Amended and Restated Option Agreement

by and between

ModernaTx, Inc.,

and

AstraZeneca AB

June 15, 2018

This Amended and Restated Option Agreement (this “A&R Option Agreement”) is made on the Amendment Effective Date by and between ModernaTx, Inc., a Delaware corporation (“Moderna”) and AstraZeneca AB, a company incorporated in Sweden under no. 556011-7482 with offices at SE-431 83 Mölndal, Sweden (“AstraZeneca”). Each of Moderna and AstraZeneca may be referred to herein as a “Party” or together as the “Parties.”

WHEREAS, Moderna has developed technology useful for the discovery, development, Manufacture, characterization, or use of therapeutic products that function using mRNA;

WHEREAS, AstraZeneca is a biopharmaceutical company focused on identifying, Developing and Commercializing innovative therapeutic products;

WHEREAS, AstraZeneca and Moderna entered into an Option Agreement made as of March 20, 2013 as amended on January 10, 2015, April 10, 2018 and May 14, 2018 (the “Original Option Agreement”), pursuant to which AstraZeneca has exclusive options (but not obligations) to purchase the rights to certain mRNA Constructs [***] up to forty (40) Polypeptides for certain Targets;

WHEREAS, further, pursuant to the Original Option Agreement Moderna granted AstraZeneca certain licenses under Moderna’s intellectual property, to assist AstraZeneca in determining whether or not to exercise Options under the Original Option Agreement;

WHEREAS, there is one Optioned Product Candidate under the Original Option Agreement; and

WHEREAS, the Parties wish to amend and restate the Original Option Agreement as set forth herein.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, and for other good and valuable consideration, the amount and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

1. Definitions.

The following terms and their correlatives will have the following meanings. Capitalized terms used but not defined herein have the meanings ascribed to such terms in the other Transaction Agreements.

1.1 “Activity” means with respect to a Target and a particular indication, that there is [***].

1.2 “A&R Services and Collaboration Agreement” means that Amended and Restated Services and Collaboration Agreement entered into by the Parties as of the Amendment Effective Date.

1.3 “AstraZeneca” has the meaning set forth in the Preamble.
1.4 “AstraZeneca CV Target” means each Target listed on Exhibit A, unless it becomes a Discontinued Target.

1.5 “AstraZeneca Exclusive Target” means the Target listed on Exhibit B, unless it becomes a Discontinued Target.

1.6 “AstraZeneca Exclusive Target Development Polypeptide” means the Polypeptide the Optioned Product Candidate.

1.7 “AstraZeneca Field” means:
(a) for AstraZeneca Exclusive Target;
(b) for AstraZeneca CV Target and any Collaboration mRNA Construct a Research Polypeptide or a Development Polypeptide for an AstraZeneca CV Target, the CV Field; and
(c) for AstraZeneca Oncology Target and any Collaboration mRNA Construct a Development Polypeptide for the AstraZeneca Oncology Target, the Oncology Field.

1.8 “AstraZeneca Expanded Field Target” means AstraZeneca CV Targets other than.

1.9 “AstraZeneca Oncology Target” means the Target listed on Exhibit C, unless it becomes a Discontinued Target.

1.10 “AstraZeneca Indemnitees” has the meaning set forth in Section 12.6(b).

1.11 [***]

1.12 “AstraZeneca Option Notice” has the meaning set forth in Section 6.6.

1.13 “Bankruptcy Code” has the meaning set forth in Section 3.8.

1.14 “Biosimilar Application” means an application submitted to the FDA under subsection (k) of Section 351 of the PHSA, or any analogous application submitted to a Regulatory Authority in the United States or in another country in the Territory.

1.15 “CMC” has the meaning set forth in Section 8.4.

1.16 “[***] Product” means a Product that contains a [***] Product Candidate.

1.17 “[***] Product Candidate” means a product candidate that [***] For clarity, upon nomination of a [***] Product Candidate as a Product Candidate pursuant to Section 4.1, such Product Candidate will continue to be a [***] Product Candidate for all purposes under the Transaction Agreements.

1.18 “[***] Target” with respect to a [***] Product Candidate, means the [***]. For clarity, [***].

1.19 “Commercialization” means (a) any and all activities directed to the Manufacturing, marketing, detailing, promotion and securing of reimbursement of a product after Regulatory Approval has been obtained (including making, having made, using, importing, selling and offering for sale such product), and will include post-approval clinical studies, post-launch marketing, promoting, detailing, marketing research, distributing, customer service, administering commercially selling, having sold or otherwise disposing or offering to dispose of such product, importing, exporting or transporting such product for commercial sale, and all regulatory compliance with respect to the foregoing, and (b) otherwise marketing, selling or exploiting commercially a product.

1.20 “Commercialization Schedules” means Schedule A and the Product Commercialization Schedule, together.
1.21 “Competitive Infringement” means [***].

1.22 “Contingent Deferred Option Purchase Payment” has the meaning set forth in Section 6.3(b).

1.23 “Contingent Event” has the meaning set forth in Paragraph 2.2 (Schedule A).

1.24 “Contingent Event Option Exercise Payment” has the meaning set forth in Paragraph 2.2 (Schedule A).

1.25 “CV Field” means (a) the treatment, prevention, palliation, or prophylaxis in humans of cardiovascular and cardiometabolic diseases, including [***]. The CV Field does not include vaccines. Notwithstanding the foregoing, the Parties acknowledge and agree that, solely for the Exploitation of [***] Product Candidates and [***] Products [***].

1.26 “Development Pool” has the meaning set forth in Section 4.1(a).

1.27 “Development Pool Candidate” means with respect to a Development Polypeptide that AstraZeneca has designated for inclusion in the Development Pool in accordance with Section 4.1(a), all Collaboration mRNA Constructs [***] such Development Polypeptide, and that is not a Discontinued Product Candidate.

1.28 “Development Polypeptide” means a Polypeptide for which a Product Candidate has been selected in accordance with Section 4.1, and that is not a Discontinued Polypeptide. A Polypeptide will cease to be a Research Polypeptide on becoming a Development Polypeptide.

1.29 “Distributor” has the meaning set forth in Section 3.10.

1.30 “EU” has the meaning set forth in Paragraph 1.1 (Schedule A).

1.31 [***]

1.32 “Exempt Payments” has the meaning set forth in Section 7.1.

1.33 “Exercise Price” means, for each Option exercise for an Optioned Product Candidate, the Initial Payment plus the payments to be made by AstraZeneca to Moderna pursuant to Schedule A.

1.34 “Existing Know-How” has the meaning set forth in Section 12.2(b).

1.35 “Existing Patents” has the meaning set forth in Section 12.2(a).

1.36 “FIM Date” means with respect to each Research Target and Development Polypeptide, the date of the [***] in the first Phase 1 Study for the first Product incorporating a Collaboration mRNA Construct [***] such Development Polypeptide for such Research Target.

1.37 “First Commercial Sale” has the meaning set forth in Paragraph 1.2 (Schedule A).

1.38 “Generic Product” has the meaning set forth in Paragraph 1.3 (Schedule A).

1.39 “Included Payments” has the meaning set forth in Section 7.2.

1.40 “[***] Option Agreement Effective Date” means, with respect to a Product Candidate (or any other associated Development Pool Candidate), the date of [***], or, if earlier, [***] such Product Candidate, in either case by or on behalf of AstraZeneca or any of its Affiliates or Sublicensees.

1.41 “IND” means an investigational new drug application as defined in 21 U.S.C. § 312 (as amended or replaced), or any foreign equivalent thereof.

1.42 “Indemnification Claim Notice” has the meaning set forth in Section 12.6(c).
1.43 “Indemnified Party” has the meaning set forth in Section 12.6(c).

1.44 “Indirect Taxes” means VAT, sales taxes, consumption taxes and other similar taxes required by law to be disclosed on the invoice.

1.45 “Initial Options Purchase Price” has the meaning set forth in Section 6.3(a).

1.46 “Initial Payment” has the meaning set forth in Section 6.5(b).

1.47 “In-License Payments” means any amounts paid or payable under any Moderna Collaboration In-License that are incurred by Moderna as a result of the grant of [***] under this A&R Option Agreement. Any such payments will include (a) any amounts paid or payable under any Moderna Collaboration In-License as a result of the grant of [***], but excluding (i) any payments resulting from [***], (ii) any payment based on any payments [***], and (iii) any payments based on [***], and (b) costs of [***].

1.48 “IP Matters” has the meaning set forth in Section 10.1(a).

1.49 [***]

1.50 “Joint Patent Committee” or “JPC” has the meaning set forth in Section 10.1(a).

1.51 “Losses” has the meaning set forth in Section 12.6(a).

1.52 [***]

1.53 [***]

1.54 “Moderna” has the meaning set forth in the Preamble.

1.55 “Moderna General Background Patents” means any and all Moderna Background Patents that are not [***].

1.56 [***]

1.57 “Moderna Indemnitees” has the meaning set forth in Section 12.6(a).

1.63 “Net Sales” has the meaning set forth in Paragraph 1.4 (Schedule A).

1.64 “Nominated CV Field” means with respect to each Product Candidate [***] Development Polypeptide for an AstraZeneca CV Target (and all associated Development Pool Candidates), the indications in the CV Field identified by AstraZeneca for such Product Candidate in accordance with Section 4.1(a), [***].

1.65 “Nominated Oncology Field” means with respect to each Product Candidate [***] Development Polypeptide for the AstraZeneca Oncology Target (and all associated Development Pool Candidates), the indications in the Oncology Field identified by AstraZeneca for such Product Candidate in accordance with Section 4.1(a), [***].

1.66 “Nominated ROA” means with respect to each Product Candidate (and all associated Development Pool Candidates), the route(s) of administration (as defined by [***] for such Product Candidate identified by AstraZeneca in accordance with Section 4.1(a), in each case, [***].

1.67 “Oncology Field” means (a) the treatment, prevention, palliation, or prophylaxis in humans of cancer, and (b) companion diagnostics specific to any Product Candidate or Product. The Oncology Field does not include vaccines.

1.68 “Option” has the meaning set forth in Section 6.2.

1.69 “Option Exercise Earn-Out” has the meaning set forth in Paragraph 2.3(a) (Schedule A)
1.70 “Option Agreement Term” has the meaning set forth in Section 13.1.

1.71 “Option Exercise Period” has the meaning set forth in Section 6.4.

1.72 “Optioned Product Candidate” means a Product Candidate (including any [***] Product Candidate) for which AstraZeneca has (i) properly provided Moderna an AstraZeneca Option Notice in the proper form, and (ii) properly paid Moderna the Initial Payment.

1.73 “Option Purchase Price” has the meaning set forth in Section 6.3(b)(ii).

1.74 “Original Option Agreement” has the meaning set forth in the Preamble.

1.75 “Party” and “Parties” has the meaning set forth in the Preamble.

1.76 “Phase 1 Study” means a clinical trial of a product, the principal purpose of which is preliminary determination of safety in healthy individuals or patients as described under 21 C.F.R. §312.21(a) (as amended or any replacement thereof), or a similar clinical study prescribed by the Regulatory Authorities in a foreign country.

1.77 “Phase 2 Study” has the meaning set forth in Paragraph 1.5 (Schedule A).

1.78 “Phase 3 Study” has the meaning set forth in Paragraph 1.6 (Schedule A).

1.79 “PHSA” has the meaning set forth in Paragraph 1.7 (Schedule A).

1.80 [***]

1.81 “Product Candidate” means with respect to a Polypeptide, the Collaboration mRNA Construct constituting a Development Pool Candidate and [***] such Polypeptide that has been selected for further Development pursuant to Section 4.1(a) and that is not a Discontinued Product Candidate. For clarity, subject to the adjustments provided for in Section 4.4, upon nomination of a [***] Product Candidate as a Product Candidate pursuant to Section 4.1, such [***] Product Candidate will be a Product Candidate (but will continue to be a [***] Product Candidate).

1.82 “Regulatory Exclusivity Period” means with respect to a Product in a country, the period of time during which (a) AstraZeneca or any of its Affiliates or Sublicensess has been granted the exclusive legal right by a Regulatory Authority (or is otherwise entitled to the exclusive legal right by operation of Law) in such country to market and sell the Product, or (b) the data and information submitted by AstraZeneca or any of its Affiliates or Sublicensess to the relevant Regulatory Authority in such country for purposes of obtaining Regulatory Approval may not be disclosed, referenced or relied upon in any way by such Regulatory Authority (including by relying upon the Regulatory Authority’s previous findings regarding the safety or effectiveness of the Product) to support the Regulatory Approval or marketing of any product by a Third Party in such country.

1.83 “Research Polypeptide” means any Polypeptide for a Research Target that has been selected for evaluation as a part of the Services Program in accordance with Section 2 of the A&R Services and Collaboration Agreement, and that is not a Development Polypeptide or a Discontinued Polypeptide.

1.84 “Research Targets” means the AstraZeneca CV Targets, the AstraZeneca Oncology Target and the AstraZeneca Exclusive Target, and will not include any Discontinued Targets (and further, any Target definitions that underlie the definitions of the AstraZeneca Exclusive Target, the AstraZeneca CV Targets or the AstraZeneca Oncology Target will not include any Discontinued Targets).

1.85 “Research Tool” means any technology which is designed, developed and used solely for performing research and drug discovery activities, excluding (a) research and drug discovery activities directed to mRNA Technology and (b) the diagnosis, treatment, prevention, palliation, or prophylaxis of human diseases and conditions.
1.86 “Selling Party” has the meaning set forth in Paragraph 1.8 (Schedule A).

1.87 “Tax” and “Taxation” means any form of tax or taxation, levy, duty, charge, social security charge, contribution, or withholding of whatever nature (including any related fine, penalty, addition to tax, surcharge or interest) imposed by, or payable to, a Tax Authority. Notwithstanding anything herein to the contrary, Taxes will not include any Indirect Taxes.

1.88 “Tax Authority” or “Tax Authorities” means any government, state or municipality, or any local, state, federal or other fiscal, revenue, customs, or excise authority, body or official anywhere in the world, authorized to levy tax.

1.89 “ Territory” means worldwide.

1.90 “Third Party Claims” has the meaning set forth in Section 12.6(a).

1.91 “Valid Claim” has the meaning set forth in Paragraph 1.9 (Schedule A).

1.92 “[***] Optioned Product Candidate” means the Optioned Product Candidate [***] for a Polypeptide for [***] existing as of the Amended Effective Date.

2. Research Targets.

2.1 Research Targets as of the Amendment Effective Date.

(a) The AstraZeneca Exclusive Target. [***] AstraZeneca Exclusive Target as of the Amendment Effective Date is set forth in Exhibit B.

(b) AstraZeneca CV Targets. [***] AstraZeneca CV Targets as of the Amendment Effective Date are set forth on Exhibit A.

(c) AstraZeneca Oncology Target. [***] AstraZeneca Oncology Target as of the Amendment Effective Date is set forth on Exhibit C.

(d) Research Targets. As of the Amendment Effective Date, there are [***] Research Targets: the AstraZeneca Exclusive Target, [***] AstraZeneca CV Targets and the AstraZeneca Oncology Target. Each of these Targets will remain a Research Target unless and until it becomes a Discontinued Target in accordance with the Transaction Agreements. Following the Amendment Effective Date AstraZeneca does not have any rights to nominate (or re-nominate) any other Target as a Research Target. For certain purposes in connection with [***] Product Candidates, [***] Research Targets will be treated as [***] Research Targets as set out in Section 4.4.

2.2 Discontinuation of Research Targets.

(a) Subject as provided in Section 4.4, a Research Target may become a Discontinued Target under the Transaction Agreements as follows (as well as otherwise expressly provided in any of the Transaction Agreements, including Section 2.2(c) of the A&R Services & Collaboration Agreement), with the consequences set forth in Section 3.4 and elsewhere in the Transaction Agreements:

(i) If a Research Target is excluded from the scope of the Services Program before [***] pursuant to Section 2.2(c) of the A&R Services & Collaboration Agreement, such Research Target will automatically become a Discontinued Target (and all Research Polypeptides for such Discontinued Target will become Discontinued Polypeptides and all Collaboration mRNA Constructs [***] such Research Polypeptides for such Discontinued Target will become Discontinued Product Candidates); and

(ii) If (A) no Product Candidate [***] a Research Polypeptide for a Research Target is included by AstraZeneca in the Development Pool before the [***], or (B) a Development Polypeptide for a Research Target is no longer included in the Development Pool, then in each case ((A) and (B)), such Research Target will automatically become a Discontinued Target (and all Research Polypeptides or Development...
Polypeptides, as applicable, for such Discontinued Target will become Discontinued Polypeptides and all Collaboration mRNA Constructs, Product Candidates, Development Pool Candidates [***] such Research Polypeptide or Development Polypeptide, as applicable, will become Discontinued Product Candidates), unless for such Research Target there is (1) a different Research Polypeptide then in the Services Program; (2) another Development Polypeptide then in the Development Pool or (3) an Optioned Product Candidate.

(b) The license grants set forth in Section 3.1(a) and 3.1(b) will no longer apply with respect to any Discontinued Target, Discontinued Polypeptide or Discontinued Product Candidate and Moderna will be free to Exploit any and all mRNA Constructs and associated products for any Polypeptide for a Discontinued Target alone or with others with no obligation to AstraZeneca.

(c) For clarity, notwithstanding the provisions of this Section 2.2, nothing in the Transaction Agreements is intended to prevent AstraZeneca from Exploiting any Discontinued Target or Discontinued Polypeptide or any mRNA Construct (other than a Collaboration mRNA Construct) coding for a Discontinued Polypeptide (subject to Sections 5.2(a) and 5.2(b)), or any other Polypeptide for such Discontinued Target outside of the Transaction Agreements; provided, that any such Exploitation does not use Moderna Technology except as expressly permitted by the Transaction Agreements.

2.3 Expiration of Services Program with respect to certain Targets. The Parties hereby acknowledge and agree that the Services Program with respect to the Targets listed in Exhibit D has been prior to the Amendment Effective Date or will be with effect on the Amendment Effective Date, terminated and that each such Target is a Discontinued Target (and, for clarity, all Research Polypeptides for such Discontinued Targets are Discontinued Polypeptides and all Collaboration mRNA Constructs [***] such Research Polypeptides are Discontinued Product Candidates); provided that the Parties agree that they wish to continue collaborating with respect to the Discontinued Targets [***] that until the earlier to occur of (a) [***] and (b) the expiration of the Services Program Term, notwithstanding such Targets are Discontinued Targets, each Party will not (1) and will ensure that its Affiliates will not, itself or with or for any Third Party, or (2) [***].

3. License Grants.

3.1 Licenses by Moderna.

(a) Subject to the terms and conditions of this A&R Option Agreement, including Section 4.4, Moderna hereby grants to AstraZeneca a [***] (except as set forth in Section 13.5), worldwide, royalty-bearing right and license, with the right to grant sublicenses pursuant to Section 3.6 only, under the Moderna Technology, to Exploit:

(i) with respect to the AstraZeneca Exclusive Target, mRNA Constructs [***] any and all Polypeptides for the AstraZeneca Exclusive Target for use in the applicable AstraZeneca Field;

(ii) on a Target-by-Target basis, with respect to each AstraZeneca CV Target (and separately with respect to any [***] Target) and the AstraZeneca Oncology Target, Collaboration mRNA Constructs [***] Research Polypeptides for such Target for use in the applicable AstraZeneca Field; and

(iii) on a Product Candidate-by-Product Candidate basis, Collaboration mRNA Constructs comprising such Product Candidate (and all associated Development Pool Candidates) for use in the AstraZeneca Field for such Product Candidate.

The licenses set forth in Section 3.1(a) are (A) co-exclusive with Moderna (solely to the extent necessary for Moderna to exercise its retained rights pursuant to Section 3.1(b) with respect to the Manufacture of such Collaboration mRNA Constructs), and (B) exclusive (including with respect to Moderna and its Affiliates) with respect to all other Exploitation of such Collaboration mRNA Constructs, in each case in the applicable AstraZeneca Field. For clarity, Discontinued Targets, Discontinued Polypeptides and Discontinued Product Candidates are excluded from the scope of the licenses set forth in this Section 3.1(a).

(b) Notwithstanding the exclusive licenses granted to AstraZeneca pursuant to Section 3.1(a), Moderna retains rights under the [***] to perform the Services, to Manufacture pursuant to the Transaction
Agreements and the Master Supply Agreements and to undertake the Development activities as set forth in Sections 5.1 and 5.2. For clarity, (i) subject to the exclusive licenses granted to AstraZeneca pursuant to Section 3.1(a) and subject to Section 5, Moderna may Exploit (alone or with other(s) by license or otherwise) any mRNA Constructs other than Collaboration mRNA Constructs outside the scope of the Transactions Agreements, and (ii) Moderna may Manufacture under the co-exclusive license grant only (A) for AstraZeneca and (B) to exercise its rights pursuant to this Section 3.1(b).

(c) With respect to the foregoing grants under the [***], AstraZeneca agrees that:

(i) it will not, and will not sublicense or otherwise authorize its Affiliates or Sublicensees to, Commercialize any Collaboration mRNA Construct [***] a Polypeptide for a Research Target (including Manufacture of such Collaboration mRNA Constructs for Commercialization) unless and until AstraZeneca has (x) identified a Product Candidate [***] such Polypeptide in a properly provided AstraZeneca Option Notice in the proper form, and (y) properly paid Moderna ten million dollars (US$ 10,000,000) whereupon the Commercialization Schedules will apply to the Commercialization of such Product Candidate (and associated Products) and the other items specified thereon;

(ii) it will not, and it will not sublicense or otherwise authorize its Affiliates or Sublicensees to, clinically Develop any Collaboration mRNA Construct for a Research Polypeptide; and

(iii) it will not, and it will not sublicense or otherwise authorize its Affiliates or Sublicensees to, practice the license to Manufacture Moderna mRNA API except in the circumstances described in Section 4.1 of the A&R Services and Collaboration Agreement.

(d) [***]

3.2 Development License by AstraZeneca. Subject to the terms and conditions of the Transaction Agreements, AstraZeneca hereby grants to Moderna a [***], non-exclusive, worldwide, royalty-free right and license in the applicable AstraZeneca Field, with the right to grant sublicenses pursuant to Section 3.6, under the AstraZeneca Background Technology and AstraZeneca Collaboration Technology, solely to perform the Services and Development Pool Services in accordance with the terms of the Transaction Agreements.

3.3 AstraZeneca [***] Technology Licenses by AstraZeneca. Subject to the terms and conditions of the Transaction Agreements, AstraZeneca hereby grants to Moderna a [***], non-exclusive, worldwide right and license, with the right to grant sublicenses pursuant to Section 3.6 only, under the AstraZeneca [***] Technology, to Exploit any mRNA Constructs other than any mRNA Construct [***] a Polypeptide for a Research Target. If Moderna grants a sublicense to a Third Party, Moderna will [***].

3.4 Data and Results for Discontinued Targets; Assignments and Licenses to Discontinued Targets by AstraZeneca.

(a) With respect to each Discontinued Target as of the Amendment Effective Date or, with respect to any Target that becomes a Discontinued Target after the Amendment Effective Date, promptly (but in any event within [***] Business Days) following the Amendment Effective Date, or the date on which such Discontinued Target becomes a Discontinued Target, respectively, AstraZeneca will, to the extent it has not done so previously, provide Moderna with a copy of all data and results generated by or on behalf of AstraZeneca in the course of AstraZeneca’s performance of the Services Program with respect to such Discontinued Target and the applicable Discontinued Polypeptides. With respect to each Discontinued Target as of the Amendment Effective Date and, with respect to any Target that becomes a Discontinued Target after the Amendment Effective Date, AstraZeneca does hereby assign and will assign to Moderna all right, title and interest in and to any Patents within the AstraZeneca Collaboration Technology that relate solely to such Discontinued Target (including the data and results that relate solely to such Discontinued Target provided pursuant to this Section 3.4(a)), to the extent it has not done so previously.

(b) With respect to each Discontinued Target (and subject to Section 2.2(b)), AstraZeneca will grant (and does hereby grant), to Moderna a [***], non-exclusive, worldwide, royalty-free right and license, with the right to grant sublicenses pursuant to Section 3.6 only, under the AstraZeneca Collaboration Technology (other than the AstraZeneca Collaboration Technology assigned pursuant to Section 3.4(a), but including all other data and results with respect to such Discontinued Target provided pursuant to Section 3.4(a)
and under the AstraZeneca [***] Technology, to Exploit any mRNA Construct for a Polypeptide to such Discontinued Target (including any Discontinued Product Candidates or Discontinued Polypeptides for such Discontinued Target) in any field.

3.5 [***]

3.6 Sublicenses.

(a) Sublicensing Rights. Each Party will have the right to grant sublicenses, through multiple tiers of sublicensees, under the licenses granted in Sections 3.1, 3.2, 3.3, and 3.4, in full or in part, to its Affiliates or a Third Party, provided, that as a condition precedent to and requirement of any such sublicense:

(i) In the case of a sublicense to a Third Party, any such sublicense to a Third Party must be pursuant to a written agreement. The Party granting the sublicense will provide the other Party with a redacted copy of any sublicense agreement with a Sublicensee within [***] days of execution thereof;

(ii) The Party granting the sublicense will remain responsible for (i) its obligations under the Transaction Agreements (including with respect to the Commercialization Schedules) even if such obligations are to be performed by a Sublicensee and (ii) adherence by such Sublicensee of any provisions of the Transaction Agreements applicable to the activities of such Third Party as a sublicensee of such Party;

(iii) Any such Sublicensee will agree in writing to be bound by substantially similar obligations as the Party granting the sublicense hereunder with respect to the activities of such Sublicensee within the scope of the license to such Party hereunder (and not with respect to any other activities), including Know-How disclosure obligations of such Party hereunder with respect to the activities of such Sublicensee hereunder; and

(iv) To the extent that a Party grants a sublicense under any intellectual property subject to a Third Party in-license, such sublicense (and such sublicensee) will be subject to such Third Party in-license.

(b) Transfer. The licenses granted in Sections 3.1, 3.2, 3.3, 3.4 and 3.5 are transferable only upon a permitted assignment of this A&R Option Agreement in accordance with Section 14.13.

3.7 Third-Party Agreements; Third-Party Payment Obligations.

(a) [***]

(b) [***]

3.8 AstraZeneca Rights in Bankruptcy. All rights and licenses granted pursuant to any section of this A&R Option Agreement are, and will be deemed to be, licenses of rights to “intellectual property” (as defined in Section 101(35A) of title 11 of the United States Code, 11 U.S.C. § 101, et seq (the “Bankruptcy Code”)) and of any similar provisions of applicable Laws under any other jurisdiction. Moderna agrees that AstraZeneca, as a licensee of such rights and licenses under this A&R Option Agreement, will retain and may fully exercise all of its rights and elections under the Bankruptcy Code (including under Section 365(n) of the Bankruptcy Code).

(a) Embodiments of Intellectual Property. AstraZeneca will have all rights to embodiments of the intellectual property licensed to AstraZeneca under this A&R Option Agreement, as set forth in Section 365(n) of the Bankruptcy Code.

(b) Effect of Bankruptcy Filing. The Parties further agree that, in the event of the commencement of a bankruptcy proceeding by or against Moderna under the Bankruptcy Code or analogous provisions of applicable Law outside of the United States, then unless or until this A&R Option Agreement is rejected or deemed rejected, Moderna or its trustee, pursuant to Section 365(n) of the Bankruptcy Code and upon the written request of AstraZeneca:

(i) will perform this A&R Option Agreement; or

(ii) [***]
Reservation of Rights. Nothing in this Section 3.8 will limit or restrict, or will be construed to limit or restrict, the rights of AstraZeneca under Section 365(n) of the Bankruptcy Code, all of which rights are hereby expressly reserved.

3.9 No Implied Rights. No license, sublicense or other right is or will be created or granted hereunder by implication, estoppel or otherwise. Any licenses, sublicenses or rights will be granted only as expressly provided in the Transaction Agreements. Neither Party nor any of its Affiliates will use or practice any Know-How, Materials or Patents licensed or provided to such Party or any of its Affiliates outside the scope of or otherwise not in compliance with the rights and licenses granted to such Party and its Affiliates under the Transaction Agreements. For clarity, neither Party will be subject to any non-use or non-disclosure obligations with respect to Know-How or Materials if and to the extent that Section 7.1(c) of the A&R Services and Collaboration Agreement applies to such Know-How or Materials.

3.10 Distributors. AstraZeneca will have the right, in its sole discretion, to appoint its Affiliates, and AstraZeneca and its Affiliates will have the right, in their sole discretion, to appoint any other Persons in the Territory or in any country of the Territory, to distribute, market and sell the Products (with or without packaging rights), in circumstances where the Person purchases its requirements of Products from AstraZeneca or its Affiliates but does not otherwise make any royalty or other payment to AstraZeneca with respect to its intellectual property rights or Products (including Moderna Technology). Where AstraZeneca or its Affiliates appoints such a Person and such Person is not an Affiliate of AstraZeneca, that Person will be a “Distributor” for purposes of the Transaction Agreements. The term “packaging rights” in this Section 3.10 will mean the right for the Distributor to package Products supplied in unpackaged bulk form into individual ready-for-sale packs and a Distributor for Moderna will have a corresponding meaning.


4.1 Designation of Product Candidates.

(a) Subject to Section 4.2, and Section 4.4 with respect to [***] Product Candidates, on a Research Polypeptide-by-Research Polypeptide basis, prior to the expiration of the Services Period for such Research Polypeptide, AstraZeneca may elect by written notice to Moderna to designate one Collaboration mRNA Construct [***] such Research Polypeptide as a Product Candidate for further Development under this A&R Option Agreement, provided that such Collaboration mRNA Construct has satisfied the applicable [***] Criteria for such Research Polypeptide, and on such designation such Research Polypeptide will cease to be a Research Polypeptide and will become a Development Polypeptide. Such designation will identify the (i) Product Candidate (including [***]), (ii) Research Target, (iii) Development Polypeptide, (iv) the indications in the CV Field or Oncology Field, as applicable, which have Activity with respect to the applicable Research Target and for which AstraZeneca reasonably believes could be addressed by a Product incorporating such Product Candidate (or any associated Development Pool Candidate), and (v) the route(s) of administration (as defined [***] for which AstraZeneca intends on Developing a Product incorporating such Product Candidate. Upon any such designation, each such Product Candidate, and all other Collaboration mRNA Constructs [***] such Development Polypeptide, will each be a “Development Pool Candidate” hereunder, and all Development Polypeptides, Product Candidates and other Development Pool Candidates existing at any one time until the [***] anniversary of the Implementation Date are collectively referred to herein as the “Development Pool.” If for a Research Polypeptide, a Product Candidate [***] such Research Polypeptide is not included by AstraZeneca in the Development Pool before the end of the applicable Services Period for such Research Polypeptide, then such Research Polypeptide will automatically become a Discontinued Polypeptide and all mRNA Constructs [***] such Research Polypeptide will automatically become Discontinued Product Candidates.

(b) Upon termination of this A&R Option Agreement or the [***] anniversary of the Implementation Date, (i) the Development Pool will end and any Development Pool Candidates remaining therein and their associated Development Polypeptides will automatically become Discontinued Product Candidates and Discontinued Polypeptides, respectively, and (ii) those Research Targets having a Development Polypeptide in the Development Pool will become Discontinued Targets, except for any such Research Target that has an Optioned Product Candidate.

4.2 Development Pool Limit.
(a) The number of Development Polypeptides (and the number of Product Candidates therefor) in the Development Pool each may not exceed [***] at any one time unless otherwise agreed by Moderna.

(b) During the Services Program Term, AstraZeneca may, on written notice to Moderna, (i) elect to [***], or (ii) elect to [***]. If AstraZeneca makes an election under the preceding clause (ii), subject to Section 4.2(a), AstraZeneca can [***].

4.3 Development Pool Diligence. On a Development Polypeptide-by-Development Polypeptide basis, for as long as such Development Polypeptide is in the Development Pool, AstraZeneca, directly or through one or more of its Affiliates or permitted subcontractors, will use Commercially Reasonable Efforts to Develop a Product Candidate for such Development Polypeptide so as to achieve the [***] Option Agreement Effective Date. The Parties acknowledge that the principal Development activities with respect to each Development Polypeptide during such period will be [***].

4.4 Products [***] Collaboration mRNA Constructs and Product Candidates [***].

This Section 4.4 will modify how the terms of the Transaction Agreements, including the Options and Schedule A, are applied with respect to certain Research Targets, Research Polypeptides, Development Polypeptides, Collaboration mRNA Constructs, Products and Product Candidates.

(a) Prior to the expiration of the Services Program Term, AstraZeneca may elect to Exploit a [***] Product Candidate that contains [***] Collaboration mRNA Constructs, [***], as follows:

(i) AstraZeneca may elect to Develop [***] as a [***] Product Candidate by providing written notice to Moderna of same, which notice will include the Collaboration mRNA Constructs to be included in such [***] Product Candidate, which may be [***].

(ii) Each [***] a Collaboration mRNA Construct in such [***] Product Candidate will be treated as [***] Research Polypeptide for all purposes under the Transaction Agreements, (including [***]).

(iii) [***] must be a Research Target but with respect to a [***] Product Candidate, the [***] addressed by such [***] Product Candidate will be a [***] Target and treated as [***] Research Target for all purposes under the Transaction Agreements (except [***]). For example, [***], provided that if [***]. Development Pool Candidates will be used in connection with [***] Product Candidate for [***] AstraZeneca Exclusive Target.

(iv) If AstraZeneca selects for Development a [***] Product Candidate comprised of [***], on and following the selection of such [***], (A) [***] and (B) [***].

(v) If AstraZeneca elects to Develop a [***] Product Candidate comprised of [***], upon such [***] Product Candidate [***], (A) the [***] and (B) the [***].

(b) AstraZeneca may elect to [***], as follows:

(i) [***]

(ii) [***]

(c) With respect to any [***] Product Candidate or [***] Product, the following will apply:

(i) Subject to clause (iv) below, to have the right to Develop and Commercialize a [***] Product Candidate and [***] Product after the [***] Option Agreement Effective Date, AstraZeneca will be required to [***].

(ii) Subject to clause (iv) below, the Contingent Event Option Exercise Payments under Paragraph 2.2 (Schedule A) and the Option Exercise Earn-Out payments under Paragraph 2.3 (Schedule A) after Option exercise will be [***]; and
(iii) Subject to clause (iv) below, the exclusivity obligations in Section 5, and the license grants in Section 3.1 will be [***];

(iv) If AstraZeneca wishes to Develop a [***] Product Candidate, but also wishes to [***], AstraZeneca may by written notice to Moderna [***], elect to [***] under the Transaction Agreements, [***], the following will apply:

(A) To have the right to Develop and Commercialize after the [***] Option Agreement Effective Date, a [***] Product Candidate comprised [***], AstraZeneca will be required to exercise an Option (and for clarity, pay the Initial Payment for such Option exercise as provided in this A&R Option Agreement) for [***], but will not be required to exercise an Option for [***] Product Candidate [***].

(B) Each Contingent Event Option Exercise Payment under Paragraph 2.2 (Schedule A) will be payable for each [***], provided that [***]. For example, [***].

(C) With respect to [***], the license grants and exclusivity obligations under the Transaction Agreements for [***] will apply to [***]. With respect to [***], the license grants and exclusivity obligations under the Transaction Agreements [***] will apply only to the [***] Product Candidate.

4.5 Development Pool Meetings and Reports.

(a) [***] during each Contract Year until the end of the [***] Contract Year, within [***] days of Moderna’s written request, the Parties will meet in person [***] for AstraZeneca to provide Moderna with an update on the Development of Product Candidates in the Development Pool. During such meeting, AstraZeneca will disclose to Moderna a summary of all material information regarding such Development.

(b) AstraZeneca will prepare and maintain, and will cause its Affiliates to prepare and maintain, reasonably complete and accurate records regarding the Development of Product Candidates in the Development Pool. AstraZeneca will provide to Moderna a reasonably detailed report regarding such efforts at least [***] each Calendar Quarter every Contract Year from the Implementation Date while the Development Pool is in existence. Such report will contain sufficient detail to enable Moderna to assess AstraZeneca’s compliance with its Development obligations in Section 4.3, including summary information relating to [***]. In addition to the foregoing, AstraZeneca will provide Moderna with interim information regarding any such activities as Moderna may reasonably request from time to time.

4.6 Permitted Subcontracting. Subject to the other terms of the Transaction Agreements, including Section 2.12 of the A&R Services and Collaboration Agreement, Moderna may subcontract the Development Pool Services (if any) to a Third Party, AstraZeneca may subcontract any Development activities to a Third Party, and each Party may otherwise subcontract any of its activities to be performed under this A&R Option Agreement to an Affiliate, in each case provided that (a) no such permitted subcontracting shall relieve the subcontracting Party of any of its obligations (except to the extent satisfactorily performed by such subcontractor) and (b) any such Third Party will have entered into a written agreement with such Party that includes terms and conditions protecting and limiting use and disclosure of Confidential Information and Materials and Know-How at least to the same extent as under this A&R Option Agreement and the A&R Services and Collaboration Agreement, and requiring such Third Party and its personnel to assign to such Party all right, title and interest in and to any Patents, Know-How and Materials created, conceived or developed in connection with the performance of subcontracted activities to the extent required to Develop and Commercialize Product Candidates. Any such subcontracting activities will be [***]. To the extent that any subcontractor needs a sublicense to perform the Development Pool Services, Section 3.6 will apply.

5. Exclusivity.

5.1 [***] AstraZeneca Exclusive Target. From the Implementation Date until the earlier of (a) [***] and (b) the date on which [***] AstraZeneca Exclusive Target becomes a Discontinued Target, Moderna will not [***]. This Section 5.1 will not preclude Moderna (alone or by or with other(s) by license or otherwise) from conducting such assays or other research as reasonably necessary to maintain compliance with this Section 5.1.

5.2 AstraZeneca CV Targets and the AstraZeneca Oncology Target.
5.3 Development Polypeptides. On a Polypeptide-by-Polypeptide basis, from the date on which a Polypeptide becomes a Development Polypeptide, until the earlier to occur of (i) [***] and (ii) the date on which such Development Polypeptide becomes a Discontinued Polypeptide, each Party will not [***] such Development Polypeptide for use in any field, in each case other than, with respect to Moderna, as a part of the Services, Development Pool Services (if applicable) and Manufacturing activities and, with respect to AstraZeneca, as a part of the Exploitation of Collaboration mRNA Constructs, in each case as provided for in the Transaction Agreements.


6.1 Grant of Options. On the Implementation Date, Moderna granted to AstraZeneca pursuant to the Original Option Agreement, forty (40) identical Options to purchase a Product Candidate (and all associated Development Pool Candidates) in exchange for the Option Purchase Price for each such Option.

6.2 Definition of Options. AstraZeneca will have the right to Develop and Commercialize up to forty (40) Product Candidates (and all associated Development Pool Candidates) in the applicable AstraZeneca Field if (i) AstraZeneca provides Moderna with the AstraZeneca Option Notice and (ii) AstraZeneca pays Moderna the Exercise Price pursuant to Section 6.5, whereupon the Commercialization Schedules will apply (each an “Option” and collectively the “Options”). As of the Amendment Effective Date, AstraZeneca has exercised one Option to purchase a Product Candidate for [***] and there are thirty-nine remaining Option under this A&R Option Agreement.

6.3 Option Purchase Price.

(a) Initial AstraZeneca Payment for the Options. Under the Original Option Agreement, AstraZeneca paid to Moderna, a one-time payment of [***] for each of the forty (40) Options, for an aggregate
amount equal to [***] (such aggregate amount, the “Initial Options Purchase Price”). Such payments are non-refundable and non-creditable and not subject to set-off.

(b) Contingent Deferred Option Purchase Payments.

(i) AstraZeneca has made two payments to Moderna totaling One Hundred Twenty Million Dollars (U.S.$120,000,000) upon the occurrence of two Development Events (as defined and pursuant to the Original Option Agreement) related to [***] (each such payment, a “Contingent Deferred Option Purchase Payment”).

(ii) Definition. The “Option Purchase Price” for each of the forty (40) Options will be equal to the sum of (1) [***] plus (2) the fair market value of the right to receive [***] of the Contingent Deferred Option Purchase Payments paid under the Original Option Agreement.

6.4 Option Exercise Period. With respect to any Development Polypeptide, each Option may be exercised by AstraZeneca during the period commencing on the date that a Development Polypeptide and associated Product Candidate is included in the Development Pool until [***] days after the [***] Option Agreement Effective Date for the first Product Candidate (or any other Collaboration mRNA Construct) [***] such Development Polypeptide (the applicable “Option Exercise Period” for such Development Polypeptide), subject to Section 6.9.

6.5 Option Exercise Price.

(a) Exercise Price. AstraZeneca will pay to Moderna the Exercise Price upon the exercise of each Option, as further set forth in Section 6.5(b) and Schedule A for the Optioned Product Candidate (and associated other Development Pool Candidates) subject to such Option.

(b) Initial Payment of the Exercise Price. For each Option, within [***] of AstraZeneca’s issuance of an AstraZeneca Option Notice, AstraZeneca will pay to Moderna Ten Million Dollars (U.S.$10,000,000) (the “Initial Payment” for each Option exercised). Such payment will be non-refundable and non-creditable and not subject to set-off, subject to Section 11.16 of the A&R Services and Collaboration Agreement. As of the Amendment Effective Date, AstraZeneca has paid Moderna [***] in connection with the exercise of [***] to purchase [***] (and associated other Development Pool Candidates) for the AstraZeneca Exclusive Target.

6.6 Option Exercise. Upon AstraZeneca (a) providing notice to Moderna in writing which Product Candidate is being selected by AstraZeneca to be an Optioned Product Candidate hereunder (along with all associated Development Pool Candidates), and identifying the applicable Product Candidate and Development Polypeptide and the applicable AstraZeneca Field (“AstraZeneca Option Notice”), and (b) paying to Moderna the Initial Payment, whereupon the Commercialization Schedules will apply to the Commercialization of such Product Candidate and the other items specified thereon, an Option will be exercised. Moderna will only have the right to object to an AstraZeneca Option Notice if the Product Candidate selected by AstraZeneca does not satisfy the definition of a Product Candidate in Section 1.81 or the AstraZeneca Option Notice does not otherwise comply with the notice requirements in this Section 6.6. If Moderna properly objects to such AstraZeneca Option Notice in writing within [***] of receipt thereof, the Parties will discuss Moderna’s objections. If Moderna fails to properly object to such AstraZeneca Option Notice in writing within [***] of receipt thereof, AstraZeneca may proceed with the Product Candidate selected. A separate AstraZeneca Option Notice and payment of the Initial Payment will be required for each Development Polypeptide and the first Product Candidate with respect thereto selected by AstraZeneca pursuant to this Section 6.6. If AstraZeneca does not issue an AstraZeneca Option Notice and pay the Initial Payment with respect to a Product Candidate [***] a Development Polypeptide during the Option Exercise Period for such Development Polypeptide, the right to exercise such Option and other rights granted to AstraZeneca under this A&R Option Agreement and the other Transaction Agreements with respect to such Product Candidate will terminate in full and will no longer be exercisable and such Development Polypeptide and the Product Candidate and other Development Pool Candidates for such Development Polypeptide will be automatically re-designated as a Discontinued Polypeptide and Discontinued Product Candidates, respectively.
6.7 Purchasing a Product Candidate. If AstraZeneca wishes to file an IND for a Product Candidate but at the time of such filing forty (40) Product Candidates are being further Developed or Commercialized in accordance with the Commercialization Schedules, the Parties will discuss in good faith how AstraZeneca may purchase the right to continue to Develop and Commercialize an additional Product Candidate for a purchase price equal to the fair market value of such Product Candidate (which purchase price will include at a minimum an initial payment of $***). There will not be more than $*** of such purchases.

6.8 Commercialization Provisions.

(a) Immediately upon AstraZeneca’s delivery of an AstraZeneca Option Notice with respect to a Development Pool Candidate, and AstraZeneca paying Moderna the Initial Payment with respect to a Product Candidate, AstraZeneca (or an Affiliate designated by AstraZeneca) will have the right to Commercialize such Optioned Product Candidate (and all associated Development Pool Candidates) in accordance with the Commercialization Schedules. If an Option is exercised for a Development Polypeptide, the Development Polypeptide and Development Pool Candidates will cease to be in the Development Pool, but the applicable Research Target will not become a Discontinued Target. AstraZeneca will not have the right to Commercialize a Product Candidate or any other mRNA Construct under any of the Transaction Agreements unless and until AstraZeneca (x) properly provided an AstraZeneca Option Notice in the proper form identifying a Collaboration mRNA Construct such Polypeptide, and (y) properly paid Moderna the Initial Payment with respect to such Product Candidate.

(b) Prior to selection of a Product Candidate for the AstraZeneca Oncology Target, the Parties will negotiate in good faith on reaching agreement and will update this A&R Option Agreement to address the following:

(i) For those Products a Polypeptide for the AstraZeneca Oncology Target, the Contingent Event Option Exercise Payments in Paragraph 2.2 of Schedule A as of the Signing Date assume that [***]. Consequently, for those Products a Polypeptide for the AstraZeneca Oncology Target that will not be [***]:

(A) 

(B) 

(C) 

6.9 [***] Internal Revenue Code of 1986, as amended (the “Code”)[***]

6.10 Option Termination on [***] Anniversary. Notwithstanding anything in any of the Transaction Agreements to the contrary, all unexercised Options, and the right to exercise any and all Options if not previously exercised, will automatically terminate on the [***] anniversary of the Implementation Date.

7. Tax Matters.

7.1 [***]

7.2 [***]

7.3 Indirect Taxes. Notwithstanding anything to the contrary contained in Section 7.2 or elsewhere in this A&R Option Agreement, the following will apply with respect to Indirect Taxes. All payments hereunder are exclusive of Indirect Taxes. If any Indirect Taxes are chargeable in respect of any such payments, AstraZeneca will pay such Indirect Taxes at the applicable rate in respect of any such payments following the receipt, where applicable, of an Indirect Taxes invoice issued by Moderna in respect of those payments, such Indirect Taxes to be payable on the due date of the payment of the payments to which such Indirect Taxes relate or at the time such Indirect Taxes are required to be collected by Moderna, in the case of payment of Indirect Taxes to Moderna. The Parties will issue invoices for all goods and services supplied under this A&R Option Agreement consistent with Indirect Tax requirements, and to the extent any invoice is not initially issued in an
appropriate form, AstraZeneca will promptly inform Moderna and will cooperate with Moderna to provide such information or assistance as may be necessary to enable the issuance of such invoice consistent with Indirect Tax requirements.

8. **Regulatory Responsibilities.**

8.1 **In General.** As set forth in greater detail below in this Section 8, AstraZeneca will lead and have sole control of all regulatory efforts for Collaboration mRNA Constructs, Product Candidates, and Products worldwide, including with respect to preparing and filing the relevant Regulatory Filings and all communications with Regulatory Authorities.

8.2 **Regulatory Filings.** AstraZeneca will be responsible for preparing and submitting all Regulatory Filings related to Collaboration mRNA Constructs, Product Candidates, and Products, including all applications for Regulatory Approval. All applications for Regulatory Approval, the Regulatory Approvals, and other Regulatory Filings (including all INDs) relating to Collaboration mRNA Constructs, Product Candidates, and Products will be the property of AstraZeneca and held in the name of AstraZeneca or its designees.

8.3 **Interactions with Regulatory Authorities.** AstraZeneca will have the sole right to conduct all communications with the Regulatory Authorities, including all meetings, conferences and discussions (including advisory committee meetings), with regard to Collaboration mRNA Constructs, Product Candidates, and Products in the Territory.

8.4 **Moderna Regulatory Responsibilities Related to Manufacture.** Consistent with the provisions of Section 4.10 of the A&R Services and Collaboration Agreement, Moderna will, at its sole cost and expense, obtain and maintain all approvals, licenses, registrations, or authorizations (other than the Regulatory Approval for a Product) that are necessary or useful in connection with the Manufacture of Collaboration mRNA Constructs, Product Candidates, and Products by or on behalf of Moderna. In addition, [***], Moderna will, when and as requested by AstraZeneca, prepare the Chemistry, Manufacturing, and Controls (“CMC”) and other Manufacturing provisions with respect to all Regulatory Filings for, or that are otherwise necessary to obtain and maintain, Regulatory Approvals for the Products, including with respect to any Manufacture and supply of Collaboration mRNA Constructs, Product Candidates, and Products by or on behalf of Moderna pursuant to Section 4 of the A&R Services and Collaboration Agreement, including any amendments with respect thereto as AstraZeneca may request from time to time. As set forth in greater detail in Section 4.10 of the A&R Services and Collaboration Agreement, the CMC section of a Regulatory Approval for a Product may reference Moderna’s DMF for such Product.

9. **Intellectual Property.**

The Parties acknowledge and agree that the provisions of Section 2.5 of the A&R Services and Collaboration Agreement will govern the ownership of Patents, Know-How and other intellectual property generated by or on behalf of a Party under or in connection with this A&R Option Agreement.

10. **Patent Prosecution, Maintenance, Enforcement and Defense.**

10.1 **Joint Patent Committee.**

(a) As soon as practicable (but not later than [***] days) following the Implementation Date, the Parties will establish a joint patent committee (the “Joint Patent Committee” or “JPC”), comprised of an equal number of members from each Party of which (i) at least one member from each Party will have experience in the prosecution, enforcement and defense of intellectual property rights in the biopharmaceutical field, and (ii) one or members may be consultants or counsel to a Party. The JPC will serve as the primary contact and forum for discussion between the Parties with respect to the [***] Collaboration Technology and have the particular responsibilities set forth in this Section 10 (“IP Matters”). Without limitation, the JPC will:

(i) (A) oversee and coordinate the Prosecution and Maintenance of [***]; (B) facilitate the extension of [***]; (C) facilitate the listing of [***]; and (D) facilitate and coordinate [***];

(ii) determine whether [***]; for clarity, it is understand and agreed that [***];
seek to resolve disputes between the Parties regarding [***];

implement procedures in order to comply with applicable Law in any country in the Territory with respect to actions taken by the Parties with respect to Biosimilar Applications under Section 10.5, including procedures necessary to comply with more rigorous timing requirements than those set forth in Section 10.5(b)(ii);

consider ownership and Prosecution and Maintenance of jointly owned Collaboration Technology;

keep the JSC reasonably informed of all material matters relating to IP Matters; and

(b) The JPC will meet as often as agreed by them (and at least [***]) to enable the Parties to carry out their rights and obligations under this Section 10.1. The JPC will determine by unanimous consent the JPC operating procedures at its first meeting, including the JPC’s policies for replacement of JPC members, and the location of meetings. Such procedures will be recorded in the written minutes of the first JPC meeting and will be updated as agreed by the JPC.

(c) The JPC members will use reasonable efforts to reach agreement on all IP Matters, but if a matter within the jurisdiction of the JPC cannot be reached by the JPC within [***] after the JPC first considers such matter (or such shorter period as may be reasonable in the circumstances), then, upon the written request of a Party, such matter will be referred to the Executive Officers (or their designees, which designee is required to have decision-making authority on behalf of such Party), who will attempt in good faith to resolve such dispute by negotiation and consultation for a [***] period following receipt of such written notice. If, despite such efforts, agreement on a particular matter cannot be reached by the Executive Officers within such [***] period, the matter will be resolved pursuant to [***].

(d) With respect to any IP Matter not resolved pursuant to Section 10.1(c), either Party may elect to have such dispute be finally settled by [***].

10.2 Prosecution and Maintenance.

(a) Moderna General Background Patents.

(i) Moderna will have the sole right, but not the obligation, in consultation with the JPC and using counsel of its choosing, to Prosecute and Maintain all Moderna General Background Patents throughout the Territory.

(ii) [***]

(iii) Moderna will be solely responsible for the Patent Costs incurred by Moderna in connection with this Section 10.2(a).

10.3 Patent Extensions. With respect to any election for patent term restoration or extension, supplemental protection certificate or any of their equivalents, (a) AstraZeneca will have the sole right to make any such decision relating to the [***]; (b) Moderna will have the right to make any such decision relating to the [***] and (c) AstraZeneca will have the right to make any such decision relating to the [***]. Upon the request by a Party, such other Party through the JPC will reasonably cooperate in the implementation of such requesting Party’s decisions under this Section 10.3.

10.4 Patent Listings. With respect to any filings made to Regulatory Authorities with respect to the [***] for any Product, including as required or allowed in connection with in the United States, the FDA’s Orange Book, if applicable, or outside the United States, other international equivalents: (a) AstraZeneca will have the sole right to make all decisions regarding such filings relating to the [***]; and (b) each Party may make such listings regarding any [***] as each Party deems is appropriate. Upon the request by a Party, such other Party will reasonably cooperate in the implementation of such requesting Party’s decisions regarding the filing and listing of [***] pursuant to this Section 10.4.
10.5 Enforcement and Defense.

(a) Notice. Each Party will promptly notify, in writing, the other Party through the JPC upon learning of any actual or suspected Competitive Infringement by a Third Party, [***], and will, along with such notice, supply Moderna with any evidence in its possession pertaining thereto, and, subject to the terms of this Section 10.5, the JPC will discuss in good faith strategies for abating such Competitive Infringement.

(b) Enforcement.

(i) As between the Parties, [***].

(ii) If either Party receives a copy of a Biosimilar Application naming a Product as a reference product or otherwise becomes aware that such a Biosimilar Application has been filed (such as in an instance described in Section 351(1)(9)(C) of the PHSA), if the Exploitation of such Product as described in such Biosimilar Application would amount to Competitive Infringement, the remainder of this Section 10.5(b)(ii) will apply; otherwise, Section 10.5(b)(iv) will apply. [***] Such Party will, within [***], notify the other Party through the JPC. Moderna will then seek permission to view the application and related confidential information from the filer of the Biosimilar Application under Section 351(l)(B)(iii) of the PHSA. If either Party receives any equivalent or similar certification or notice in the United States or any other jurisdiction, either Party will, within [***], notify and provide the other Party through the JPC copies of such communication. Regardless of the Party that is the “reference product sponsor” for purposes of such Biosimilar Application:

(A) [***]

(iii) The Parties recognize that procedures other than those set forth above in Section 10.5(b)(ii) may be applicable to Biosimilar Applications that are not governed by the PHSA. As a result, in the event that the JPC determines that certain provisions of Law in the United States or in any other country in the Territory are applicable to actions taken by the Parties with respect to Biosimilar Applications under Section 10.5(b)(ii) in such country, the Parties will comply with any such applicable Law in such country (and any relevant and reasonable procedures established by the JPC) in exercising their rights and obligations with respect to Biosimilar Applications under Section 10.5(b)(ii).

(iv) For that Competitive Infringement that is field limited per the definition thereof, if [***] is not [***] then [***].

(c) Defense. As between the Parties, [***].

(d) Withdrawal, Cooperation and Participation. With respect to any infringement or defensive action identified above in this Section 10.5 and subject to the terms of this Section 10.5:

(i) If the controlling Party ceases to pursue or withdraws from such action, it will promptly notify the other Party through the JPC (in sufficient time to enable the other Party to meet any deadlines by which any action must be taken to preserve any rights in such infringement or defensive action (including any such period of time as is required to comply with the provisions of Section 10.5(b)(ii)) and such other Party may substitute itself for the withdrawing Party and proceed under the terms and conditions of this Section 10.5.

(ii) The non-controlling Party will cooperate with the Party controlling any such action (as may be reasonably requested by the controlling Party), including [***]. The Party controlling any such action will keep the other Party updated with respect to any such action, including providing copies of all documents received or filed in connection with any such action.

(iii) Each Party will have the right to participate or otherwise be involved in any such action controlled by the other Party, in each case at the participating Party’s sole cost and expense and by counsel of its choosing. If a Party elects to so participate or be involved, the controlling Party will provide the participating Party and its counsel with an opportunity to consult with the controlling Party and its counsel regarding the prosecution of such action (including reviewing the contents of any correspondence, legal papers or other documents related thereto), and the controlling Party will take into account reasonable requests of the participating Party regarding such enforcement or defense.
(e) *Settlement.* With respect to any infringement or defensive action identified above in this Section 10.5, the Party controlling such action will have the right to settle or otherwise dispose of such action on such terms as such Party will determine in its sole discretion, including, [***]; provided that, notwithstanding the foregoing, no such settlement or other disposition will (i) impose any restriction or obligation on or admit fault of the other Party and (ii) adversely affect the scope, validity or enforcement of any [***], in each case (i) and (ii) without the prior written consent of the other Party (such consent not to be unreasonably withheld, delayed or conditioned).

(f) *Damages.* Unless otherwise agreed by the Parties, all monies recovered upon the final judgment or settlement of any action described in Section 10.5(b) or any action described in Section 10.5(c) will be used first to reimburse each of the Parties on a pro rata basis for each of their out-of-pocket costs and expenses relating to the action, with the balance of any such recovery to be divided as follows:

(i) To the extent such recovery reflects [***];

(ii) To the extent such recovery reflects [***]; and

(iii) For the remainder of any such recovery, [***].

10.6 *Third Party Rights.* Notwithstanding the foregoing provisions of this Section 10, each Party’s rights and obligations with respect to the [***] will be subject to the Third Party rights and obligations under any Third Party agreements under which either Party enters into pursuant to Section 2.6 of the A&R Services & Collaboration Agreement or is otherwise applicable to the [***]; provided, however, that, [***].

10.7 [***]

11. *Confidentiality.*

The Parties acknowledge and agree that terms of this A&R Option Agreement and all Confidential Information transferred, disclosed or made available by a Disclosing Party to a Receiving Party (or behalf of the Receiving Party to its Affiliates or a Third Party) under this A&R Option Agreement will be subject to the provisions of Section 7 of the A&R Services and Collaboration Agreement.

12. *Representations and Warranties; Covenants; Limitations of Liability; Indemnification.*

12.1 *Representations and Warranties of Each Party.* Each Party represents, warrants and covenants to the other as of the Signing Date and the Amendment Effective Date that:

(a) Such Party is duly organized, validly existing and in good standing under the laws of the jurisdiction in which it is organized.

(b) Such Party (i) has the legal right and power to enter into this A&R Option Agreement, to extend the rights granted or to be granted to the other in this A&R Option Agreement, and to fully perform its obligations hereunder, and (ii) has taken all requisite action on its part to authorize the execution and delivery of this A&R Option Agreement and the performance of its obligations hereunder. This A&R Option Agreement has been duly executed and delivered on behalf of such Party, and constitutes a legal, valid and binding obligation, enforceable against such Party in accordance with its terms, except as may be limited by bankruptcy, insolvency, reorganization or other laws affecting creditors’ rights generally and by general equitable principles.

(c) Neither such Party nor its Affiliates has been debarred or is subject to debarment. Neither it nor its Affiliates will use in any capacity, in connection with the services to be performed under the Transaction Agreements, any person who has been debarred pursuant to Section 306 of the FFDCA, or who is the subject of a conviction described in such section. In addition, neither it nor its Affiliates has used in any capacity, in connection with any Development activities with respect to the mRNA Technology or any Polypeptide carried out prior to the Signing Date, any person who has been debarred or was the subject of a conviction described in Section 306. Such Party agrees to inform the other Party in writing immediately if it or any person who is performing services under the Transaction Agreements is debarred or is the subject of a conviction described in Section 306, or if any action, suit, claim, investigation or legal or administrative proceeding is pending or, to the
best of such Party’s or its Affiliates’ Knowledge, is threatened, relating to the debarment or conviction of such Party or any person performing services under the Transaction Agreements, or if such Party becomes aware that it or any person performing Development activities with respect to an mRNA Construct, Polypeptide, Product Candidate or Product carried out prior to the Signing Date was debarred or was the subject of a conviction described in Section 306.

(d) All necessary consents, approvals and authorizations of all governmental authorities and other Persons required to be obtained by such Party to enter into, or perform its obligations under, this A&R Option Agreement have been obtained.

(e) The execution and delivery of this A&R Option Agreement and the performance of such Party’s obligations hereunder (i) will not conflict with or violate any requirement of applicable Law or orders of governmental bodies except as individually or in the aggregate would not be reasonably expected to have a material adverse effect on or a material adverse change in the ability of such Party to perform its obligations under or with respect to this A&R Option Agreement, and (ii) do not conflict with, or constitute a default under, any contractual obligation of such Party, except as individually or in the aggregate would not have a material adverse effect on or a material adverse change in the ability of such Party to perform its obligations under or with respect to this A&R Option Agreement.

(f) Each Party covenants to the other Party that it will conduct its business in the ordinary course, consistent with past practices, during the period from the Signing Date until the Implementation Date. Each Party covenants to the other Party that it will use its reasonable efforts to ensure that its representations and warranties set forth in this Section 12.1 remain true and correct at and as of the Implementation Date as if such representations and warranties were made at and as of the Signing Date.

12.2 Representations and Warranties of Moderna. Moderna hereby represents, warrants and covenants to AstraZeneca as follows:

(a) All Patents which are owned or in which Moderna has an ownership interest existing as of the Signing Date (the “Existing Patents”) are listed on Schedule 1.101 of the A&R Services and Collaboration Agreement and all Existing Patents are owned solely or jointly by Moderna and are Controlled to the extent owned by Moderna; Existing Patents that are jointly owned are marked on such Schedule.

(b) Moderna is the sole and exclusive owner of, or is solely and exclusively licensed to, the entire right, title and interest in all the Know-How (other than (i) [***], (ii) [***], and (iii) [***]) used by Moderna in connection with the Exploitation of mRNA Constructs as of the Signing Date (the “Existing Know-How”), and all Existing Know-How is Controlled by Moderna.

(c) As of the Signing Date, Moderna is entitled to grant the rights and licenses set forth in the Transaction Agreements. As of the Signing Date, the Existing Patents and the Existing Know-How are not subject to any encumbrance or lien or, or to the Knowledge of Moderna, claim of ownership by any Third Party. Neither Moderna nor any of its Affiliates has before the Signing Date entered into any agreement, whether written or oral, with respect to, or otherwise assigned, transferred, licensed, conveyed, or otherwise encumbered its right, title, or interest in to [***], and it will not after the Signing Date enter into any such agreements, grant any such right, title, or interest to any Person that is in conflict with the rights and licenses granted to AstraZeneca under the Transaction Agreements.

(d) To the Knowledge of Moderna, (i) the Existing Patents are subsisting as of the Signing Date; and (ii) the conception, development and reduction to practice of the Existing Know-How and the Existing Patents, in each case as of the Signing Date, [***].

(e) The pending applications included in the Existing Patents are as of the Signing Date being diligently prosecuted in good faith before the respective patent offices in accordance with applicable Law, and Moderna and its Affiliates have presented to the extent required as of the Signing Date all relevant references, documents and information of which it and the inventors are aware to the respective patent offices. As of the Signing Date, the Existing Patents have been filed and maintained and all applicable fees have been paid on or before the due date for payment. [***]
(f) As of the Signing Date, to the Knowledge of Moderna, there is [***]. The trade secrets used by Moderna as of the Signing Date has been kept confidential or has been disclosed to Third Parties only under terms of confidentiality and, to the Knowledge of Moderna and its Affiliates, no breach of such confidentiality has been committed by any Third Party.

(g) As of the Signing Date, no Third Party claim or litigation has been brought or threatened by any Person alleging that (i) the Existing Patents or the Existing Know-How are invalid or unenforceable, or (ii) the conception, development, reduction to practice, disclosing, copying, making, assigning, or licensing of the Existing Patents or the Existing Know-How, or the Exploitation of mRNA Constructs, Product Candidates or Products as contemplated in the Transaction Agreements, violates, infringes, constitutes misappropriation or otherwise conflicts or interferes with, or would violate, infringe, or otherwise conflict or interfere with, any intellectual property or proprietary right of any Person.

(h) [***]

(i) All current and former officers, employees, agents and consultants of Moderna or any of its Affiliates who are inventors of or have otherwise contributed in a material manner to the creation or development of any Existing Patent or Existing Know-How or who are or will be performing activities on behalf of Moderna hereunder or who otherwise have access to any Confidential Information of AstraZeneca have executed and delivered to Moderna an obligation to assign or an assignment of rights (or are bound [***]) to any and all Patents, Know-How or other information that relate to mRNA Constructs and are generated pursuant to and during the time of such person’s relationship with Moderna or its Affiliate, such that AstraZeneca will, by virtue of the Transaction Agreements, receive from Moderna, without payments beyond those required by the Transaction Agreements, the licenses and other rights granted to AstraZeneca under the Transaction Agreements. To Moderna’s Knowledge, as of the Signing Date, no current officer, employee, agent, or consultant of Moderna or any of its Affiliates is in violation of any term of any assignment or other agreement regarding the protection of Patents or other intellectual property or proprietary information of Moderna or such Affiliate or of any employment contract or any other contractual obligation relating to the relationship of any such Person with Moderna.

(j) The inventions claimed or covered by the Existing Patents (i) were not discovered, developed, or otherwise made in connection with any research activities funded, in whole or in part, by [***], and (ii) [***], and (c) are not [***].

(k) There are no license agreements or other agreements as of the Signing Date pursuant to which Moderna is sublicenseing the [***] to AstraZeneca.

(l) As of the Signing Date, neither Moderna nor any of its Affiliates, nor any of its or their respective officers, employees, consultants or agents has made an untrue statement of material fact or fraudulent statement to the FDA or any other Regulatory Authority with respect to the mRNA Technology or the Development of mRNA Constructs, failed to disclose a material fact required to be disclosed to the FDA or any other Regulatory Authority with respect to the mRNA Technology or the Development of mRNA Constructs.

(m) [***]

12.3 Moderna Corporate Covenants.

(d) This Section 12.3 will terminate, and be of no further force or effect (a) immediately before the consummation of Moderna’s (or its Affiliate’s) first underwritten public offering of its Common Stock under the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder, (b) when Moderna first becomes subject to the periodic reporting requirements of Section 12(g) or 15(d) of the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder, or (c) immediately before a Business Combination of Moderna.

12.4 Disclaimers. Without limiting the respective rights and obligations of the Parties expressly set forth herein, each Party specifically disclaims any guarantee that an Optioned Product Candidate will be successful, in whole or in part. EXCEPT AS OTHERWISE EXPRESSLY
Provided in this A&R Option Agreement, the parties make no representations and extend no warranty of any kind, either express or implied, with respect to any Moderna technology, product candidates, or materials, including warranties of validity or enforceability of any patents, title, quality, merchantability, fitness for a particular use or purpose, performance, and noninfringement of any third party patents or other intellectual property rights.

12.5 No Consequential Damages. Notwithstanding anything in this A&R Option Agreement, except for damages due to the fraud or willful misconduct of the liable party, neither party will be liable to the other or any third party with respect to any subject matter of this A&R Option Agreement for any indirect, punitive, special or consequential damages, even if such party has been informed or should have known of the possibility of such damages; provided that this section 12.5 will not apply to the parties’ indemnification rights and obligations under the A&R Services and Collaboration Agreement.

12.6 Indemnification.

(a) Indemnification by AstraZeneca. AstraZeneca will indemnify Moderna, its Affiliates and their respective directors, officers, employees, Third Party licensors under the Existing In-License Agreements and agents, and their respective successors, heirs and assigns (collectively, “Moderna Indemnities”), and defend and save each of them harmless, from and against any and all losses, damages, liabilities, costs and expenses (including reasonable attorneys’ fees and expenses) (collectively, “Losses”) in connection with any and all suits, investigations, claims or demands of Third Parties (collectively, “Third Party Claims”) arising from or occurring as a result of: [***], except in each case for those Losses for which Moderna has an obligation to indemnify AstraZeneca pursuant to Section 12.6(b), the A&R Services and Collaboration Agreement or the Original Agreements (or would have had such Third Party Claim been made against AstraZeneca), as to which Losses each Party will indemnify the other to the extent of their respective liability; provided, however, that AstraZeneca will not be obligated to indemnify Moderna Indemnities for any Losses to the extent that such Losses arise as a result of gross negligence or willful misconduct on the part of a Moderna Indemnitee.

(b) Indemnification by Moderna. Moderna will indemnify AstraZeneca, its Affiliates and their respective directors, officers, employees and agents, and their respective successors, heirs and assigns (collectively, “AstraZeneca Indemnities”), and defend and save each of them harmless, from and against any and all Losses in connection with any and all Third Party Claims arising from or occurring as a result of: [***], except in each case for those Losses for which AstraZeneca has an obligation to indemnify Moderna pursuant to Section 12.6(a), the A&R Services and Collaboration Agreement or the Original Agreements (or would have had such Third Party Claim been made against Moderna), as to which Losses each Party will indemnify the other to the extent of their respective liability for the Losses; provided, however, that Moderna will not be obligated to indemnify AstraZeneca Indemnities for any Losses to the extent that such Losses arise as a result of (1) gross negligence or willful misconduct on the part of an AstraZeneca Indemnitee or (2) [***].

(c) Notice of Claim. All indemnification claims provided for in Section 12.6(a) and 12.6(b) will be made solely by such Party to this A&R Option Agreement (the “Indemnified Party”). The Indemnified Party will promptly notify the indemnifying Party (an “Indemnification Claim Notice”) of any Losses or the discovery of any fact upon which the Indemnified Party intends to base a request for indemnification under Section 12.6(a) or 12.6(b), but in no event will the indemnifying Party be liable for any Losses that result from any delay in providing such notice. Each Indemnification Claim Notice must contain a description of the claim and the nature and estimated amount of such Loss (to the extent that the nature and amount of such Loss is known at such time). The Indemnified Party will furnish promptly to the indemnifying Party copies of all papers and official documents received in respect of any Losses and Third Party Claims.

(d) Defense, Settlement, Cooperation and Expenses.

(i) Control of Defense. At its option, the indemnifying Party may assume the defense of any Third Party Claim by giving written notice to the Indemnified Party within [***] days after the
indemnifying Party’s receipt of an Indemnification Claim Notice. The assumption of the defense of a Third Party Claim by the indemnifying Party will not be construed as an acknowledgment that the indemnifying Party is liable to indemnify the Indemnified Party in respect of the Third Party Claim, nor will it constitute a waiver by the indemnifying Party of any defenses it may assert against the Indemnified Party’s claim for indemnification. Upon assuming the defense of a Third Party Claim, the indemnifying Party may appoint as lead counsel in the defense of the Third Party Claim any legal counsel selected by the indemnifying Party (the indemnifying Party will consult with the Indemnified Party with respect to a possible conflict of interest of such counsel retained by the indemnifying Party). In the event the indemnifying Party assumes the defense of a Third Party Claim, the Indemnified Party will immediately deliver to the indemnifying Party all original notices and documents (including court papers) received by the Indemnified Party in connection with the Third Party Claim. Should the indemnifying Party assume the defense of a Third Party Claim, except as provided in Section 12.6(d)(ii), the indemnifying Party will not be liable to the Indemnified Party for any legal costs or expenses subsequently incurred by such Indemnified Party in connection with the analysis, defense or settlement of the Third Party Claim. [***]

(ii) Right to Participate in Defense. Without limiting Section 12.6(d)(i), any Indemnified Party will be entitled to participate in, but not control, the defense of such Third Party Claim and to employ counsel of its choice for such purpose; provided, however, that such employment will be at the Indemnified Party’s own cost and expense unless [***].

(iii) Settlement. With respect to any Third Party Claims that relate solely to the payment of money damages in connection with a Third Party Claim and that will not result in the Indemnified Party’s becoming subject to injunctive or other relief or otherwise adversely affecting the business of the Indemnified Party in any manner, and as to which the indemnifying Party will have acknowledged in writing the obligation to indemnify the Indemnified Party hereunder, the indemnifying Party will have the sole right to agree to the entry of any judgment, enter into any settlement or otherwise dispose of such Loss, on such terms as the indemnifying Party, in its sole discretion, will deem appropriate. With respect to all other Losses in connection with Third Party Claims, where the indemnifying Party has assumed the defense of the Third Party Claim in accordance with Section 12.6(d)(i), the indemnifying Party will have authority to agree to the entry of any judgment, enter into any settlement or otherwise dispose of such Loss provided it obtains the prior written consent of the Indemnified Party (such consent not to be unreasonably withheld, delayed or conditioned). The indemnifying Party will not be liable for any settlement or other disposition of a Loss by an Indemnified Party that is reached without the prior written consent of the indemnifying Party. Regardless of whether the indemnifying Party chooses to defend or prosecute any Third Party Claim, no Indemnified Party will admit any liability with respect to or settle, compromise or discharge, any Third Party Claim without the prior written consent of the indemnifying Party, such consent not to be unreasonably withheld, delayed or conditioned.

(iv) Cooperation. If the indemnifying Party chooses to defend or prosecute any Third Party Claim, the Indemnified Party will, and will cause each other Indemnified Party to, cooperate in the defense or prosecution thereof and will furnish such records, information and testimony, provide such witnesses and attend such conferences, discovery proceedings, hearings, trials and appeals as may be reasonably requested in connection therewith. Such cooperation will include access during normal business hours afforded to indemnifying Party to, and reasonable retention by the Indemnified Party of, records and information that are reasonably relevant to such Third Party Claim, and making Indemnified Parties and other employees and agents available on a mutually convenient basis to provide additional information and explanation of any material provided hereunder, and the indemnifying Party will reimburse the Indemnified Party for all its reasonable out-of-pocket costs and expenses in connection therewith.

(v) Costs and Expenses. Except as provided above in this Section 12.6(d), the reasonable and verifiable costs and expenses, including attorneys’ fees and expenses, incurred by the Indemnified Party in connection with any claim will be reimbursed on a Calendar Quarter basis by the indemnifying Party, without prejudice to the indemnifying Party’s right to contest the Indemnified Party’s right to indemnification and subject to refund in the event the indemnifying Party is ultimately held not to be obligated to indemnify the Indemnified Party.

13. Term and Termination.
13.1 Option Agreement Term. This A&R Option Agreement will commence as of the Amendment Effective Date and on such date will replace and supersede the Original Option Agreement in its entirety; provided that [***]. The term of this A&R Option Agreement, unless sooner terminated in accordance with the terms hereof or by mutual written consent, will be deemed to have commenced on the Signing Date and will continue until the entire Exercise Price for each Optioned Product Candidate (and associated Development Pool Candidates) is paid in full (the “Option Agreement Term”).

13.2 Termination by Moderna. Moderna will have the right to terminate this A&R Option Agreement in full upon delivery of written notice to AstraZeneca in the event of any material breach by AstraZeneca of any terms and conditions of this A&R Option Agreement [***], provided, that to the extent that any such breach is limited to Collaboration mRNA Constructs [***] a particular Research Polypeptide or Development Polypeptide, Moderna will have the right to terminate this A&R Option Agreement only with respect to such Collaboration mRNA Constructs, (a) such Collaboration mRNA Constructs will become Discontinued Product Candidates, (b) the Polypeptide [***] such Collaboration mRNA Constructs will become a Discontinued Polypeptide and (c) the Research Target [***] such Discontinued Polypeptide will become a Discontinued Research Target unless for such Research Target there is an Optioned Product Candidate [***] a Development Polypeptide for such Research Target. For clarity, for the purposes of such discontinuance, [***]. Notwithstanding the foregoing, any such termination under this Section 13.2 will not be effective if such breach has been cured within [***] days after written notice thereof is given by Moderna to AstraZeneca specifying the nature of the alleged breach (or, if such default cannot be cured within such [***]-day period, such longer period as reasonably required to cure such breach, provided that AstraZeneca commences actions to cure such default within such [***]-day period and thereafter diligently continues such actions); provided, that to the extent such material breach involves the failure to make an undisputed payment when due, such breach must be cured within [***] days after written notice thereof is given by Moderna to AstraZeneca. [***]

13.3 Termination by AstraZeneca. (a) Breach. AstraZeneca will have the right to terminate this A&R Option Agreement in full upon delivery of written notice to Moderna in the event of any material breach by Moderna of any terms and conditions of this A&R Option Agreement [***], provided, that to the extent that any such breach is limited to a particular Polypeptide (and Collaboration mRNA Constructs [***] such Polypeptide), AstraZeneca will have the right to terminate this A&R Option Agreement only with respect to such Polypeptide (and Collaboration mRNA Constructs [***] such Polypeptide). Notwithstanding the foregoing, any such termination under this Section 13.3(a) will not be effective if such breach has been cured within [***] days after written notice thereof is given by AstraZeneca to Moderna specifying the nature of the alleged breach (or, if such default cannot be cured within such [***]-day period, such longer period as reasonably required to cure such breach, provided that Moderna commences actions to cure such default within such [***]-period and thereafter diligently continues such actions); provided, that to the extent such material breach involves the failure to make an undisputed payment when due, such breach must be cured within [***] days after written notice thereof is given by AstraZeneca to Moderna. [***]

(b) Discretionary Termination. AstraZeneca will have the right to terminate this A&R Option Agreement in full ninety (90) days after delivery of written notice to Moderna if the Executive Officer of AstraZeneca concludes due to scientific, technical, regulatory or commercial reasons, including [***].

13.4 Alternative to Termination Under Section 13.3(a). If AstraZeneca has the right to terminate this A&R Option Agreement or this A&R Option Agreement with respect to a particular Polypeptide that is [***] an Optioned Product Candidate (or Subject Construct or Product) under Section 13.3(a) (including expiration of all applicable cure periods thereunder), in lieu of exercising such termination right, AstraZeneca may elect once by written notice to Moderna before the end of such applicable cure period to have this A&R Option Agreement continue in full force and effect, in which case the following will apply:

(a) Starting immediately after the end of such applicable cure period, any payments for Contingent Event Option Exercise Payment and Option Exercise Earn-Out payments hereunder payable following such date that AstraZeneca has the right to terminate this A&R Option Agreement under Section 13.3(a) will be reduced by [***], provided that such reduction will not apply if and to the extent [***]; provided that if such right of
termination is limited to a particular Optioned Product, Subject Construct or Product, then such [***] reduction will apply to such Optioned Product Candidate, Subject Construct or Product and will not apply more generally.

(b) The following provisions will cease to apply: [***] of the Product Commercialization Schedule; provided that [***].

13.5 **Effects of Termination or Expiration.** Upon termination or expiration of this A&R Option Agreement for any reason:

(a) The license grants (including Section 3.1) will terminate, other than [***];

(b) Any unpaid Exercise Price attributable to those Optioned Product Candidate (and associated Development Pool Candidates) will remain due and payable to Moderna, pursuant to the applicable Schedule A; and

(c) All unexercised Options will automatically terminate;

Provided that, in the event that either Party terminates this A&R Option Agreement with respect to a particular Optioned Product Candidate, Subject Construct or Product, the provisions of Section 6.3 of the Product Commercialization Schedule will apply.

13.6 **Survival.** In addition to the termination consequences set forth in Section 13.5, the following provisions will survive termination or expiration of this A&R Option Agreement: [***]. Termination or expiration of this A&R Option Agreement will not relieve the Parties of any liability or obligation which accrued hereunder prior to the effective date of such termination or expiration nor preclude either Party from pursuing all rights and remedies it may have hereunder or at law or in equity with respect to any breach of this A&R Option Agreement nor prejudice either Party’s right to obtain performance of any obligation. All other rights and obligations will terminate upon expiration of this A&R Option Agreement.

13.7 **Integrated Agreements.** The Parties acknowledge that the Transaction Agreements, together, constitute an integrated set of agreements entered into as part of the same transaction that collectively govern the subject matter covered by the Transaction Agreements. Early termination of any one of the Transaction Agreements without the others would fundamentally alter the intended allocation of rights and obligations intended by the Parties in entering into the Transaction Agreements. Thus, if a Party (or its bankruptcy trustee) has the right to reject any of the Transaction Agreements under the U.S. Bankruptcy Code or any analogous provision under any other law in any country outside the United States, such Party (or the applicable bankruptcy trustee) will either reject all of the Transaction Agreements or assume all of the Transaction Agreements, but may not reject one Transaction Agreement without rejecting the others.

14. **General Provisions.**

14.1 **Dispute Resolution.** Disputes arising under or in connection with this A&R Option Agreement will be resolved in accordance with Section 11.1 of the A&R Services and Collaboration Agreement.

14.2 **Cumulative Remedies and Irreparable Harm.** All rights and remedies of the Parties hereunder will be cumulative and in addition to all other rights and remedies provided hereunder or available by agreement, at law or otherwise. Each Party acknowledges and agrees that breach of any of the terms or conditions of this A&R Option Agreement would cause irreparable harm and damage to the other and that such damage may not be ascertainable in money damages and that as a result thereof the non-breaching Party would be entitled to seek on an interim basis from a court and on a permanent basis from an arbitral tribunal equitable or injunctive relief restraining any breach or future violation of the terms contained herein by the breaching Party without the necessity of proving actual damages or posting bond. Such right to equitable relief is in addition to whatever remedies either Party may be entitled to as a matter of law or equity, including money damages.

14.3 **Business Combination and Exclusivity.** The Parties acknowledge and agree that the provisions of 11.3 of the A&R Services and Collaboration Agreement will govern the Parties rights and obligations with respect to a Business Combination under this A&R Option Agreement.
14.4 **Relationship of Parties.** Nothing in this A&R Option Agreement is intended or will be deemed to constitute a partnership, agency, employer-employee or joint venture relationship between the Parties. No Party will incur any debts or make any commitments for the other, except to the extent, if at all, specifically provided therein. There are no express or implied third party beneficiaries hereunder.

14.5 **Anti-Bribery and Corruption Compliance.** The Parties acknowledge and agree that the provisions of Section 11.4 of the A&R Services and Collaboration Agreement will govern anti-bribery and corruption compliance under this A&R Option Agreement.

14.6 **Compliance with Law.** Each Party will perform or cause to be performed any and all of its obligations or the exercise of any and all of its rights hereunder in good scientific manner and in compliance with all applicable Law.

14.7 **Governing Law.** This A&R Option Agreement will be governed by and construed in accordance with the Laws of the state of New York, without respect to its conflict of laws rules or principles that might otherwise refer construction or interpretation of this A&R Option Agreement to the substantive Law of another jurisdiction; provided, however, that any dispute relating to the scope, validity, enforceability or infringement of any Patents will be governed by, and construed and enforced in accordance with, the substantive Laws of the jurisdiction in which such Patents apply. The Parties agree to exclude the application to this A&R Option Agreement of the United Nations Convention on Contracts for the International Sale of Goods.

14.8 **Counterparts; Facsimiles.** This A&R Option Agreement may be executed in one or more counterparts, each of which will be deemed an original, and all of which together will be deemed to be one and the same instrument. Facsimile or PDF execution and delivery of this A&R Option Agreement by either Party will constitute a legal, valid and binding execution and delivery of this A&R Option Agreement by such Party.

14.9 **Headings.** All headings in this A&R Option Agreement are for convenience only and will not affect the meaning of any provision hereof.

14.10 **Waiver of Rule of Construction.** Each Party has had the opportunity to consult with counsel in connection with the review, drafting and negotiation of this A&R Option Agreement. Accordingly, the rule of construction that any ambiguity in this A&R Option Agreement will be construed against the drafting party will not apply.

14.11 **Interpretation.** Whenever any provision of this A&R Option Agreement uses the term “including” (or “includes”), such term will be deemed to mean “including without limitation” (or “includes without limitations”). “Herein,” “thereby,” “hereunder,” “hereof” and other equivalent words refer to this A&R Option Agreement as an entirety and not solely to the particular portion of this A&R Option Agreement in which any such word is used. Except where the context otherwise requires, whenever used, the singular will include the plural, the plural the singular, the use of any gender will be applicable to all genders and the word “or” is used in the inclusive sense (and/or). Unless otherwise provided, all references to Sections, Exhibits and Schedules in this A&R Option Agreement are to Sections, Exhibits and Schedules of this A&R Option Agreement. References to any Sections include Sections and subsections that are part of the related Section (e.g., a section numbered “Section 2.1” would be part of “Section 2”, and references to “Section 2.1” would also refer to material contained in the subsection described as “Section 2.1(a)”).

14.12 **Binding Effect.** This A&R Option Agreement will inure to the benefit of and be binding upon the Parties, their Affiliates, and their respective lawful successors and assigns.

14.13 **Assignment.** This A&R Option Agreement may not be assigned by either Party, nor may either Party delegate its obligations or otherwise transfer any rights created by this A&R Option Agreement, except as expressly permitted hereunder or otherwise without the prior written consent of the other Party, which consent will not be unreasonably withheld, delayed or conditioned; provided that either Party may assign this A&R Option Agreement to an Affiliate or to such Party’s successor in connection with the merger, consolidation, sale of all or substantially all of its assets or that portion of its business pertaining to the subject matter of this A&R Option Agreement, or any Business Combination of such Party. Notwithstanding the foregoing, neither Party may assign this A&R Option Agreement unless such assignment also includes an assignment of all of the Transaction Agreements to the same Affiliate or Third Party successor, as applicable. The rights and obligations of the Parties under this A&R Option Agreement will be binding upon and inure to the benefit of the successors.
and permitted assigns of the Parties, and the name of a Party appearing herein will be deemed to include the name of such Party’s successors and permitted assigns to the extent necessary to carry out the intent of this Section 14.13.

14.14 Amendment and Waiver. This A&R Option Agreement may be amended, supplemented, or otherwise modified only by means of a written instrument signed by both Parties; provided that any unilateral undertaking or waiver made by one Party in favor of the other will be enforceable if undertaken in a writing signed by the Party to be charged with the undertaking or waiver. Any waiver of any rights or failure to act in a specific instance will relate only to such instance and will not be construed as an agreement to waive any rights or fail to act in any other instance, whether or not similar.

14.15 Severability. In the event that any provision of this A&R Option Agreement will, for any reason, be held to be invalid or unenforceable in any respect, and if the rights or obligations of either Party under this A&R Option Agreement will not be materially and adversely affected thereby, (a) such provisions will be given no effect by the Parties and will not form part of this A&R Option Agreement, (b) all other provisions of this A&R Option Agreement will remain in full force and effect, and (c) the Parties will negotiate in good faith to modify this A&R Option Agreement to preserve (to the extent possible) their original intent.

14.16 Entire Agreement. This A&R Option Agreement, along with the other Transaction Agreements (and any agreements entered into pursuant to the Original Agreements), are the sole agreements with respect to the subject matter hereof and except as provided in Section 13.1, supersedes all other agreements and understandings between the Parties with respect to same (including the Confidentiality Agreement).

[Remainder of this Page Intentionally Left Blank]

IN WITNESS WHEREOF, the Parties have caused this A&R Option Agreement to be executed by their respective duly authorized officers as of the Amendment Effective Date.

MODERNA Tx, INC.

By: /s/ Stéphane Bancel  
(Signature)  
Name: Stéphane Bancel  
Title: CEO  
Date: June 15, 2018

ASTRAZENECA AB

By: /s/ Jesper Bergkvist  
(Signature)  
Name: Jesper Bergkvist  
Title: Legal Director  
Date: June 15, 2018
Schedule A

Schedule of Exercise Price Payable for each Optioned Product Candidate for each Option Exercise

This Schedule A will apply to each Optioned Product Candidate (and all associated Development Pool Candidates) on an Optioned Product Candidate-by-Optioned Product Candidate and Product-by-Product basis in all respects. For each such Optioned Product Candidate, Development Pool Candidates and Products, the Product Commercialization Schedule will also apply.

The following terms and their correlatives will have the meanings set forth below. Capitalized terms used, but not defined, herein will have the meanings ascribed to such terms in the body of the Option Agreement and the other Transaction Agreements.

1. Definitions.

1.1 "EU" means the organization of member states of the European Union as it may be constituted from time to time.

1.2 "First Commercial Sale" means the first arm’s length sale by AstraZeneca, its Affiliates, or its Sublicensees to a Third Party for end use or consumption by the general public of a Product in a country after all required Regulatory Approvals for commercial sale of such Product have been obtained by AstraZeneca, its Affiliates or its Sublicensees in such country; provided, however, that in no event will any sale or distribution of such Product for use in clinical trial or otherwise any sales prior to receipt of all Regulatory Approvals necessary to commence regular commercial sales (including so-called “treatment IND sales” and “compassionate use sales”) be deemed a First Commercial Sale.

1.3 "Generic Product" means, with respect to a Product in a given country, any generic or biosimilar product sold by a Third Party not licensed or otherwise authorized by or on behalf of AstraZeneca or any of its Affiliates or Sublicensees (a) that is a “biological product” (as defined in Section 351(i)(1) of the PHSA) that is subject to a license for administration to humans under Section 351(a) or 351(k) of the PHSA and (i) contains an active ingredient that is the same as the active ingredient of such Product (including any mRNA Constructs therein) or (ii) is “biosimilar” (as defined in Section 351(i)(2) of the PHSA) or “interchangeable” (as defined in Section 351(i)(3) of the PHSA) to the Product; or (b) that has received analogous Regulatory Approval from the applicable Regulatory Authority by referencing Regulatory Filings (and data therein) of such Product.

1.4 "Net Sales" means the gross invoiced amount on sales of a Product by AstraZeneca and its Affiliates and its Sublicensees to Third Parties (which will include Distributors but not Sublicensees) after deduction of the following amounts:

In the event that a Product is sold in any country in the form of a combination Product containing one or more therapeutically active ingredient(s), in addition to the applicable Optioned Product Candidate or any related Subject Constructs, (such product containing such other active ingredient, if sold separately, the “Other Product”), Net Sales of such combination Product will be determined as follows:

Net Sales will be calculated using AstraZeneca’s internal audited systems used to report such sales as adjusted for any of items [***] above not taken into account in such systems. [***].

[***]. Sales and other transfer of Product between any of AstraZeneca, its Affiliates and Sublicensees will not give rise to Net Sales, but rather the subsequent sale of Product to Third Parties.

1.5 “Phase 2 Study” means a clinical trial of a Product the principal purpose of which is a determination of safety and an assessment of its efficacy in the target patient population as described under 21 C.F.R. §312.21(b) (as amended or any replacement thereof), or a similar clinical study prescribed by the Regulatory Authorities in a foreign country.
1.6 “Phase 3 Study” means a clinical trial of a Product on a sufficient number of subjects that is designed to establish that a Product is safe and efficacious for its intended use, and to determine warnings, precautions, and adverse reactions that are associated with such Product in the dosage range to be prescribed, which trial is intended to support Regulatory Approval of such Product, as described in 21 C.F.R. 312.21(c) (as amended or any replacement thereof), or a similar clinical study prescribed by the Regulatory Authorities in a foreign country.

1.7 “PHSA” means the United States Public Health Service Act, as amended.

1.8 “Selling Party” means AstraZeneca and its Affiliates and Sublicensees (excluding Distributors).

1.9 “Valid Claim” means, with respect to a particular country, [***].

2. **Exercise Price.**

2.1 **Initial Payment.** The Initial Payment is payable by AstraZeneca to Moderna pursuant to Section 6.5(b) of the Option Agreement.

2.2 **Contingent Event Option Exercise Payments.**

AstraZeneca will make a payment to Moderna upon the occurrence of each of the events (each, a “Contingent Event”) as set forth below in this Paragraph 2.2 (Schedule A) (each such payment, a “Contingent Event Option Exercise Payment”). AstraZeneca will give Moderna written notice within [***] days of the first achievement of each Contingent Event set forth below, whether achieved by or on behalf of AstraZeneca, its Affiliate, or Sublicensee. After receiving such written notice, Moderna will submit an invoice to AstraZeneca for the amount of the Contingent Event Option Exercise Payment, and AstraZeneca will pay Moderna the applicable Contingent Event Option Exercise Payment within [***] days after AstraZeneca’s receipt of such invoice. [***][***]

<table>
<thead>
<tr>
<th>Contingent Event</th>
<th>Contingent Event Option Exercise Payment</th>
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</thead>
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<td>[<em><strong>] [</strong></em>]</td>
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2.3 **Option Exercise Earn-Out Payments.**

(a) **Rates.** Subject to the remainder of this Paragraph 2.3(a) (Schedule A), AstraZeneca will pay to Moderna an earn-out (the “Option Exercise Earn-Out”), [***], based on the total aggregate annual worldwide Net Sales by Selling Parties of such Product in a given calendar year at the following Option Exercise Earn-Out rates:

<table>
<thead>
<tr>
<th>Annual Worldwide Net Sales of each Product</th>
<th>Earn Out Rate</th>
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<tbody>
<tr>
<td>[<em><strong>] [</strong></em>]</td>
<td>[***]</td>
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<td>[<em><strong>] [</strong></em>]</td>
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</tr>
<tr>
<td>[<em><strong>] [</strong></em>]</td>
<td>Twelve Percent (12%)</td>
</tr>
</tbody>
</table>

Annual worldwide Net Sales will be calculated by taking the aggregate sum of Net Sales of Products for all countries worldwide.
By way of example, in a given calendar year, if the aggregate annual worldwide Net Sales for a Product is [***], the following Option Exercise Earn-Out payment would be payable for those Net Sales under this Paragraph 2.3(a) (Schedule A): [***].

(b) **Option Exercise Earn-Out Term.** The Option Exercise Earn-Out under Paragraph 2.3(a) (Schedule A) will be payable, [***], on the Net Sales of such Product from the date of First Commercial Sale of such Product in such country for so long as at least one of the following [***] conditions apply:

(i) if one or more Valid Claims within [***];

(ii) Such Product in such country is covered by a Regulatory Exclusivity Period;

(iii) [***]

(iv) for [***] from the First Commercial Sale of such Product in such country.

(c) **Option Exercise Earn-Out Reductions.**

(i) **Option Exercise Earn-Out Reduction.** If a Product used to treat patients is subject to an Option Exercise Earn-Out payment only on account of [***], but not [***] or [***], then the Option Exercise Earn-Out rates set forth in Paragraph 2.3(a) (Schedule A) with respect to Net Sales attributable to Product will be reduced by [***].

(ii) **Third-Party Payments.** If, during the applicable Earn-Out Term, AstraZeneca [***], then, upon [***], and thereafter during the remainder of the period during which AstraZeneca owes Option Exercise Earn-Out payments due to Moderna hereunder, AstraZeneca will have the right to deduct from the Option Exercise Earn-Out amounts payable to Moderna in a particular Calendar Quarter be reduced as a result of this Paragraph 2.3(c)(ii) (Schedule A) to a rate lower than [***]; and provided, further, that [***].

(iii) **Generic Product Competition.** If, at any time, in a particular country in the Territory, with respect to a Product being sold in such country, (i) a Generic Product of such Product is sold by any Third Party in such country and (ii)[***], then for the purposes of calculating the Earn-Out payment of such Product owed to Moderna under Paragraph 2.3(a) (Schedule A), [***] will be disregarded for such Calendar Quarter. The calculation of the reduction under this Paragraph 2.3(c)(iii) (Schedule A) will be conducted separately for each Product in each country.

(iv) **Compulsory Licenses.** In the event that a court or a governmental agency of competent jurisdiction requires AstraZeneca or an AstraZeneca Affiliate or Sublicensee to grant a compulsory license to a Third Party permitting such Third Party to make and sell the Product in a country in the Territory, then for the purposes of calculating the Option Exercise Earn-Out payments of such Product under Paragraph 2.3(a) (Schedule A), [***] will be disregarded. The calculation of the Option Exercise Earn-Out reduction under this Paragraph 2.3(c)(iv) will be conducted separately for each Product.

(v) **In-License Payments.**

(A) **Moderna Collaboration In-Licenses.** If any In-License Payment becomes due under any Moderna Collaboration In-License with respect to the applicable Optioned Product Candidate prior to expiration of the Earn-Out Term for such Optioned Product Candidate, Moderna will pay same and, subject to [***] and Section 2.8(b) of the A&R Services and Collaboration Agreement, AstraZeneca will reimburse Moderna for [***] of [***] within [***] days of receipt of Moderna’s written invoice therefor. To the extent that any grant of a sublicense by AstraZeneca or any Sublicensees under an Moderna Collaboration In-License triggers a payment obligation under such Moderna Collaboration In-License, Moderna will pay same and AstraZeneca will reimburse Moderna for [***] of [***] within [***] days of receipt of Moderna’s written invoice therefor.

(B) **Moderna [***] In-Licenses.** Notwithstanding Paragraph 2.3(c)(v)(A), if during the Option Agreement Term, any In-License Payments become due under any Moderna Collaboration In-
License that is [***] as a result of the grant of a sublicense thereunder to AstraZeneca or any further Sublicensees of AstraZeneca (including of AstraZeneca’s Affiliates that are granted sublicenses), (i) AstraZeneca will reimburse Moderna for [***] of [***] within [***] days of receipt of Moderna’s written invoice therefor, and (ii) any such In-License Payments (excluding [***]) will be subject to Paragraph 2.3(c)(ii) (Schedule A) to the extent applicable thereunder. Notwithstanding the foregoing, [***]. To the extent that any grant of a sublicense by AstraZeneca or any Sublicensees under an Moderna Collaboration In-License that is a [***] triggers a payment obligation under such Moderna Collaboration In-License, Moderna will pay same and AstraZeneca will reimburse Moderna for [***] of [***] within [***] days of receipt of Moderna’s written invoice therefor.

(d) *Payment Floor.* In no event will any credits, deductions or reductions permitted to be taken under this Schedule A, the Option Agreement or any other Transaction Agreement against any particular Contingent Event Option Exercise Payment or Option Exercise Earn-Out payment owed to Moderna under this Schedule A (including pursuant to Paragraph 2.3(c) (Schedule A)) act to reduce such payment by more than [***]; provided, that [***].

(e) *Additional Option Exercise Earn-Out Provisions.* The Option Exercise Earn-Out payable under Paragraph 2.3(a) (Schedule A) will be subject to the following:

(i) only one Option Exercise Earn-Out will be payable under this Schedule A with respect to each Product unit;

(ii) except as otherwise expressly provided in this Schedule A, the Option Agreement and the other Transaction Agreements, the Option Exercise Earn-Out when owed or paid under this Schedule A will be nonrefundable and non-creditable and not subject to set-off; and

(iii) except as expressly set forth in Paragraph 2.3(c) (Schedule A), no other Option Exercise Earn-Out credits, reductions or deductions are permitted under this Schedule A.

2.4 *Payment Terms.*

(a) *Manner of Payment.* All payments to be made by AstraZeneca to Moderna under this Schedule A will be made in U.S. dollars. All payments to be made by AstraZeneca to Moderna under this Schedule A will be made by wire transfer in immediately available funds to such bank account as Moderna may designate by written notice to AstraZeneca.

(b) *Reports and Payments.* For as long as any Earn-Out payments are due under this Schedule A, AstraZeneca will furnish to Moderna a written report, after the end of each Calendar Quarter, showing the amount of Net Sales due for such Product, which report will be furnished within [***] days of the end of the Calendar Quarter for which the Earn-Out payments are due. Earn-Out payments for each Calendar Quarter will be due at the same time as such written reports for the Calendar Quarter. The reports will include, at a minimum, [***]. After receiving such written report, Moderna will submit an invoice to AstraZeneca for all Earn-Out payments, if requested by AstraZeneca (and any request or delivery of any such invoice will not extend the payment deadline specified above). AstraZeneca will provide to Moderna a form invoice for use by Moderna in issuing any invoice under the Transaction Agreements.

(c) *Records and Audits.* AstraZeneca will keep, and will cause each of the other Selling Parties, as applicable, to keep, and Moderna will keep, adequate books and records of accounting for the purpose of calculating all Exercise Price payable by Moderna to AstraZeneca under this Schedule A and ensuring Moderna’s compliance under this Schedule A. Such books and records will be maintained by AstraZeneca for at least [***] from the date of creation. During the Option Agreement Term, such books and records of accounting (including those of the other Selling Parties, as applicable) will be kept at each of their principal places of business. At the request of Moderna, AstraZeneca will, and AstraZeneca will cause each of the other Selling Parties to, permit an independent certified public accounting firm of nationally recognized standing selected by Moderna and reasonably acceptable to AstraZeneca, during normal business hours and upon reasonable notice, to examine the books and records maintained pursuant to this Paragraph 2.4(c) (Schedule A). Such examinations may not (i) be conducted for any calendar year after the end of the Option Agreement Term (except that the books and records relating to the last year of the Option Agreement Term may be examined for [***] after the end of the Option Agreement Term), (ii) be conducted more than [***] in any [***] period and going back no
more than [***] after receipt of the respective invoice and report or (iii) be repeated for any calendar year. Moderna will provide AstraZeneca with a copy of the accounting firm’s written report within [***] of completion of such report. Except as provided below, the cost of this examination will be borne by Moderna, unless the audit reveals a variance of more than [***] from the reported amounts for a calendar year, in which case AstraZeneca will bear the reasonable out-of-pocket cost of the audit, provided such variance exceeds [***]. Unless disputed as described below, if such audit concludes that additional payments were owed or that excess payments were made during such period, AstraZeneca will pay the additional amounts or Moderna will reimburse such excess payments, with interest from the date originally due as provided in Paragraph 2.4(f) (Schedule A), within [***] days after the date on which a written report of such audit is delivered to the Parties. In the event of a dispute regarding such books and records, including the amount owed to Moderna under this Paragraph 2.4(c) (Schedule A), Moderna and AstraZeneca will work in good faith to resolve the disagreement. If the Parties are unable to reach a mutually acceptable resolution of any such dispute within [***] days, such dispute will be resolved in accordance with the dispute resolution procedures set forth in Section 11.1 of the A&R Services and Collaboration Agreement. The receiving Party will treat all information subject to review under this Paragraph 2.4(c) (Schedule A) and in accordance with the confidentiality provisions of Section 11 of the Option Agreement, and AstraZeneca will cause any accounting firm, auditor or arbitrator to enter into a reasonably acceptable confidentiality agreement with AstraZeneca obligating such firm to retain all such financial information in confidence pursuant to such confidentiality agreement. Moderna may provide Third Parties to which Moderna owes payments on Products information in such audit report that are relevant and required to comply with such Third Party’s audit rights under the applicable license agreement between Moderna and such Third Party, provided that such Third Party is obligated to keep such information confidential.

(d) **Currency Exchange.** With respect to Net Sales invoiced in U.S. dollars, the Net Sales and the amounts due to Moderna under this Schedule A will be expressed in U.S. dollars. With respect to Net Sales invoiced in a currency other than U.S. dollars, payments will be converted from local currency to U.S. dollars by AstraZeneca in accordance with the rates of exchange for the relevant month for converting such other currency into U.S. dollars used by AstraZeneca’s internal accounting systems, which are independently audited on an annual basis and which are in accordance with generally accepted accounting principles, fairly applied and as employed on a consistent basis throughout AstraZeneca’s operations.

(e) **Blocked Payments.** In the event that, by reason of applicable Law in any country, it becomes impossible or illegal for AstraZeneca (or any other Selling Party) to transfer, or have transferred on its behalf, payments owed Moderna under this Schedule A, AstraZeneca will promptly notify Moderna of the conditions preventing such transfer and such payments will be deposited in local currency in the relevant country to the credit of Moderna in a recognized banking institution designated by Moderna or, if none is designated by Moderna within a period of [***] days, in a recognized banking institution selected by AstraZeneca or another Selling Party, as the case may be, and identified in a written notice given to Moderna.

(f) **Interest Due.** If any payment due to either Party under this Schedule A is overdue (and is not subject to a good faith dispute), then such paying Party will pay interest thereon [***] at an annual rate [***] of the lesser of (i) [***] and (ii) [***], such interest to run from the date upon which payment of such sum became due until payment thereof in full together with such interest.

2.5 **Mutual Convenience of the Parties.** The Exercise Price payment obligations set forth under this Schedule A have been agreed to by the Parties for the purpose of reflecting and advancing their mutual convenience, including the ease of calculating and paying amounts to Moderna. AstraZeneca hereby stipulates to the fairness and reasonableness of such payments obligations and covenants not to allege or assert, nor to allow any of its Sublicensees or Affiliates to allege or assert, nor further to cause or support any other Third Parties to allege or assert, that any such payments obligations are unenforceable or illegal in any way.
Schedule B

Product Commercialization Schedule

This Product Commercialization Schedule will apply to each Optioned Product Candidate (and all associated Development Pool Candidates) on an Optioned Product Candidate-by-Optioned Product Candidate and Product-by-Product basis in all respects. For each such Optioned Product Candidate, Development Pool Candidates and Products, Schedule A will also apply.

1. Definitions.

The following terms will have the meanings set forth below. Capitalized terms used, but not defined herein, will have the meanings ascribed to such terms in the Option Agreement and the other Transaction Agreements.

1.1 “AstraZeneca Development & Commercialization Program” means a Development and Commercialization program for Product and the related Subject Constructs in the Subject Field.

1.2 “Earn-Out Term” has the meaning set forth in Section 6.1.

1.3 “Product Schedule Date” means the date on which a Product Candidate becomes an Optioned Product Candidate.

1.4 “Subject Constructs” means the Optioned Product Candidate and the Subject Development Pool Candidates.

1.5 “Subject Development Polypeptide” means the Polypeptide [***] by the Optioned Product Candidate, as set forth in the AstraZeneca Option Notice.

1.6 “Subject Development Pool Candidates” means, other than the Optioned Product Candidate, those Development Pool Candidates [***] the Subject Development Polypeptide, as set forth in the AstraZeneca Option Notice.

1.7 “Subject Field” means the applicable AstraZeneca Field, as set forth in the AstraZeneca Option Notice.

1.8 “Subject Research Target” means the Research Target for the Subject Development Polypeptide, as set forth in the AstraZeneca Option Notice.


2.1 Subject Research Target. The Subject Research Target will continue as a Research Target under the Transaction Agreements unless AstraZeneca’s rights to Product and the related Subject Constructs are terminated in accordance with Section 13.2 or Section 13.3 of the A&R Option Agreement or Section 2.2(c) or Section 6.2 hereof.

2.2 Diligence.

(a) As of and after the Product Schedule Date, AstraZeneca will have sole responsibility for, and control of, Exploiting Product and the related Subject Constructs in the Subject Field worldwide, and will establish an AstraZeneca Development & Commercialization Program for that purpose. Except as provided in the A&R Services and Collaboration Agreement or the Master Supply Agreements, as of and after the Product Schedule Date, AstraZeneca will have sole responsibility for all costs and expenses arising from Exploiting Product and the related Subject Constructs in the Subject Field worldwide.

(b) As of and after the Product Schedule Date, AstraZeneca, directly or through one or more of its Affiliates or Sublicensees, will use Commercially Reasonable Efforts (i) to Develop [***] in the Subject Field and to obtain Regulatory Approval therefor; and (ii) on obtaining Regulatory Approval, to Commercialize a
Product in the Subject Field worldwide, provided that AstraZeneca will not be deemed to be in breach of its Commercially Reasonable Efforts under this clause (b) if [***]; provided, further, that [***].

(c) During the Earn-Out Term, AstraZeneca may, by advance written notice to Moderna of at least [***], elect to terminate all current and planned Development and Commercialization of Product and the related Subject Constructs with respect to a Subject Research Target, in which case Section 6.3 will apply with respect to such Product and the related Subject Constructs.

2.3 Meetings and Reports.

(a) [***] during each Contract Year from the Product Schedule Date until the first approval of a BLA (or equivalent Regulatory Approval) for Product, within [***] days of Moderna’s written request, the Parties will meet in person [***] for AstraZeneca to provide Moderna with an update on the Development and Commercialization of Product and the related Subject Constructs. During such meeting, AstraZeneca will disclose to Moderna a summary of all material information regarding such Development and Commercialization.

(b) AstraZeneca will prepare and maintain, and will cause its Affiliates and Sublicensees to prepare and maintain, reasonably complete and accurate records regarding the Development of Product and the related Subject Constructs, and the Commercialization of Product in the Subject Field worldwide after Regulatory Approval therefor. AstraZeneca will provide to Moderna a reasonably detailed report regarding such efforts at least [***] each Contract Year during the Earn-Out Term. Such report will contain sufficient detail to enable Moderna to assess AstraZeneca’s compliance with its Development and Commercialization obligations in Section 2.2, including [***]. AstraZeneca’s obligation to provide the information described in Section 2.3(b) to Moderna will terminate upon a Business Combination of Moderna.

3. Regulatory Responsibilities.

3.1 In General. AstraZeneca will lead and have sole control of all regulatory efforts for Product and the related Subject Constructs worldwide, including with respect to preparing and filing the relevant Regulatory Filings and all communications with Regulatory Authorities.

3.2 Information Disclosure. Moderna will, and will cause its Affiliates to, without additional compensation, disclose and make available to AstraZeneca [***] not otherwise provided to AstraZeneca under the Transaction Agreements, provided that Moderna and its Affiliates will not be required to disclose or make available information relating to any mRNA Construct (other than a Collaboration mRNA Construct) being Developed or Commercialized by Moderna (alone or with other(s) by license or otherwise).

3.3 Regulatory Filings. AstraZeneca will be responsible for preparing and submitting all Regulatory Filings related to Product and the related Subject Constructs for use in the Subject Field, including all applications for Regulatory Approval. All applications for Regulatory Approval, the Regulatory Approvals, and other Regulatory Filings (including all INDs) relating to Product and the related Subject Constructs will be the property of AstraZeneca and held in the name of AstraZeneca or its designees.

3.4 Interactions with Regulatory Authorities. AstraZeneca will have the sole right to conduct all communications with the Regulatory Authorities, including all meetings, conferences and discussions (including advisory committee meetings), with regard to Product and the Related Subject Constructs in the Territory.

3.5 Cooperation. Without limiting the provisions of Section 3.4 of the A&R Option Agreement, for a period of [***] after the Product Schedule Date, Moderna will cooperate with any reasonable requests for assistance from AstraZeneca with respect to obtaining any Regulatory Approval of Product and the related Subject Constructs and maintaining any Regulatory Approval of Product and the related Subject Constructs that is held by AstraZeneca, including by: [***]. Assistance provided by Moderna to AstraZeneca pursuant to this Section 3.5 [***], as agreed in advance by AstraZeneca. An estimate of such costs and expenses will be provided to AstraZeneca before the initiation of any agreed work.

3.6 Adverse Event Reporting. Unless otherwise agreed by the Parties, the rights and obligations of the Parties with respect to safety and related reporting activities with respect to Product and the related Subject
Constructs will be set forth in a safety agreement to be entered into between the Parties (or their respective Affiliates) no later than the [***] of the Product Schedule Date (or such later date as the Parties may agree). Such agreement will set forth terms and conditions with respect to such activities that are reasonable and customary in the industry for agreements of that nature, and will be based on AstraZeneca’s standard form of safety agreement. Pursuant to the safety agreement, AstraZeneca will be responsible for adverse event reporting relating to Product and the related Subject Constructs to applicable Regulatory Authorities in the Territory, and will be responsible for maintaining the global safety database with respect to Product and the related Subject Constructs. Moderna will assist AstraZeneca by reporting and providing to AstraZeneca all information relating to adverse events to the extent that Moderna has any such data. Such data and other information will be provided in such a manner, time, and format, and to such person(s) or department(s), as may be designated by AstraZeneca from time to time, so as to enable AstraZeneca to comply with applicable Law. Moderna and AstraZeneca will reasonably cooperate to ensure that Moderna’s adverse event reporting processes will efficiently communicate such adverse event information in such manner, time and format.

3.7 Product Recalls.

(a) In the event that any government agency or authority issues or requests a recall or takes similar action in connection with Product and the related Subject Constructs, or in the event either Party determines that an event, incident, or circumstance has occurred that may result in the need for a recall or market withdrawal, the Party notified of or desiring such recall or market withdrawal will promptly advise the other Party thereof by telephone or facsimile.

(b) With respect to Product and the related Subject Constructs, AstraZeneca will decide and have control of whether to conduct a recall or market withdrawal (except in the case of a government-mandated recall or withdrawal) in the Territory and the manner in which any such recall or market withdrawal will be conducted. The allocation of costs for any such recall or market withdrawal will be set forth in the Master Supply Agreements.


4.1 Ownership. All Know-How, Materials and Patents conceived, discovered, developed or otherwise made, by or on behalf of either Party (or its Affiliates or Sublicensees) either alone or jointly with Third Party(ies) or by the Parties or their Affiliates jointly under or in connection with this Product Commercialization Schedule, whether or not conceived, discovered, developed or otherwise made at a facility owned or controlled by such Party and whether or not patented or patentable, and any and all Patent and other intellectual property rights with respect thereto will be owned in accordance with inventorship and in accordance with applicable law in the United States.

4.2 Patent Marking. AstraZeneca will mark, and will cause its Affiliates and Sublicensees to mark, Product with all Patents within the [***] in accordance with applicable Law, which marking obligation will continue for as long as (and only for as long as) required under applicable Law.

5. Insurance.

5.1 Insurance. Each Party will maintain at its sole cost and expense, an adequate liability insurance or self-insurance program (including product liability insurance) to protect against potential liabilities and risk arising out of activities to be performed under this Product Commercialization Schedule, and any agreement related hereto and upon such terms (including coverages, deductible limits and self-insured retentions) as are customary in the U.S. pharmaceutical industry for the activities to be conducted by such Party under this Product Commercialization Schedule. Subject to the preceding sentence, such liability insurance or self-insurance program will insure against all types of liability, including personal injury, physical injury or property damage arising out of the Manufacture, sale, use, distribution or marketing of Product and the related Subject Constructs. The coverage limits set forth herein will not create any limitation on a Party’s liability to the other under this Product Commercialization Schedule.

6. Term and Termination.
6.1 Term. This Product Commercialization Schedule will continue to apply to Product and the related Subject Constructs, unless the A&R Option Agreement is sooner terminated with respect to such Product and the related Subject Constructs in accordance with Section 13.2 or Section 13.3 of the Option Agreement or Section 2.2 or Section 6.2 hereof, on a country-by-country basis until there are no more Exercise Price payments owed Moderna on Product or the related Subject Constructs in such country based on the applicable Schedule A to the Option Agreement (the longest such period of time for the Product hereunder, the "Earn-Out Term"). Upon there being no more such payments hereunder for Product in such country, (a) the licenses contained in Section 3.1 of the A&R Option Agreement will become fully paid up, [***] and for clarity will remain exclusive with respect to Product and the related Subject Constructs in such country; and (b) this Product Commercialization Schedule will expire with respect to such Product and the related Subject Constructs in such country.

6.2 Termination for IP Challenge. Moderna will have the right to terminate this Product Commercialization Schedule with respect to a Product and the related Subject Constructs upon written notice to AstraZeneca in the event that AstraZeneca or any of its Affiliates or Sublicensees challenges or directs a Third Party to challenge in a legal or administrative proceeding the patentability, enforceability or validity of any Patents within the [***] covering such Product or the related Subject Constructs (a "Patent Challenge"); provided that Moderna will not have the right to terminate this Product Commercialization Schedule under this Section 6.2 for any such Patent Challenge by any Sublicensee if such Patent Challenge is dismissed within [***] days of Moderna’s notice to AstraZeneca under this Section 6.2 and not thereafter continued.

6.3 Effects of Termination or Expiration. Upon termination (but not expiration pursuant to Section 6.1) of this Product Commercialization Schedule with respect to a Product and the related Subject Constructs for any reason:

(a) Wind Down. AstraZeneca will responsibly wind-down, in accordance with accepted pharmaceutical industry norms and ethical practices, any on-going clinical trials with respect to such Product and the related Subject Constructs for which it has responsibility hereunder in which patient dosing has commenced or, if reasonably practicable and requested by Moderna, AstraZeneca will transition such trials to Moderna or its designee. [***].

(b) Schedule A. Any unpaid yet accrued Exercise Price attributable to such Product or the related Subject Constructs will remain due and payable to Moderna, pursuant to Schedule A. Thereafter, the applicable Schedule A will immediately terminate and no further payments will be due thereunder with respect to such Product or the related Subject Constructs.

(c) Sublicenses. A termination of this Product Commercialization Schedule will not automatically terminate any sublicense or rights to use or reference granted by AstraZeneca pursuant to Section 3.6 of the A&R Option Agreement for Development or Commercialization rights with respect to a non-Affiliated Sublicensee, provided that (i) such Sublicensee is not then in material breach of any provision of this Product Commercialization Schedule or the applicable sublicense agreement and (ii) [***]. AstraZeneca will include in any sublicense agreement that relates to the Moderna Technology a provision in which said Sublicensee acknowledges its obligations to Moderna under this Section 6.3(c).

(d) Cessation of Rights. Except as otherwise expressly provided in Section 6.2, all rights and licenses granted by Moderna to AstraZeneca in Section 3.1 of the A&R Option Agreement with respect to such Product and the related Subject Constructs will terminate, and AstraZeneca and its Affiliates and Sublicensees will, except as otherwise provided herein or in the Transaction Agreements, cease all Exploitation of Product and the related Subject Constructs and the use of the Moderna Technology in connection therewith. In addition, (i) the Subject Constructs, the Subject Development Polypeptide, and Product will automatically become Discontinued Product Candidates, Discontinued Polypeptide and no longer a Product based on the definition thereof, respectively, and (ii) the Subject Research Target will automatically become a Discontinued Target, unless for such Subject Research Target there [***]. In addition, AstraZeneca will promptly return to Moderna (or as directed by Moderna, destroy and certify to Moderna in writing as to such destruction) all of Moderna’s Confidential Information that is solely related to Product or the related Subject Constructs and, provided Moderna reimburses AstraZeneca for the fully-burdened cost thereof, any inventory or samples of Product or related Subject Constructs that are in AstraZeneca’s or its Affiliates’ or Sublicensees’ possession or control, save that AstraZeneca will have the right to retain (A) one (1) copy of such tangible Confidential Information
for legal purposes, and (B) any of the foregoing that AstraZeneca retains any license or other right hereunder or under the Option Agreement.

(e) **Regulatory.** Unless this Product Commercialization Schedule is terminated by AstraZeneca pursuant to Section 13.3(a) of the A&R Option Agreement, to the extent permitted by applicable Law, all Regulatory Approvals and other regulatory filings and communications to the extent Controlled by AstraZeneca and its Affiliates for such Product or the related Subject Constructs, as such items exist as of the effective date of such termination (including all completed and ongoing clinical trials that are solely related to such Product or the related Subject Constructs) will be assigned to Moderna, and AstraZeneca will provide to Moderna one (1) copy of the foregoing, together with the raw and summarized data for any clinical trials (and where reasonably available, electronic copies thereof) in such form as it is then in AstraZeneca’s possession. In the event of failure to obtain assignment, AstraZeneca hereby consents and grants to Moderna the right to access and reference (without any further action required on the part of AstraZeneca, whose authorization to file this consent with any Regulatory Authority is hereby granted) any such item.

(f) **Licenses.** Unless this Product Commercialization Schedule is terminated by AstraZeneca pursuant to Section 13.3(a) of the Option Agreement with respect to a Product and the related Subject Constructs, AstraZeneca will grant to Moderna and its Affiliates, a worldwide, [***], royalty-free and fully paid-up, nontransferable (except in connection with a permitted assignment of this Product Commercialization Schedule in accordance with Section 14.13 of the A&R Option Agreement and the terms of this Product Commercialization Schedule), exclusive license, with the right to grant sublicenses through multiple tiers (subject to Section 3.6 of the A&R Option Agreement), under [***] to Exploit such Product, the related Subject Constructs and any other mRNA Constructs [***] the related Subject Development Polypeptide. [***]; provided that [***].

(g) **Trademarks.** Unless this Product Commercialization Schedule is terminated by AstraZeneca pursuant to Section 13.3(a) of the A&R Option Agreement with respect to a Product and the related Subject Constructs, AstraZeneca will exclusively license to Moderna any registered or unregistered trademarks or internet domain names that are specific to and solely used for such Product worldwide (it being understood that the foregoing will not include any trademarks or internet domain names that contain the corporate or business name(s) or other trademark of AstraZeneca).

6.4 **Survival.** In addition to the termination consequences set forth in Section 6.3, the following provisions will survive termination or expiration of this Product Commercialization Schedule: [***]. Termination or expiration of this Product Commercialization Schedule will not relieve the Parties of any liability or obligation which accrued hereunder prior to the effective date of such termination or expiration nor preclude either Party from pursuing all rights and remedies it may have hereunder or at law or in equity with respect to any breach of this Product Commercialization Schedule nor prejudice either Party’s right to obtain performance of any obligation. All other rights and obligations with respect to such Product and the related Subject Constructs will terminate upon expiration of this Product Commercialization Schedule with respect to such Product and the related Subject Constructs.

7. **Assignment.**

[***]