries, taken as a whole, except as described in the Time of Sale Prospectus.

(ll) The Company and each of its subsidiaries maintain a system of internal accounting controls sufficient to provide reasonable assurance that (i) transactions are executed in accordance with management's general or specific authorizations; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles and to maintain asset accountability; (iii) access to assets is permitted only in accordance with management's general or specific authorization; (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences; and (v) the interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement is accurate in all material respects. Except as described in the Time of Sale Prospectus, since the end of the Company's most recent audited fiscal year, there has been (A) no material weakness in the Company's internal control over financial reporting (whether or not remediated) and (B) no change in the Company's internal control over financial reporting that has materially adversely affected, or is reasonably likely to materially adversely affect, the Company's internal control over financial reporting.

(mm) The Company maintains disclosure controls and procedures (as such term is defined in Rule 13a-15(e) under the Exchange Act) that are designed to comply with the requirements of the Exchange Act; such disclosure controls and procedures have been designed to ensure that material information relating to the Company is made known to the Company's principal executive officer and principal financial officer by others within the Company. The Company has conducted evaluations of the effectiveness of its disclosure controls and procedures as required by Rule 13a-15 of the Exchange Act.

(nn) Ernst & Young LLP, who have certified certain financial statements of the Company and its subsidiaries, are independent public accountants as required by the Securities Act and the rules and regulations of the Commission thereunder.

(oo) The consolidated financial statements of the Company included or incorporated by reference in the Registration Statement, the Time of Sale Prospectus and the Prospectus, together with the related notes, present fairly in all material respects the financial position of the Company and its consolidated subsidiaries at the dates indicated therein and, in the case of the statements of operations, comprehensive loss, stockholders' equity (deficit) and cash flows of the Company and its consolidated subsidiaries, for the periods specified therein; the financial statements of the Company and its consolidated subsidiaries included in the Registration Statement comply in all material respects with the applicable requirements of the Securities Act and have been prepared in

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conformity with U.S. generally accepted accounting principles (“GAAP”) applied on a consistent basis throughout the periods involved except (x) the unaudited, interim financial statements, which are subject to normal year-end adjustments and do not contain certain footnotes as permitted by the applicable rules of the Commission and (y) as otherwise disclosed therein. Except as included therein, no historical or pro forma financial statements or supporting schedules are required to be included or incorporated by reference in the Registration Statement, the Basic Prospectus, the Time of Sale Prospectus or the Prospectus under the Securities Act and the rules and regulations of the Commission thereunder; to the extent included in the Registration Statement, the Basic Prospectus, the Time of Sale Prospectus or the Prospectus, the pro forma financial information and the related notes thereto included therein have been prepared in accordance with the applicable requirements of the Securities Act and comply with Regulation G of the Exchange Act, and Item 10 of Regulation S-K of the Securities Act, to the extent applicable, and the assumptions underlying such pro forma financial information are reasonable and are set forth in the Registration Statement, the Basic Prospectus, the Time of Sale Prospectus and the Prospectus in all material respects; all other information regarding the financial condition or results of operations of the Company or its subsidiaries included in the Registration Statement, the Time of Sale Prospectus and the Prospectus has been derived from the accounting records of the Company and its consolidated subsidiaries and presents fairly in all material respects the information shown thereby.

(pp) The interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement fairly presents the information called for in all material respects and has been prepared in accordance with the Commission’s rules and guidelines applicable thereto.

(qq) The Company is subject to and in compliance in all material respects with the reporting requirements of Section 13 or Section 15(d) of the Exchange Act. The Common Stock is registered pursuant to Section 12(b) or 12(g) of the Exchange Act and is listed on the Nasdaq Global Select Market, and the Company has taken no action designed to, or reasonably likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act or delisting the Common Stock from the Nasdaq Global Select Market, nor has the Company received any notification that the Commission or the Nasdaq Global Select Market is contemplating terminating such registration or listing.

(rr) Except as described in the Time of Sale Prospectus, the Company has not sold, issued or distributed any shares of Common Stock during the six-month period preceding the date hereof, including any sales pursuant to Rule 144A under, or Regulation D or S of, the Securities Act, other than shares issued pursuant to employee benefit plans, qualified stock option plans or other employee compensation plans or pursuant to outstanding options, rights or warrants.

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(ss) Other than the direct and indirect subsidiaries of the Company listed in Exhibit 21.1 of the Registration Statement, the Company, directly or indirectly, owns no capital stock or other equity or ownership or proprietary interest in any corporation, partnership, association, trust or other entity. As used in this Agreement with respect to the Company, “**subsidiaries**” shall mean direct and indirect subsidiaries of the Company.

(tt) The Company and each of its subsidiaries have filed all federal, state, local and foreign tax returns required to be filed by them through the date of this Agreement or have requested extensions thereof (except where the failure to file would not, individually or in the aggregate, reasonably be expected to have a material adverse effect on the Company and its subsidiaries, taken as a whole) and have paid all taxes required to be paid thereon (except for cases in which the failure to file or pay would not have a material adverse effect, or, except as currently being contested in good faith and for which reserves required by U.S. GAAP have been created in the financial statements of the Company), and no tax deficiency has been determined adversely to the Company or any of its subsidiaries which has had (nor does the Company nor any of its subsidiaries have any notice or knowledge of any tax deficiency which could reasonably be expected to be determined adversely to the Company or its subsidiaries and which could reasonably be expected to have) a material adverse effect on the Company and its subsidiaries, taken as a whole.

(uu) The Company (i) has not alone engaged in any Testing-the-Waters Communication with any person other than Testing-the-Waters Communications with the consent of the Representatives with entities that are qualified institutional buyers within the meaning of Rule 144A under the Securities Act or institutions that are accredited investors within the meaning of Rule 501 under the Securities Act and (ii) has not authorized anyone other than the Representatives to engage in Testing-the-Waters Communications. The Company reconfirms that the Representatives have been authorized to act on its behalf in undertaking Testing-the-Waters Communications. The Company has not distributed any Written Testing-the-Waters Communications other than those, if any, listed on Schedule III hereto. “**Testing-the-Waters Communication**” means any oral or written communication with potential investors undertaken in reliance on Rule 163B or Section 5(d) of the Securities Act. “**Written Testing-the-Waters Communication**” means any Testing-the-Waters Communication that is a written communication within the meaning of Rule 405 under the Securities Act.

(vv) As of the time of each sale of the Shares in connection with the offering when the Prospectus is not yet available to prospective purchasers, none of (A) the Time of Sale Prospectus, (B) any free writing prospectus, when considered together with the Time of Sale Prospectus, or (C) any individual Written Testing-the-Waters Communication, when considered together with the Time of Sale Prospectus, included, includes or will include an untrue statement of a material fact or omitted, omits or will omit to state a material fact necessary

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in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation and warranty with respect to any statement or omission made in each such Written Testing-the-Waters Communication in reliance upon and in conformity with written information furnished to the Company in writing by the Representatives expressly for use in such Written Testing-the-Waters Communication.

2. *Agreements to Sell and Purchase.* The Company hereby agrees to sell to the several Underwriters, and each Underwriter, upon the basis of the representations and warranties herein contained, but subject to the terms and conditions hereinafter stated, agrees, severally and not jointly, to purchase from the Company the respective numbers of Firm Shares set forth in Schedule I hereto opposite its name at \$18.1925 a share (the “**Purchase Price**”).

On the basis of the representations and warranties contained in this Agreement, and subject to its terms and conditions, the Company agrees to sell to the Underwriters the Additional Shares, and the Underwriters shall have the right to purchase, severally and not jointly, up to 3,947,368 Additional Shares at the Purchase Price; *provided, however,* that the amount paid by the Underwriters for any Additional Shares shall be reduced by an amount per share equal to any dividends declared by the Company and payable on the Firm Shares but not payable on such Additional Shares. The Representatives may exercise this right on behalf of the Underwriters in whole or from time to time in part by giving written notice to the Company not later than 30 days after the date of this Agreement. Any exercise notice shall specify the number of Additional Shares to be purchased by the Underwriters and the date on which such shares are to be purchased. Each purchase date must be at least one business day after the written notice is given and may not be earlier than the closing date for the Firm Shares or later than ten business days after the date of such notice. On each day, if any, that Additional Shares are to be purchased (an “**Option Closing Date**”), each Underwriter agrees, severally and not jointly, to purchase the number of Additional Shares (subject to such adjustments to eliminate fractional shares as the Representatives may determine) that bears the same proportion to the total number of Additional Shares to be purchased on such Option Closing Date as the number of Firm Shares set forth in Schedule I hereto opposite the name of such Underwriter bears to the total number of Firm Shares.

3. *Terms of Public Offering.* The Company is advised by the Representatives that the Underwriters propose to make a public offering of their respective portions of the Shares as soon after the Registration Statement and this Agreement have become effective as in the Representatives’ judgment is advisable. The Company is further advised by the Representatives that the Shares are to be offered to the public initially at \$19.00 a share (the “**Public Offering Price**”) and to certain dealers selected by the Representatives at a price that represents a concession not in excess of \$0.4845 a share under the Public Offering Price.

4. *Payment and Delivery.* Payment for the Firm Shares shall be made to the Company in Federal or other funds immediately available in New York City against

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delivery of such Firm Shares for the respective accounts of the several Underwriters at 10:00 a.m., New York City time, on February 14, 2020, or at such other time on the same or such other date, not later than February 21, 2020, as shall be designated in writing by the Representatives. The time and date of such payment are hereinafter referred to as the “**Closing Date.**”

Payment for any Additional Shares shall be made to the Company in Federal or other funds immediately available in New York City against delivery of such Additional Shares for the respective accounts of the several Underwriters at 10:00 a.m., New York City time, on the date specified in the corresponding notice described in Section 2 or at such other time on the same or on such other date, in any event not later than March 23, 2020, as shall be designated in writing by the Representatives.

The Firm Shares and Additional Shares shall be registered in such names and in such denominations as the Representatives shall request in writing not later than one full business day prior to the Closing Date or the applicable Option Closing Date, as the case may be. The Firm Shares and Additional Shares shall be delivered to the Representatives on the Closing Date or an Option Closing Date, as the case may be, for the respective DTC accounts of the several Underwriters, with any transfer taxes payable in connection with the transfer of the Shares to the Underwriters duly paid, against payment of the Purchase Price therefor.

5. *Conditions to the Underwriters' Obligations.* The obligations of the Company to sell the Shares to the Underwriters and the several obligations of the Underwriters to purchase and pay for the Shares on the Closing Date are subject to the condition that the Registration Statement shall have become effective not later than 4:00 p.m., New York City time on the date hereof.

The several obligations of the Underwriters are subject to the following further conditions:

- (a) Subsequent to the execution and delivery of this Agreement and prior to the Closing Date:
  - (i) no order suspending the effectiveness of the Registration Statement shall be in effect, and no proceeding for such purpose or pursuant to Section 8A under the Securities Act shall be pending before or threatened by the Commission.
  - (ii) there shall not have occurred any downgrading, nor shall any notice have been given of any intended or potential downgrading or of any review for a possible change that does not indicate the direction of the possible change, in the rating accorded any of the securities of the Company or any of its subsidiaries by any “nationally recognized statistical rating organization,” as such term is defined in Section 3(a)(62) of the Exchange Act;

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(iii) there shall not have occurred any change, or any development involving a prospective change, in the condition, financial or otherwise, or in the earnings, business or operations of the Company and its subsidiaries, taken as a whole, from that set forth in the Time of Sale Prospectus that, in the Representatives' judgment, is material and adverse and that makes it, in the Representatives' judgment, impracticable to market the Shares on the terms and in the manner contemplated in the Time of Sale Prospectus; and

(iv) 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 Securities Act shall have been received.

(b) The Underwriters shall have received on the Closing Date a certificate, dated the Closing Date and signed by an executive officer of the Company, to the effect set forth in Section 5(a)(ii) above and to the effect that the representations and warranties of the Company contained in this Agreement are true and correct as of the Closing Date and that the Company has complied with all of the agreements and satisfied all of the conditions on its part to be performed or satisfied hereunder on or before the Closing Date.

The officer signing and delivering such certificate may rely upon the best of his or her knowledge as to proceedings threatened.

(c) The Underwriters shall have received on the Closing Date an opinion and negative assurance letter of Goodwin Procter LLP, outside counsel for the Company, dated the Closing Date, in form and substance reasonably satisfactory to the Underwriters.

(d) The Underwriters shall have received on the Closing Date an opinion of Conyers Dill & Pearman Limited, outside counsel for the Company, dated the Closing Date, in form and substance reasonably satisfactory to the Underwriters.

(e) The Underwriters shall have received on the Closing Date an opinion of each of Cooley LLP; Nelson Mullins Riley & Scarborough LLP; Fish & Richardson; and Wolf, Greenfield & Sacks, P.C., intellectual property counsel for the Company, dated the Closing Date, in form and substance reasonably satisfactory to the Underwriters.

(f) The Underwriters shall have received on the Closing Date an opinion and negative assurance letter of Ropes & Gray LLP, counsel for the Underwriters, dated the Closing Date, in form and substance reasonably satisfactory to the Underwriters.

With respect to Sections 5(c) and 5(f) above, Goodwin Procter LLP and Ropes & Gray LLP, respectively, may state that their opinions and beliefs are based upon their participation in the preparation of the Registration Statement, the Basic Prospectus, the

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Time of Sale Prospectus and the Prospectus and any amendments or supplements thereto and review and discussion of the contents thereof, but are without independent check or verification, except as specified.

The opinion of Goodwin Procter LLP described in Section 5(c) above shall be rendered to the Underwriters at the request of the Company and shall so state therein.

(g) The Underwriters shall have received, on each of the date hereof and the Closing Date, a letter dated the date hereof or the Closing Date, as the case may be, in form and substance reasonably satisfactory to the Underwriters, from Ernst & Young LLP, independent public accountants, containing statements and information of the type ordinarily included in accountants' "comfort letters" to underwriters with respect to the financial statements and certain financial information contained in the Registration Statement, the Basic Prospectus, the Time of Sale Prospectus and the Prospectus; *provided* that the letter delivered on the Closing Date shall use a "cut-off date" not earlier than the date hereof.

(h) The lock-up agreements, each substantially in the form of Exhibit A hereto, among the Representatives and the officers, directors and certain shareholders of the Company relating to restrictions on sales and certain other dispositions of shares of Common Stock or certain other securities, delivered to the Representatives on or before the date hereof (the "**Lock-Up Agreements**"), shall be in full force and effect on the Closing Date.

(i) The Underwriters shall have received, on each of the date hereof and the Closing Date, a certificate of the Chief Financial Officer of the Company certifying as to the accuracy of certain financial information included in the Registration Statement, the Basic Prospectus, the Time of Sale Prospectus and the Prospectus, in form and substance reasonably satisfactory to the Underwriters.

(j) The Underwriters shall have received, on each of the date hereof and at the Closing Date, such other documents as the Representatives may reasonably request with respect to the good standing of the Company, the due authorization and issuance of the Shares to be sold on the Closing Date and other matters related to the issuance of the Shares.

(k) The several obligations of the Underwriters to purchase Additional Shares hereunder are subject to the delivery to the Representatives on the applicable Option Closing Date of the following:

(i) a certificate, dated the Option Closing Date and signed by an executive officer of the Company, confirming that the certificate delivered on the Closing Date pursuant to Section 5(b) hereof remains true and correct as of such Option Closing Date;

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(ii) an opinion and negative assurance letter of Goodwin Procter LLP, outside counsel for the Company, dated the Option Closing Date, relating to the Additional Shares to be purchased on such Option Closing Date and otherwise to the same effect as the opinion or opinions required by Section 5(c) hereof;

(iii) an opinion of Conyers Dill & Pearman Limited, outside counsel for the Company, dated the Option Closing Date, relating to the Additional Shares to be purchased on such Option Closing Date and otherwise to the same effect as the opinion required by Section 5(d) hereof;

(iv) an opinion of each of Cooley LLP; Nelson Mullins Riley & Scarborough LLP; Fish & Richardson; and Wolf, Greenfield & Sacks, P.C., intellectual property counsel for the Company, dated the Option Closing Date, relating to the Additional Shares to be purchased on such Option Closing Date and otherwise to the same effect as the opinion required by Section 5(e) hereof;

(v) an opinion and negative assurance letter of Ropes & Gray LLP, counsel for the Underwriters, dated the Option Closing Date, relating to the Additional Shares to be purchased on such Option Closing Date and otherwise to the same effect as the opinion required by Section 5(f) hereof;

(vi) a letter dated the Option Closing Date, in form and substance satisfactory to the Underwriters, from Ernst & Young LLP, independent public accountants, substantially in the same form and substance as the letter furnished to the Underwriters pursuant to Section 5(g) hereof; *provided* that the letter delivered on the Option Closing Date shall use a “cut-off date” not earlier than three business days prior to such Option Closing Date;

(vii) a certificate dated the Option Closing Date and signed by the Chief Financial Officer of the Company certifying as to the accuracy of certain financial information contained in the Prospectus as of such Option Closing Date; and

(viii) such other documents as the Representatives may reasonably request with respect to the good standing of the Company, the due authorization and issuance of the Additional Shares to be sold on such Option Closing Date and other matters related to the issuance of such Additional Shares.

6. *Covenants of the Company.* The Company covenants with each Underwriter as follows:

(a) To furnish to the Representatives, without charge and upon request, conformed copies of the Registration Statement (including exhibits

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thereto and documents incorporated by reference therein) and for delivery to each other Underwriter a conformed copy of the Registration Statement (without exhibits thereto or documents incorporated by reference) and to furnish to the Representatives in New York City, without charge, prior to 10:00 a.m. New York City time on the second business day succeeding the date of this Agreement and during the period mentioned in Section 6(e) or 6(f) below, as many copies of the Basic Prospectus, Time of Sale Prospectus, the Prospectus, any documents incorporated by reference therein and any supplements and amendments thereto or to the Registration Statement as the Representatives may reasonably request.

(b) Before amending or supplementing the Registration Statement, the Basic Prospectus, the Time of Sale Prospectus or the Prospectus, to furnish to the Representatives a copy of each such proposed amendment or supplement and not to file any such proposed amendment or supplement to which the Representatives reasonably object, and to file with the Commission within the applicable period specified in Rule 424(b) under the Securities Act any prospectus required to be filed pursuant to such rule.

(c) To furnish to the Representatives a copy of each proposed free writing prospectus to be prepared by or on behalf of, used by, or referred to by the Company and not to use or refer to any proposed free writing prospectus to which the Representatives reasonably object.

(d) Not to take any action that would result in an Underwriter or the Company being required to file with the Commission pursuant to Rule 433(d) under the Securities Act a free writing prospectus prepared by or on behalf of the Underwriter that the Underwriter otherwise would not have been required to file thereunder.

(e) If the Time of Sale Prospectus is being used to solicit offers to buy the Shares at a time when the Prospectus is not yet available to prospective purchasers and any event shall occur or condition exist as a result of which it is necessary to amend or supplement the Time of Sale Prospectus in order to make the statements therein, in the light of the circumstances, not misleading, or if any event shall occur or condition exist as a result of which the Time of Sale Prospectus conflicts with the information contained in the Registration Statement then on file, or if, in the opinion of counsel for the Underwriters, it is necessary to amend or supplement the Time of Sale Prospectus to comply with applicable law, forthwith to prepare, file with the Commission and furnish, at its own expense, to the Underwriters and to any dealer upon request, either amendments or supplements to the Time of Sale Prospectus so that the statements in the Time of Sale Prospectus as so amended or supplemented will not, in the light of the circumstances when the Time of Sale Prospectus is delivered to a prospective purchaser, be misleading or so that the Time of Sale Prospectus, as amended or supplemented, will no longer conflict with the Registration Statement, or so that the Time of Sale Prospectus, as amended or supplemented, will comply with applicable law.

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(f) If, during such period after the first date of the public offering of the Shares as in the opinion of counsel for the Underwriters the Prospectus (or in lieu thereof the notice referred to in Rule 173(a) of the Securities Act) is required by law to be delivered in connection with sales by an Underwriter or dealer, any event shall occur or condition exist as a result of which it is necessary to amend or supplement the Prospectus in order to make the statements therein, in the light of the circumstances when the Prospectus (or in lieu thereof the notice referred to in Rule 173(a) of the Securities Act) is delivered to a purchaser, not misleading, or if, in the opinion of counsel for the Underwriters, it is necessary to amend or supplement the Prospectus to comply with applicable law, forthwith to prepare, file with the Commission and furnish, at its own expense, to the Underwriters and to the dealers (whose names and addresses the Representatives will furnish to the Company) to which Shares may have been sold by the Representatives on behalf of the Underwriters and to any other dealers upon request, either amendments or supplements to the Prospectus so that the statements in the Prospectus as so amended or supplemented will not, in the light of the circumstances when the Prospectus (or in lieu thereof the notice referred to in Rule 173(a) of the Securities Act) is delivered to a purchaser, be misleading or so that the Prospectus, as amended or supplemented, will comply with applicable law.

(g) To endeavor to qualify the Shares for offer and sale under the securities or Blue Sky laws of such jurisdictions as the Representatives shall reasonably request; *provided, however*, that nothing contained herein shall require the Company to qualify to do business in any jurisdiction, to execute a general consent to service of process in any jurisdiction or to subject itself to taxation in any jurisdiction in which it is not otherwise subject.

(h) To make generally available to the Company's security holders and to the Representatives as soon as practicable an earnings statement covering a period of at least twelve months beginning with the first fiscal quarter of the Company occurring after the date of this Agreement which shall satisfy the provisions of Section 11(a) of the Securities Act and the rules and regulations of the Commission thereunder; *provided* that the Company will be deemed to have furnished such statement to its security holders to the extent it is filed on the Commission's Electronic Data Gathering, Analysis and Retrieval System.

(i) Whether or not the transactions contemplated in this Agreement are consummated or this Agreement is terminated, the Company agrees to pay or cause to be paid all expenses incident to the performance of its obligations under this Agreement, including: (i) the fees, disbursements and expenses of the Company's counsel and the Company's accountants in connection with the registration and delivery of the Shares under the Securities Act and all other fees or expenses in connection with the preparation and filing of the Registration

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Statement, the Basic Prospectus, any Preliminary Prospectus, the Time of Sale Prospectus, the Prospectus, any free writing prospectus prepared by or on behalf of, used by, or referred to by the Company and amendments and supplements to any of the foregoing, including all printing costs associated therewith, and the mailing and delivering of copies thereof to the Underwriters and dealers, in the quantities hereinabove specified, (ii) all costs and expenses related to the transfer and delivery of the Shares to the Underwriters, including any transfer or other taxes payable thereon, (iii) the cost of printing or producing any Blue Sky or Legal Investment memorandum in connection with the offer and sale of the Shares under state securities laws and all expenses in connection with the qualification of the Shares for offer and sale under state securities laws as provided in Section 6(g) hereof, including filing fees and the reasonable and documented fees and disbursements of counsel for the Underwriters in connection with such qualification and in connection with the Blue Sky or Legal Investment memorandum (*provided* that the amount payable by the Company with respect to fees and disbursements of counsel for the Underwriters pursuant to this subsection (iii) shall not exceed \$10,000), (iv) all filing fees and the reasonable and documented fees and disbursements of counsel to the Underwriters incurred in connection with the review and qualification of the offering of the Shares by FINRA (*provided* that the amount payable by the Company with respect to fees and disbursements of counsel for the Underwriters pursuant to this subsection (iv) shall not exceed \$30,000), (v) all costs and expenses incident to listing the Shares on the Nasdaq Global Select Market, (vi) the cost of printing certificates representing the Shares, (vii) the costs and charges of any transfer agent, registrar or depositary, (viii) the costs and expenses of the Company relating to investor presentations on any “road show” undertaken in connection with the marketing of the offering of the Shares, including, without limitation, expenses associated with the preparation or dissemination of any electronic road show, expenses associated with the production of road show slides and graphics, fees and expenses of any consultants engaged in connection with the road show presentations with the prior approval of the Company, travel and lodging expenses of the representatives and officers of the Company and any such consultants, and 50% of the cost of any aircraft chartered in connection with the road show (the remaining 50% of the cost of such aircraft, as well as any other travel and lodging expenses of the Underwriters in connection with the road show, to be paid by the Underwriters), (ix) the document production charges and expenses associated with printing this Agreement, and (x) all other costs and expenses incident to the performance of the obligations of the Company hereunder for which provision is not otherwise made in this Section. It is understood, however, that except as provided in this Section, Section 8 entitled “Indemnity and Contribution” and the last paragraph of Section 11 below, the Underwriters will pay all of their costs and expenses, including fees and disbursements of their counsel, stock transfer taxes payable on resale of any of the Shares by them and any advertising expenses connected with any offers they may make.

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(j) If at any time following the distribution of any Written Testing-the-Waters Communication there occurred or occurs an event or development as a result of which such Written Testing-the-Waters Communication included or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances existing at that subsequent time, not misleading, the Company will promptly notify the Representatives and will promptly amend or supplement, at its own expense, such Written Testing-the-Waters Communication to eliminate or correct such untrue statement or omission.

(k) If by the third anniversary (the “**Renewal Deadline**”) of the initial effective date of the Registration Statement, any of the Shares remain unsold by the Underwriters, the Company will file, if it has not already done so and is eligible to do so, a new automatic shelf registration statement relating to the Shares, in a form satisfactory to the Representatives. If at the Renewal Deadline the Company is no longer eligible to file an automatic shelf registration statement, the Company will, if it has not already done so, file a new shelf registration statement relating to the Shares, in a form satisfactory to the Representatives and will use its best efforts to cause such registration statement to be declared effective within 180 days after the Renewal Deadline. The Company will take all other action necessary or appropriate to permit the public offering and sale of the Shares to continue as contemplated in the expired registration statement relating to the Shares. References herein to the Registration Statement shall include such new automatic shelf registration statement or such new shelf registration statement, as the case may be.

The Company hereby agrees with each Underwriter that, without the prior written consent of the Representatives on behalf of the Underwriters, it will not, during the period ending 90 days after the date of the Prospectus (the “**Restricted Period**”), (1) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock or make any public announcement of its intention to enter into any of the foregoing transactions or (2) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the Common Stock, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of Common Stock or such other securities, in cash or otherwise or (3) file any registration statement with the Commission relating to the offering of any shares of Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock.

The restrictions contained in the preceding paragraph shall not apply to (a) the Shares to be sold hereunder, (b) the issuance by the Company of shares of Common Stock upon the exercise of an option or warrant or the conversion of a security outstanding on the date hereof, as described in each of the Time of Sale Prospectus and Prospectus, (c) facilitating the establishment of a trading plan on behalf of a shareholder,

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officer or director of the Company pursuant to Rule 10b5-1 under the Exchange Act for the transfer of shares of Common Stock, *provided* that (i) such plan does not provide for the transfer of Common Stock during the Restricted Period and (ii) to the extent a public announcement or filing under the Exchange Act, if any, is required of or voluntarily made by the Company regarding the establishment of such plan, such announcement or filing shall include a statement to the effect that no transfer of Common Stock may be made under such plan during the Restricted Period, (d) the grant or issuance by the Company, or exercise or settlement (in cash, shares of Common Stock or otherwise), of options, restricted stock awards, restricted stock units or any other type of equity award to employees, officers, directors, advisors or consultants of the Company pursuant to employee benefit plans described in the Time of Sale Prospectus, (e) the filing by the Company of a registration statement with the Commission on Form S-8 with respect to employee benefit plans in described in the Time of Sale Prospectus, or (f) the sale or issuance of or entry into an agreement to sell or issue shares of Common Stock or securities convertible into or exercisable for Common Stock in connection with any (i) merger, (ii) acquisition of securities, businesses, property or any other assets, (iii) joint ventures or (iv) strategic alliances; *provided* that the aggregate number of shares of Common Stock or securities convertible into or exercisable for Common Stock (on an as-converted or as exercised basis, as the case may be) that the Company may sell or issue or agree to sell or issue pursuant to this clause (f) shall not exceed 5% of the total number of shares of the Company's Common Stock issued and outstanding immediately following the completion of the transactions contemplated by this Agreement, and *provided further*, that each recipient of shares of Common Stock or securities convertible into or exercisable for Common Stock pursuant to clause (f) shall execute a lock-up agreement substantially in the form of Exhibit A hereto.

7. *Covenants of the Underwriters.* Each Underwriter, severally and not jointly, covenants with the Company not to take any action that would result in the Company being required to file with the Commission under Rule 433(d) a free writing prospectus prepared by or on behalf of such Underwriter that otherwise would not be required to be filed by the Company thereunder, but for the action of the Underwriter.

8. *Indemnity and Contribution.* (a) The Company agrees to indemnify and hold harmless each Underwriter, each person, if any, who controls any Underwriter within the meaning of either Section 15 of the Securities Act or Section 20 of the Exchange Act and each affiliate of any Underwriter within the meaning of Rule 405 under the Securities Act from and against any and all losses, claims, damages and liabilities (including, without limitation, any documented legal or other expenses reasonably incurred in connection with defending or investigating any such action or claim) that arise out of, or are based upon, any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement or any amendment thereof, the Basic Prospectus, any Preliminary Prospectus, the Time of Sale Prospectus or any amendment or supplement thereto, any issuer free writing prospectus as defined in Rule 433(h) under the Securities Act, any Company information that the Company has filed, or is required to file, pursuant to Rule 433(d) under the Securities Act, any road show as defined in Rule 433(h) under the Securities Act (a "**road show**"), or the Prospectus or any amendment or supplement thereto, or any Written Testing-the-Waters

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Communication, or arise out of, or are based upon, any omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, except insofar as such losses, claims, damages or liabilities arise out of, or are based upon, any such untrue statement or omission or alleged untrue statement or omission made in reliance upon and in conformity with any information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use therein, it being understood and agreed that the only such information furnished by the Underwriters through the Representatives consists of the Underwriter Information, as defined in paragraph (b) below.

(b) Each Underwriter agrees, severally and not jointly, to indemnify and hold harmless the Company, its directors, its officers who sign the Registration Statement and each person, if any, who controls the Company within the meaning of either Section 15 of the Securities Act or Section 20 of the Exchange Act to the same extent as the foregoing indemnity from the Company to such Underwriter, but only with reference to Underwriter Information. As used in this Agreement with respect to an Underwriter and an applicable document, "Underwriter Information" shall mean the written information furnished to the Company by such Underwriter through the Representatives expressly for use therein; it being understood and agreed upon that the only such information furnished by any Underwriter consists of the following information in the Prospectus furnished on behalf of each Underwriter: the concession figure appearing in the third paragraph under the caption "Underwriting", and the information contained in the seventh, twelfth and thirteenth paragraphs under the caption "Underwriting".

(c) In case any proceeding (including any governmental investigation) shall be instituted involving any person in respect of which indemnity may be sought pursuant to Section 8(a) or 8(b), such person (the "**indemnified party**") shall promptly notify the person against whom such indemnity may be sought (the "**indemnifying party**") in writing and the indemnifying party, upon request of the indemnified party, shall retain counsel reasonably satisfactory to the indemnified party to represent the indemnified party and any others the indemnifying party may designate in such proceeding and shall pay the reasonably incurred and documented fees and disbursements of such counsel related to such proceeding. In any such proceeding, any indemnified party shall have the right to retain its own counsel, but the fees and expenses of such counsel shall be at the expense of such indemnified party unless (i) the indemnifying party and the indemnified party shall have mutually agreed to the retention of such counsel or (ii) the named parties to any such proceeding (including any impleaded parties) include both the indemnifying party and the indemnified party and representation of both parties by the same counsel would be inappropriate due to actual or potential differing interests between them. It is understood that the indemnifying party shall not, in respect of the legal expenses of any indemnified party in connection with any proceeding or related proceedings in the same jurisdiction, be liable for the fees and expenses of more

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than one separate firm (in addition to any local counsel) for all such indemnified parties and that all such fees and expenses shall be reimbursed as they are incurred. Such firm shall be designated in writing by the Representatives, in the case of parties indemnified pursuant to Section 8(a), and by the Company, in the case of parties indemnified pursuant to Section 8(b). The indemnifying party shall not be liable for any settlement of any proceeding effected without its written consent, but if settled with such consent or if there be a final judgment for the plaintiff, the indemnifying party agrees to indemnify the indemnified party from and against any loss or liability by reason of such settlement or judgment. Notwithstanding the foregoing sentence, if at any time an indemnified party shall have requested an indemnifying party to reimburse the indemnified party for fees and expenses of counsel as contemplated by the second and third sentences of this paragraph, the indemnifying party agrees that it shall be liable for any settlement of any proceeding effected without its written consent if (i) such settlement is entered into more than 30 days after receipt by such indemnifying party of the aforesaid request and (ii) such indemnifying party shall not have reimbursed the indemnified party in accordance with such request prior to the date of such settlement. No indemnifying party shall, without the prior written consent of the indemnified party, effect any settlement of any pending or threatened proceeding in respect of which any indemnified party is or could have been a party and indemnity could have been sought hereunder by such indemnified party, unless such settlement includes an unconditional release of such indemnified party from all liability on claims that are the subject matter of such proceeding.

(d) To the extent the indemnification provided for in Section 8(a) or 8(b) is unavailable to an indemnified party or insufficient in respect of any losses, claims, damages or liabilities referred to therein, then each indemnifying party under such paragraph, in lieu of indemnifying such indemnified party thereunder, shall contribute to the amount paid or payable by such indemnified party as a result of such losses, claims, damages or liabilities (i) 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 hand from the offering of the Shares or (ii) if the allocation provided by clause 8(d)(i) above is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause 8(d)(i) above but also the relative fault of the Company on the one hand and of the Underwriters on the other hand in connection with the statements or omissions that resulted in such losses, claims, damages or liabilities, 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 hand in connection with the offering of the Shares shall be deemed to be in the same respective proportions as the net proceeds from the offering of the Shares (before deducting expenses) received by the Company and the total underwriting discounts and commissions received by the Underwriters, in each case as set forth in the table on the cover of the Prospectus, bear to the aggregate Public Offering Price of the Shares. The relative fault of the Company on the one hand and the Underwriters on the other

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hand 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 or by the Underwriters and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission. The Underwriters' respective obligations to contribute pursuant to this Section 8 are several in proportion to the respective number of Shares they have purchased hereunder, and not joint.

(e) The Company and the Underwriters agree that it would not be just or equitable if contribution pursuant to this Section 8 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 that does not take account of the equitable considerations referred to in Section 8(d). The amount paid or payable by an indemnified party as a result of the losses, claims, damages and liabilities referred to in Section 8(d) shall be deemed to include, subject to the limitations set forth above, 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 Section 8, no Underwriter shall be required to contribute any amount in excess of the amount by which the total price at which the Shares underwritten by it and distributed to the public were offered to the public exceeds the amount of any damages that 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 Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The remedies provided for in this Section 8 are not exclusive and shall not limit any rights or remedies which may otherwise be available to any indemnified party at law or in equity.

(f) The indemnity and contribution provisions contained in this Section 8 and the representations, warranties and other statements of the Company contained in this Agreement shall remain operative and in full force and effect regardless of (i) any termination of this Agreement, (ii) any investigation made by or on behalf of any Underwriter, any person controlling any Underwriter or any affiliate of any Underwriter or by or on behalf of the Company, its officers or directors or any person controlling the Company and (iii) acceptance of and payment for any of the Shares.

9. *Termination.* The Underwriters may terminate this Agreement by notice given by the Representatives to the Company, if after the execution and delivery of this Agreement and prior to or on the Closing Date or, in the case of the Additional Shares, any Option Closing Date, as the case may be, (i) trading generally shall have been suspended or materially limited on, or by, as the case may be, either the New York Stock Exchange or the Nasdaq Stock Market, (ii) trading of any securities of the Company shall have been suspended on any exchange or in any over-the-counter market, (iii) a material disruption in securities settlement, payment or clearance services in the United States or

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other relevant jurisdiction shall have occurred, (iv) any moratorium on commercial banking activities shall have been declared by Federal or New York State authorities or (v) there shall have occurred any outbreak or escalation of hostilities, or any change in financial markets or any calamity or crisis that, in the Representatives' judgment, is material and adverse and which, singly or together with any other event specified in this clause (v), makes it, in the Representatives' judgment, impracticable or inadvisable to proceed with the offer, sale or delivery of the Shares on the terms and in the manner contemplated in the Time of Sale Prospectus or the Prospectus.

10. *Effectiveness; Defaulting Underwriters.* This Agreement shall become effective upon the execution and delivery hereof by the parties hereto.

If, on the Closing Date or an Option Closing Date, as the case may be, any one or more of the Underwriters shall fail or refuse to purchase Shares that it has or they have agreed to purchase hereunder on such date, and the aggregate number of Shares which such defaulting Underwriter or Underwriters agreed but failed or refused to purchase is not more than one-tenth of the aggregate number of the Shares to be purchased on such date, the other Underwriters shall be obligated severally in the proportions that the number of Firm Shares set forth opposite their respective names in Schedule I bears to the aggregate number of Firm Shares set forth opposite the names of all such non-defaulting Underwriters, or in such other proportions as the Representatives may specify, to purchase the Shares which such defaulting Underwriter or Underwriters agreed but failed or refused to purchase on such date; *provided* that in no event shall the number of Shares that any Underwriter has agreed to purchase pursuant to this Agreement be increased pursuant to this Section 10 by an amount in excess of one-ninth of such number of Shares without the written consent of such Underwriter. If, on the Closing Date, any Underwriter or Underwriters shall fail or refuse to purchase Firm Shares and the aggregate number of Firm Shares with respect to which such default occurs is more than one-tenth of the aggregate number of Firm Shares to be purchased on such date, and arrangements satisfactory to the Representatives and the Company for the purchase of such Firm Shares are not made within 36 hours after such default, this Agreement shall terminate without liability on the part of any non-defaulting Underwriter or the Company. In any such case either the Representatives or the Company shall have the right to postpone the Closing Date, but in no event for longer than seven days, in order that the required changes, if any, in the Registration Statement, in the Time of Sale Prospectus, in the Prospectus or in any other documents or arrangements may be effected. If, on an Option Closing Date, any Underwriter or Underwriters shall fail or refuse to purchase Additional Shares and the aggregate number of Additional Shares with respect to which such default occurs is more than one-tenth of the aggregate number of Additional Shares to be purchased on such Option Closing Date, the non-defaulting Underwriters shall have the option to (i) terminate their obligation hereunder to purchase the Additional Shares to be sold on such Option Closing Date or (ii) purchase not less than the number of Additional Shares that such non-defaulting Underwriters would have been obligated to purchase in the absence of such default. Any action taken under this paragraph shall not relieve any defaulting Underwriter from liability in respect of any default of such Underwriter under this Agreement.

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If this Agreement shall be terminated by the Underwriters, or any of them, because of any failure or refusal on the part of the Company to comply with the terms or to fulfill any of the conditions of this Agreement, or if for any reason the Company shall be unable to perform its obligations under this Agreement, other than by reason of a default by the Underwriters, the Company will reimburse the non-defaulting Underwriters or such Underwriters as have so terminated this Agreement with respect to themselves, severally, for all out-of-pocket expenses (including the reasonably incurred and documented fees and disbursements of their counsel) reasonably incurred by such non-defaulting Underwriters in connection with this Agreement or the offering contemplated hereunder.

11. *Entire Agreement.* (a) This Agreement, together with any contemporaneous written agreements and any prior written agreements (to the extent not superseded by this Agreement) that relate to the offering of the Shares, represents the entire agreement between the Company and the Underwriters with respect to the preparation of any Preliminary Prospectus, the Basic Prospectus, the Time of Sale Prospectus, the Prospectus, the conduct of the offering, and the purchase and sale of the Shares.

(b) The Company acknowledges that in connection with the offering of the Shares: (i) the Underwriters have acted at arm's length, are not agents of, and owe no fiduciary duties to, the Company or any other person, (ii) the Underwriters owe the Company only those duties and obligations set forth in this Agreement, any contemporaneous written agreements and prior written agreements (to the extent not superseded by this Agreement), if any, and (iii) the Underwriters may have interests that differ from those of the Company. The Company waives to the full extent permitted by applicable law any claims it may have against the Underwriters arising from an alleged breach of fiduciary duty in connection with the offering of the Shares.

12. *Recognition of the U.S. Special Resolution Regimes.* (a) In the event that any Underwriter that is a Covered Entity becomes subject to a proceeding under a U.S. Special Resolution Regime, 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.

(b) In the event that any Underwriter that is a Covered Entity or a BHC Act Affiliate of such Underwriter becomes subject to a proceeding under a U.S. Special Resolution Regime, Default Rights 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.

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(c) For purposes of this Section 12 a “**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.

13. *Counterparts.* This Agreement may be signed in two or more counterparts, each of which shall be an original, with the same effect as if the signatures thereto and hereto were upon the same instrument.

14. *Applicable Law.* This Agreement and any claim, controversy or dispute arising out of this Agreement shall be governed by and construed in accordance with the internal laws of the State of New York.

15. *Headings.* The headings of the sections of this Agreement have been inserted for convenience of reference only and shall not be deemed a part of this Agreement.

16. *Notices.* All communications hereunder shall be in writing and effective only upon receipt and if to the Underwriters shall be delivered, mailed or sent to each of the Representatives at c/o Goldman Sachs & Co. LLC, 200 West Street, New York, New York 10282-2198, Attention: Registration Department, and c/o Morgan Stanley & Co. LLC, 1585 Broadway, New York, New York 10036, Attention: Equity Syndicate Desk, with a copy to the Legal Department, and in each case, with a copy (which copy shall not constitute notice) to Ropes & Gray LLP, Prudential Tower, 800 Boylston Street, Boston, Massachusetts 02199, Attention: Patrick O’Brien, and if to the Company shall be delivered, mailed or sent to Moderna, Inc., 200 Technology Square, Cambridge, MA 02139, Attention: Chief Executive Officer, with a copy (which copy shall not constitute notice) to Goodwin Procter LLP, 100 Northern Avenue, Boston, Massachusetts 02210, Attention: Stuart Cable.

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Very truly yours,

MODERNA, INC.

By: /s/ Stephane Bancel

Name: Stephane Bancel

Title: Chief Executive Officer

Accepted as of the date hereof

Goldman Sachs & Co. LLC  
Morgan Stanley & Co. LLC

Acting severally on behalf of themselves and  
the several Underwriters named in  
Schedule I hereto.

By: Goldman Sachs & Co. LLC

By: /s/ Goldman Sachs

Name: Aekloveya Shyam

Title: Managing Director

By: Morgan Stanley & Co. LLC

By: /s/ Chris Rigoli

Name: Chris Rigoli

Title: Vice President

<u>Underwriter</u>	<u>Number of Firm Shares To Be Purchased</u>
Goldman Sachs & Co. LLC	9,736,843
Morgan Stanley & Co. LLC	9,736,843
Piper Sandler & Co.	2,631,580
Barclays Capital, Inc.	1,578,947
Needham & Company, LLC	592,105
ODDO BHF SCA	592,105
Oppenheimer & Co. Inc.	592,105
Chardan Capital Markets, LLC	427,631
Roth Capital Partners, LLC	427,631
<b>Total:</b>	<b><u><u>26,315,790</u></u></b>

**Time of Sale Prospectus**

1. Preliminary prospectus issued February 10, 2020.
2. Free writing prospectuses – (i) Press release regarding three new development candidates, issued February 10, 2020 and (ii) Press release regarding MMA patient enrollment, issued February 10, 2020
3. The public offering price per share for the Shares is \$19.00.
4. The number of Firm Shares is 26,315,790.
5. The number of Additional Shares is 3,947,368.
6. The Closing Date is February 14, 2020.

**Written Testing-the-Waters Communications**

None.

III-1

**FORM OF LOCK-UP LETTER**

A-1

Goldman Sachs & Co. LLC  
Morgan Stanley & Co. LLC

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

c/o Morgan Stanley & Co. LLC  
1585 Broadway  
New York, New York 10036

Ladies and Gentlemen:

The undersigned understands that Goldman Sachs & Co. LLC (“**Goldman**”) and Morgan Stanley & Co. LLC (“**Morgan Stanley**”) and, together with Goldman, the “**Representatives**”) propose to enter into an Underwriting Agreement (the “**Underwriting Agreement**”) with Moderna, Inc., a Delaware corporation (the “**Company**”), providing for a public offering (the “**Public Offering**”) by the several Underwriters, including the Representatives (the “**Underwriters**”), of shares (the “**Shares**”) of common stock, par value \$0.0001 per share, of the Company (the “**Common Stock**”). If more than one entity executes this letter, this letter shall constitute a separate agreement with respect to each such entity as the “undersigned,” and the rights and obligations of each such entity hereunder shall be several and not joint.

To induce the Underwriters that may participate in the Public Offering to continue their efforts in connection with the Public Offering, the undersigned hereby agrees that, without the prior written consent of the Representatives on behalf of the Underwriters, the undersigned will not, during the period commencing on the date hereof and ending 90 days after the date of the final prospectus (the “**Restricted Period**”) relating to the Public Offering (the “**Prospectus**”), (1) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock beneficially owned (as such term is used in Rule 13d-3 of the Securities Exchange Act of 1934, as amended (the “**Exchange Act**”), by the undersigned or any other securities so owned convertible into or exercisable or exchangeable for Common Stock or make any public announcement of the undersigned’s intention to enter into any of the foregoing or (2) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the Common Stock, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of Common Stock or such other securities, in cash or otherwise. The foregoing restriction is expressly agreed to preclude the undersigned from engaging in any hedging or other transaction which is designed to or which reasonably could be

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expected to lead to or result in a sale or disposition of the undersigned's shares of Common Stock or any security convertible into Common Stock even if such shares of Common Stock or any security convertible into Common Stock would be disposed of by someone other than the undersigned. Such prohibited hedging or other transactions would include without limitation any short sale or any purchase, sale or grant of any right (including without limitation any put or call option) with respect to any of the undersigned's shares of Common Stock or any security convertible into Common Stock or with respect to any security that includes, relates to, or derives any significant part of its value from such shares of Common Stock or any security convertible into Common Stock.

The foregoing shall not apply to:

- (a) transactions relating to shares of Common Stock or other securities acquired in the Public Offering or in open market transactions after the pricing of the Public Offering; *provided* that no filing under Section 16(a) of the Exchange Act shall be required or shall be voluntarily made in connection with subsequent sales of Common Stock or other securities acquired in such open market transactions;
- (b) transfers of shares of Common Stock or any security convertible into Common Stock as a bona fide gift, or to a charitable organization or educational institution in a transaction not involving a disposition for value;
- (c) transfers or dispositions of shares of Common Stock or other securities to any member of the immediate family of the undersigned or any trust for the direct or indirect benefit of the undersigned or the immediate family of the undersigned in a transaction not involving a disposition for value;
- (d) transfers or dispositions of shares of Common Stock or other securities to any corporation, partnership, limited liability company or other entity, all of the beneficial ownership interests of which are held by the undersigned or the immediate family of the undersigned in a transaction not involving a disposition for value;
- (e) transfers or dispositions of shares of Common Stock or other securities (x) by will, other testamentary document or intestate succession to the legal representative, heir, beneficiary or a member of the immediate family of the undersigned upon the death of the undersigned, or (y) by operation of law pursuant to orders of a court, a domestic order or negotiated divorce settlement;
- (f) if the undersigned is an entity, (x) transfers or dispositions of shares of Common Stock or other securities to another corporation, member, partnership, limited liability company, trust or other entity that is a direct or indirect affiliate (as defined under Rule 12b-2 of the Exchange Act) of the undersigned, or to an investment fund or other entity that controls or manages, or is under common control with, the undersigned, or (y) distributions of shares of Common Stock or any security convertible into Common Stock to partners, members, stockholders, beneficiaries or other equity holders of the undersigned;

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*provided*, that in the case of any transfer, disposition or distribution pursuant to clause (b), (c), (d), (e) or (f), (i) each transferee, donee or distributee shall sign and deliver a lock-up letter substantially in the form of this letter and (ii) no filing under Section 16(a) of the Exchange Act, reporting a reduction in beneficial ownership of shares of Common Stock, shall be required or shall be voluntarily made during the Restricted Period (other than, in the case of a transfer or other disposition pursuant to clause (e) above, any Form 4 or Form 5 required to be filed under the Exchange Act if the undersigned is subject to Section 16 reporting with respect to the Company under the Exchange Act and indicating by footnote disclosure or otherwise the nature of the transfer or disposition);

(g) transfers or dispositions of Common Stock or any security convertible into or exercisable or exchangeable for Common Stock to the Company pursuant to any contractual arrangement in effect on the date of this letter that provides for the repurchase of the undersigned's Common Stock or other securities by the Company or in connection with the termination of the undersigned's employment with or service to the Company; *provided* that no filing under Section 16(a) of the Exchange Act reporting a reduction in beneficial ownership of shares of Common Stock, shall be required or shall be voluntarily made during the Restricted Period in connection with any such transfers or dispositions (other than any Form 4 or Form 5 required to be filed under the Exchange Act if the undersigned is subject to Section 16 reporting with respect to the Company under the Exchange Act and indicating by footnote disclosure or otherwise the nature of the transfer or disposition);

(h) transfers or dispositions of shares of Common Stock or other securities to the Company in connection with the conversion of any convertible security into, or the exercise of any option or warrant for, shares of Common Stock (including, in each case, by way of "net" or "cashless" exercise and/or to cover withholding tax obligations in connection with such exercise and any transfer to the Company for the payment of taxes as a result of such vesting or exercise, whether by means of a "net settlement" or otherwise); *provided* that (i) any such shares of Common Stock received by the undersigned shall be subject to the terms of this letter and (ii) no filing under Section 16(a) of the Exchange Act reporting a reduction in beneficial ownership of shares of Common Stock shall be required or shall be voluntarily made during the Restricted Period (other than a filing on a Form 4 that reports such disposition under the transaction code "F");

(i) transfers or dispositions of shares of Common Stock or other securities to a nominee or custodian of a person or entity to whom a disposition or transfer would be permissible under clauses (a) through (h) above;

(j) the establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of shares of Common Stock (a "**10b5-1 Plan**"); *provided* that (i) such plan does not provide for the transfer of Common Stock during the Restricted Period and (ii) to the extent a public announcement or filing under the Exchange Act, if any, is required of or voluntarily made by or on behalf of the undersigned or the Company regarding the establishment of such plan, such announcement or filing shall include a statement to the effect that no transfer of Common Stock may be made under such plan during the Restricted Period;

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(k) transfers of shares of Common Stock by the undersigned pursuant to a 10b5-1 Plan established prior to the date hereof, which 10b5-1 plan shall not be amended during the Restricted Period but may be terminated during the Restricted Period; *provided*, that to the extent a public announcement or filing under the Exchange Act, if any, is required of or voluntarily made by or on behalf of the undersigned or the Company regarding sales made under the undersigned's 10b5-1 Plan, such announcement or filing shall include a statement to the effect that such sales of Common Stock are being made pursuant to the undersigned's 10b5-1 Plan established prior to the date hereof;] or

(l) transfers or dispositions of shares of Common Stock or such other securities pursuant to a bona fide tender offer for shares of the Company's capital stock, merger, consolidation or other similar transaction made to all holders of the Company's securities involving a Change of Control (as defined below) of the Company (including without limitation, the entering into of any lock-up, voting or similar agreement pursuant to which the undersigned may agree to transfer, sell, tender or otherwise dispose of shares of Common Stock or other securities in connection with such transaction) that has been approved by the board of directors of the Company; *provided* that, in the event that such Change of Control transaction is not consummated, this clause (l) shall not be applicable and the undersigned's shares and other securities shall remain subject to the restrictions contained in this letter.

For purposes of this letter, "**immediate family**" shall mean any relationship by blood, marriage, domestic partnership or adoption, not more remote than first cousin, and "**Change of Control**" shall mean the transfer (whether by tender offer, merger, consolidation or other similar transaction), in one transactions or a series of related transactions, to a person or group of affiliated persons (other than an Underwriter pursuant to the Public Offering), of the Company's voting securities if, after such transfer, such person or group of affiliated persons would hold at least 50% of the outstanding voting securities of the Company (or the surviving entity); *provided* that, for the avoidance of doubt, the Public Offering shall not constitute a Change of Control.

In addition, the undersigned agrees that, without the prior written consent of the Representatives on behalf of the Underwriters, the undersigned will not, during the Restricted Period, make any demand for or exercise any right with respect to, the registration of any shares of Common Stock or any security convertible into or exercisable or exchangeable for Common Stock; *provided* that the undersigned may make a demand under any registration rights agreement with the Company described in the Prospectus for, and exercise its rights under any such registration rights agreement with respect to, the registration after the expiration of the Restricted Period of shares of Common Stock that does not require the filing of any registration statement or any public announcement or activity regarding such registration during the Restricted Period (and no such public announcement or activity shall be voluntarily made or taken by the undersigned during the Restricted Period).

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The undersigned also agrees and consents to the entry of stop transfer instructions with the Company's transfer agent and registrar against the transfer of the undersigned's shares of Common Stock except in compliance with the foregoing restrictions.

The undersigned understands that the Company and the Underwriters are relying upon this letter in proceeding toward consummation of the Public Offering. The undersigned further understands that this letter is irrevocable and shall be binding upon the undersigned's heirs, legal representatives, successors and assigns.

Whether or not the Public Offering actually occurs depends on a number of factors, including market conditions. Any Public Offering will only be made pursuant to an Underwriting Agreement, the terms of which are subject to negotiation between the Company and the Underwriters.

The undersigned understands that, if (i) either the Representatives, on the one hand, or the Company, on the other hand, informs the other in writing, prior to the execution of the Underwriting Agreement, that it has determined not to proceed with the Public Offering, (ii) the Underwriting Agreement (other than the provisions thereof which survive termination) shall terminate or be terminated prior to payment for and delivery of the securities to be sold thereunder, (iii) the registration statement related to the Public Offering is withdrawn or (iv) the Underwriting Agreement is not executed on or before February 15, 2020, then, in each case, this letter shall automatically, and without any action on the part of any other party, be of no further force and effect, and the undersigned shall be automatically released from all obligations under this letter.

This letter and any claim, controversy or dispute arising under or related to this letter shall be governed by and construed in accordance with the laws of the State of New York, without regard to the conflict of laws principles thereof.

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Very truly yours,

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address:

February 12, 2020

Moderna, Inc.  
200 Technology Square  
Cambridge, MA 02139

Re: Securities Registered under Registration Statement on Form S-3ASR

Ladies and Gentlemen:

We have acted as counsel to Moderna, Inc., a Delaware corporation (the "**Company**"), in connection with its filing of a Registration Statement on Form S-3ASR (File No. 333-236348) (as amended or supplemented, the "**Registration Statement**") filed on February 10, 2020 with the Securities and Exchange Commission (the "**Commission**") pursuant to the Securities Act of 1933, as amended (the "**Securities Act**"). The Registration Statement became effective under the Securities Act upon filing on February 10, 2020. Reference is made to our opinion letter dated February 10, 2020 and included as Exhibit 5.1 to the Registration Statement. We are delivering this supplemental opinion letter in connection with the prospectus supplement (the "**Prospectus Supplement**") filed on February 12, 2020 by the Company with the Commission pursuant to Rule 424 under the Securities Act. The Prospectus Supplement relates to the offering by the Company of up to 30,263,158 shares of the Company's Common Stock, par value \$0.0001 per share (the "**Shares**") covered by the Registration Statement. The Shares include an option granted to the underwriters of the offering to purchase up to an additional 3,947,368 Shares. The Shares are being sold to the several underwriters named in, and pursuant to, an underwriting agreement among the Company and such underwriters (the "**Underwriting Agreement**").

We have reviewed such documents and made such examination of law as we have deemed appropriate to give the opinion set forth below. We have relied, without independent verification, on certificates of public officials and, as to matters of fact material to the opinion set forth below, on certificates of officers of the Company.

The opinion set forth below is limited to the Delaware General Corporation Law.

Based on the foregoing, we are of the opinion that the Shares have been duly authorized and, upon issuance and delivery against payment therefor in accordance with the terms of the Underwriting Agreement, the Shares will be validly issued, fully paid and non-assessable.

We hereby consent to the inclusion of this opinion as Exhibit 5.1 to the Registration Statement and to the references to our firm under the caption "Legal Matters" in the Registration Statement. In giving our consent, we do not 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,

/s/ GOODWIN PROCTER LLP

GOODWIN PROCTER LLP

## Moderna Announces Pricing of Public Offering of Shares of Common Stock

**CAMBRIDGE, Mass., February 11, 2020** — Moderna, Inc. (Nasdaq: MRNA), a clinical stage biotechnology company pioneering messenger RNA (mRNA) therapeutics and vaccines to create a new generation of transformative medicines for patients, today announced the pricing of an underwritten public offering of 26,315,790 shares of common stock at a public offering price of \$19.00 per share, before underwriting discounts and commissions. In addition, Moderna has granted the underwriters a 30-day option to purchase up to an additional 3,947,368 shares of common stock at the public offering price, less underwriting discounts and commissions. All shares of common stock are being offered by Moderna. Gross proceeds from the offering will be approximately \$500 million. The offering is expected to close on or about February 14, 2020, subject to the satisfaction of customary closing conditions.

Goldman Sachs & Co. LLC and Morgan Stanley & Co. LLC are acting as joint book-running managers for the offering. Piper Sandler & Co. and Barclays Capital Inc. are acting as book-running managers, while Needham & Company, Oddo BHF SCA, Oppenheimer & Co. Inc., Chardan and Roth Capital Partners are acting as co-managers for the offering.

A registration statement on Form S-3 (File No. 333-236348) relating to these securities has been previously filed with the Securities and Exchange Commission (SEC) and has become effective. The offering will be made only by means of a prospectus. A preliminary prospectus supplement describing the terms of the offering has been filed with the SEC and forms a part of the effective registration statement. A copy of the final prospectus supplement relating to the offering will be filed with the SEC and may be obtained, when available, from Goldman Sachs & Co. LLC by mail at Attn: Prospectus Department, 200 West Street, New York, NY 10282, by telephone at (866) 471-2526, by fax at (212) 902-9316, or by email at prospectus-ny@ny.email.gs.com, or from Morgan Stanley & Co. LLC, by mail at Attn: Prospectus Department, 180 Varick Street, 2nd Floor, New York, NY 10014.

This press release shall not constitute an offer to sell or a solicitation of an offer to buy these securities, nor shall there be any sale of these securities in any state or jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state or jurisdiction.

### About Moderna

Moderna is advancing messenger RNA (mRNA) science to create a new class of transformative medicines for patients. mRNA medicines are designed to direct the body's cells to produce intracellular, membrane or secreted proteins that have a therapeutic or preventive benefit with the potential to address a broad spectrum of diseases. Moderna's platform builds on continuous advances in basic and applied mRNA science, delivery technology and manufacturing, providing the Company the capability to pursue in parallel a robust pipeline of new development candidates. Moderna is developing therapeutics and vaccines for infectious diseases, immuno-oncology, rare diseases, cardiovascular diseases, and autoimmune and inflammatory diseases, independently and with strategic collaborators. Moderna has 24 mRNA development candidates in its portfolio across all modalities, with 12 in clinical studies. Four of these programs are in or preparing for Phase 2 studies and the Company is preparing for its first Phase 3 study.

Headquartered in Cambridge, Mass., Moderna currently has strategic alliances for development programs with AstraZeneca, Plc. (Nasdaq: AZN) and Merck, Inc. (Nasdaq: MRK), as well as the Defense

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Advanced Research Projects Agency (DARPA), an agency of the U.S. Department of Defense and the Biomedical Advanced Research and Development Authority (BARDA), a division of the Office of the Assistant Secretary for Preparedness and Response (ASPR) within the U.S. Department of Health and Human Services (HHS). Moderna has been named a top biopharmaceutical employer by *Science* for the past five years.

### **Special Note Regarding Forward-Looking Statements**

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, including, without limitation, statements regarding Moderna's anticipated public offering; future expectations, plans and prospects for Moderna and the timing of these events; and Moderna's strategy, business plans and focus. The words "may," "will," "could," "would," "should," "expect," "plan," "anticipate," "intend," "believe," "estimate," "predict," "project," "potential," "continue," "target" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Any forward-looking statements in this press release are based on management's current expectations and beliefs and are subject to a number of risks, uncertainties and important factors that may cause actual events or results to differ materially from those expressed or implied by any forward-looking statements contained in this press release, including, without limitation, uncertainties related to market conditions and the completion of the public offering on the anticipated terms or at all. These and other risks and uncertainties are described in greater detail in the section entitled "Risk Factors" in Moderna's most recent Annual Report on Form 10-K filed with the Securities and Exchange Commission (SEC), the prospectus supplement related to the public offering and other filings that Moderna has made or may make with the SEC in the future. Any forward-looking statements contained in this press release represent Moderna's views only as of the date hereof and should not be relied upon as representing its views as of any subsequent date. Moderna explicitly disclaims any obligation to update any forward-looking statements.

### **Moderna Contacts:**

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