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

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**FORM 8-K**

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

Date of Report (Date of earliest event reported): **October 10, 2018**

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**ASSEMBLY BIOSCIENCES, INC.**

(Exact name of registrant as specified in its charter)

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

**001-35005**  
(Commission  
File Number)

**20-8729264**  
(I.R.S. Employer  
Identification No.)

**11711 N. Meridian St., Suite 310**  
**Carmel, Indiana 46032**  
(Address of principal executive offices, including zip code)

**(317) 210-9311**  
(Registrant's telephone number, including area code)

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

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

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

Emerging growth company

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

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**Item 5.02 Departure of Directors or Certain Officers; Election of Directors; Appointment of Certain Officers; Compensatory Arrangements of Certain Officers.**

On October 10, 2018, Assembly Biosciences, Inc. (the “Company”) entered into amendments to the employment agreements between the Company and Derek A. Small (the “Small Amendment”) and Richard J. Colonno, Ph.D (the “Colonno Amendment,” and together with the Small Amendment, the “Amendments”), the Company’s President and Chief Executive Officer and the Company’s Executive Vice President and Chief Scientific Officer of Virology Operations, respectively. The Amendments, among other things, provide for (i) an at-will employment arrangement, (ii) an increased protected period in connection with a change in control separation from six months to 12 months and (iii) a modified economic cutback, which would reduce separation payments to Mr. Small and Dr. Colonno to the extent necessary to avoid being subject to the excise tax imposed by Section 4999 (the “Excise Tax”) of the Internal Revenue Code of 1986, as amended, in the event that the benefits received by Mr. Small and Dr. Colonno as a result of such cutback would be greater than if Mr. Small and Dr. Colonno were subject to and paid the Excise Tax. These provisions are consistent with the provisions that the Company includes in new executive employment agreements.

In addition, the Small Amendment increases the separation payment payable to Mr. Small in the event of a change of control separation by increasing the lump sum payable in respect of Mr. Small’s annual performance-based cash bonus from an amount equal to his full target annual bonus to an amount equal to 1.5 times such bonus.

The foregoing descriptions of the Small Amendment and the Colonno Amendment are qualified in their entirety by reference to the terms and conditions of the Amendments, which are filed with this Current Report on Form 8-K as Exhibits 10.1 and 10.2, respectively.

Also on October 10, 2018, the Company entered into an amended and restated employment agreement with Uri A. Lopatin, M.D., the Company’s Chief Medical Officer (the “A&R Employment Agreement”). The A&R Employment Agreement provides for an at-will employment arrangement. The A&R Employment Agreement provides for an initial annualized base salary of \$390,000 and an annual performance-based incentive cash bonus in an amount initially targeted to 35% of Dr. Lopatin’s then-current base salary. Neither term represents a change to Dr. Lopatin’s compensation.

If Dr. Lopatin’s employment is terminated as a result of his death, then the Company will pay to his estate his then-current base salary for a period of 12 months following such termination.

If Dr. Lopatin’s employment is terminated by the Company for disability (as defined in the A&R Employment Agreement) or without cause (as defined in the A&R Employment Agreement) or by Dr. Lopatin for good reason (as defined in the A&R Employment Agreement) within 12 months following a change of control (as defined in the A&R Employment Agreement), and provided that Dr. Lopatin signs and does not revoke a general release of claims against the Company, the Company will provide Dr. Lopatin the following benefits: (i) a lump sum payment equal to 12 months of his then-current base salary; (ii) an amount equal to his full target annual bonus for the year in which the termination occurred; (iii) immediate vesting in full of all equity awards held by Dr. Lopatin subject to time-based vesting; (iv) extension of the exercise period for all vested stock options held by Dr. Lopatin to the end of their term; and (v) if Dr. Lopatin properly elects COBRA, reimbursement of COBRA premiums for 12 months following termination or the end of his COBRA continuation period, whichever is earlier; provided, however, the Company’s obligation to pay such premiums will terminate earlier if he becomes eligible for health insurance benefits from another employer during such period.

If Dr. Lopatin’s employment is terminated as a result of his disability, by the Company without cause or by Dr. Lopatin for good reason, and such termination does not occur within 12 months following a change of control and provided that Dr. Lopatin signs and does not revoke a general release of claims against the Company, the Company will provide him the following benefits: (i) continued payment of his then-current base salary for 12 months following the date of termination of employment; (ii) all equity awards that would have time vested during the six months following the termination date shall accelerate and vest; (iii) with respect to Dr. Lopatin’s vested stock options, (a) the extension of the exercise period for all vested stock options granted prior to 2018 until term and (b) the extension of the exercise period for all vested stock options granted after January 2018 until the first anniversary of the termination date; and (iv) if Dr. Lopatin properly elects COBRA, reimbursement of COBRA premiums for 12 months following termination or the end of his COBRA continuation period, whichever is earlier; provided, however, the Company’s obligation to pay such premiums will terminate earlier if he becomes eligible for health insurance benefits from another employer during such period. Such benefits are in lieu of, and not in addition to, the benefits described in the preceding paragraph.

The A&R Employment Agreement includes non-solicitation covenants that apply during the term of the employment agreement and for one year following the termination of his employment.

The foregoing description of the A&R Employment Agreement is qualified in its entirety by reference to the terms and conditions of the A&R Employment Agreement, which is filed with this Current Report on Form 8-K as Exhibits 10.3.

In addition, the Compensation Committee of the Board of Directors of the Company approved a form of stock appreciation right award agreement for non-U.S. grantees to grant stock appreciation awards under the Assembly Biosciences, Inc. 2018 Stock Incentive Plan.

**Item 9.01 Financial Statements and Exhibits.**

(d) Exhibits:

<b>Exhibit No.</b>	<b>Description</b>
<a href="#"><u>10.1</u></a>	<a href="#"><u>Amendment No. 1 to Employment Agreement, dated October 10, 2018, by and between Assembly Biosciences, Inc. and Derek Small.</u></a>
<a href="#"><u>10.2</u></a>	<a href="#"><u>Amendment No. 1 to Employment Agreement, dated October 10, 2018, by and between Assembly Biosciences, Inc. and Richard Colonno, Ph.D.</u></a>
<a href="#"><u>10.3</u></a>	<a href="#"><u>Amended and Restated Employment Agreement, dated October 10, 2018, by and between Assembly Biosciences, Inc. and Uri A. Lopatin, M.D.</u></a>
<a href="#"><u>10.4</u></a>	<a href="#"><u>Form of Stock Appreciation Right Award Agreement for Non-U.S. Grantees under the Assembly Biosciences, Inc. 2018 Stock Incentive Plan.</u></a>

EXHIBIT INDEX

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<a href="#"><u>10.4</u></a>	<a href="#"><u>Form of Stock Appreciation Right Award Agreement for Non-U.S. Grantees under the Assembly Biosciences, Inc. 2018 Stock Incentive Plan.</u></a>

**SIGNATURES**

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

Date: October 12, 2018

Assembly Biosciences, Inc.

By: /s/ Derek A. Small  
Derek A. Small  
President and Chief Executive Officer

## AMENDMENT NO. 1 TO EMPLOYMENT AGREEMENT

Amendment No. 1 to Employment AGREEMENT (this "**Amendment No.1**"), is entered into on October 10, 2018 (the "**Amendment No. 1 Effective Date**"), by and between Assembly Biosciences, Inc., a Delaware corporation with principal executive offices at 11711 N. Meridian Street, Suite 310, Carmel, IN 46032 (the "**Company**"), and Derek Small (the "**Executive**").

## WITNESSETH:

WHEREAS, the Company and Executive have entered into an Employment Agreement dated as of July 11, 2014 (the "**Existing Agreement**").

WHEREAS, the Company and Executive desire to amend the Existing Agreement as provided in this Amendment No. 1 to, among other things, (i) provide for "at will" employment without a specified term, (ii) increase the protected period following a Change of Control in which Executive would be entitled to receive the Change of Control Separation Benefits in connection with a termination from six months to twelve months, (iii) increase the Change of Control Separation Pay to include 1.5 times the full annual performance bonus, and (iv) add a modified economic cutback provision to provide Executive with a better after tax result under 280G of the Code to the extent applicable.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, the parties hereto hereby agree to amend the Existing Agreement as follows:

1. Definitions. Capitalized terms used and not defined in this Amendment No. 1, including the recitals, have the respective meanings assigned to them in the Existing Agreement.

2. Amendments to the Existing Agreement. As of the Amendment No. 1 Effective Date, the Existing Agreement is hereby amended or modified as follows:

(a) Section 2 of the Existing Agreement is hereby amended and restated in its entirety as follows:

"2. Term. The Executive's employment under this Agreement shall be deemed to commence on the Effective Date and shall continue on an "at-will" basis until terminated pursuant to Section 9 of this Agreement (the "**Term**")."

(b) Section 5(b) of the Existing Agreement is hereby amended and restated in its entirety as follows:

"(b) Annual Performance Bonus. At the sole discretion of the Board (or a committee thereof), the Executive shall be eligible to receive an annual performance-based bonus during the Term (the "**Annual Performance Bonus**") targeted at fifty percent (50%) of his then current Base Salary based on the attainment by the Company and the Executive of certain financial, clinical development and business objectives as established annually by the Board (or a committee thereof), after consultation with the Executive. The Annual Performance Bonus shall be payable as a lump-sum payment as determined by the Board (or a committee thereof) in its sole discretion. Except as otherwise provided in this Agreement, to earn any particular Annual Performance Bonus, the Executive must, in addition to satisfying the performance objectives, remain employed on the date the Annual Performance Bonus is paid; provided, further, that the Annual Performance Bonus will be paid no later than seventy-five (75) days after the end of the period to which the Annual Performance Bonus pertains."

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(c) Section 10(b) of the Existing Agreement is hereby amended and restated as follows:

“(b) Change of Control Severance. If the Executive’s employment is terminated by the Company due to Disability pursuant to Section 9(b), by the Company without Cause pursuant to Section 9(e) or by the Executive for Good Reason pursuant to Section 9(d) and such termination occurs during the period beginning on the Change of Control and ending twelve (12) months immediately following such Change of Control (the “**COC Period**”), *provided* that the Executive signs and does not revoke a general release of claims against the Company within the time period specified therein (which time period shall not exceed sixty (60) days), in form and substance satisfactory to the Company (the “**Release**”), then the Company shall provide the following benefits to the Executive, referred to herein as the “**Change of Control Separation Benefits**”: (i) a lump sum payment equal to eighteen (18) months of the Executive’s then-current Base Salary (less applicable taxes and withholdings); (ii) the full Annual Performance Bonus for the year in which such termination occurs multiplied by 1.5, less any installments paid in advance (and less applicable taxes and withholdings) (items (i) and (ii) being the “**Change of Control Separation Pay**”); (iii) immediate vesting in full of all Equity Awards; (iv) extension of the exercise period for all vested Stock Options to the end of their term; and (v) if the Executive properly and timely elects to continue his health insurance benefits under COBRA or applicable state continuation coverage after the termination date, reimbursement for the portion of Executive’s health continuation coverage premiums that the Company would have paid had the Executive remained employed by the Company until the earlier of (A) the eighteen (18) month period following the month in which the Executive’s termination date occurs, or (B) the maximum period permitted by applicable law, *provided* that the Company’s obligation to pay a portion of the Executive’s health continuation coverage premiums will terminate if he becomes eligible for health insurance benefits from another employer during the reimbursement period. The Change of Control Separation Pay will be paid within sixty (60) days after the termination date; *provided*, however, that if the 60-day period begins in one calendar year and ends in a second calendar year, such payments, to the extent they qualify as “non-qualified deferred compensation” within the meaning of Section 409A of the Code, shall be paid no earlier than the first Company payroll date in the second calendar year and, in any case, by the last day of such 60-day period.”

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(d) Section 12(a) and (b) of the Existing Agreement is hereby amended and restated as follows:

“(a) This Agreement shall be governed by, and construed and interpreted in accordance with, the laws of the State of Indiana, without giving effect to its principles of conflicts of laws.

(b) In the event of any dispute arising out of, or relating to, this Agreement or the breach thereof (other than Sections 6 or 7 hereof), or regarding the interpretation thereof, the parties agree to submit any differences to nonbinding mediation prior to pursuing resolution through the courts. The parties hereby submit to the exclusive jurisdiction of the Courts of Marion County, Indiana, or the United States District Court for the Southern District of Indiana, and agree that service of process in such court proceedings shall be satisfactorily made upon each other if sent by registered mail addressed to the recipient at the address referred to in Section 12(g) below.”

(e) Immediately following Section 12 of the Existing Agreement, a new Section 13 as provided below is added:

“13. Section 280G.

(a) Notwithstanding any other provision of this Agreement or any other plan, arrangement or agreement to the contrary, if any of the payments or benefits provided or to be provided by the Company or its affiliates to the Executive or for the Executive’s benefit pursuant to the terms of this Agreement or otherwise (“**Covered Payments**”) constitute parachute payments (“**Parachute Payments**”) within the meaning of Section 280G of the Code and would, but for this Section 13 be subject to the excise tax imposed under Section 4999 of the Code (or any successor provision thereto) or any similar tax imposed by state or local law or any interest or penalties with respect to such taxes (collectively, the “**Excise Tax**”), then prior to making the Covered Payments, a calculation shall be made comparing (i) the Net Benefit (as defined below) to the Executive of the Covered Payments after payment of the Excise Tax to (ii) the Net Benefit to the Executive if the Covered Payments are limited to the extent necessary to avoid being subject to the Excise Tax. Only if the amount calculated under (i) above is less than the amount under (ii) above will the Covered Payments be reduced to the minimum extent necessary to ensure that no portion of the Covered Payments is subject to the Excise Tax (that amount, the “**Reduced Amount**”). “**Net Benefit**” shall mean the present value of the Covered Payments net of all federal, state, local, foreign income, employment and excise taxes.

(b) Any such reduction shall be made in accordance with Section 409A of the Code and the following: (i) the Covered Payments which do not constitute nonqualified deferred compensation subject to Section 409A of the Code shall be reduced first; and (ii) all other Covered Payments shall then be reduced as follows: (A) cash payments shall be reduced before non-cash payments; and (B) payments to be made on a later payment date shall be reduced before payments to be made on an earlier payment date.

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(c) Any determination required under this Section 13 shall be made in writing in good faith by the accounting firm that was the Company's independent auditor immediately before the Change of Control (the "**Accounting Firm**"). The Accounting Firm shall provide detailed supporting calculations to the Company and the Executive as requested by the Company or the Executive. The Company and the Executive shall provide the Accounting Firm with such information and documents as the Accounting Firm may reasonably request in order to make a determination under this Section 13. For purposes of making the calculations and determinations required by this Section 13, the Accounting Firm may rely on reasonable, good faith assumptions and approximations concerning the application of Section 280G and Section 4999 of the Code. The Accounting Firm's determinations shall be final and binding on the Company and the Executive. The Company shall be responsible for all fees and expenses incurred by the Accounting Firm in connection with the calculations required by this Section 13.

(d) It is possible that after the determinations and selections made pursuant to this Section 13 the Executive will receive Covered Payments that are in the aggregate more than the amount provided under this Section 13 ("**Overpayment**") or less than the amount provided under this Section 13 ("**Underpayment**").

(i) In the event that: (A) the Accounting Firm determines, based upon the assertion of a deficiency by the Internal Revenue Service against either the Company or the Executive which the Accounting Firm believes has a high probability of success, that an Overpayment has been made or (B) it is established pursuant to a final determination of a court or an Internal Revenue Service proceeding that has been finally and conclusively resolved that an Overpayment has been made, then the Executive shall pay any such Overpayment to the Company.

(ii) In the event that: (A) the Accounting Firm, based upon controlling precedent or substantial authority, determine that an Underpayment has occurred or (B) a court of competent jurisdiction determines that an Underpayment has occurred, any such Underpayment will be paid promptly by the Company to or for the benefit of the Executive.

3. Date of Effectiveness; Limited Effect. This Amendment No.1 will become effective as of the Amendment No. 1 Effective Date. Except as expressly provided in this Amendment No.1, all of the terms and provisions of the Existing Agreement are and will remain in full force and effect and are hereby ratified and confirmed by the Parties. Without limiting the generality of the foregoing, the amendments contained herein will not be construed as an amendment to or waiver of any other provision of the Existing Agreement or as a waiver of or consent to any further or future action on the part of either Party that would require the waiver or consent of the other Party. On and after the Amendment No. 1 Effective Date, each reference in the Existing Agreement to "this Agreement," "the Agreement," "hereunder," "hereof," "herein," or words of like import, shall mean the Existing Agreement as amended by this Amendment No.1.

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4. Miscellaneous.

(a) This Amendment No.1 is governed by and construed in accordance with, the laws of the State of Indiana, without regard to the conflict of laws provisions of such State.

(b) This Amendment No.1 shall inure to the benefit of and be binding upon each of the Parties and each of their respective permitted successors and permitted assigns.

(c) The headings in this Amendment No.1 are for reference only and do not affect the interpretation of this Amendment No.1.

(d) This Amendment No.1 may be executed in counterparts, each of which is deemed an original, but all of which constitute one and the same agreement. Delivery of an executed counterpart of this Amendment No.1 electronically or by facsimile shall be effective as delivery of an original executed counterpart of this Amendment No.1.

(e) This Amendment No.1 constitutes the sole and entire agreement between the Parties with respect to the subject matter contained herein, and supersedes all prior and contemporaneous understandings, agreements, representations, and warranties, both written and oral, with respect to such subject matter.

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IN WITNESS WHEREOF, the Parties have executed this Amendment No.1 as of the date first written above.

ASSEMBLY BIOSCIENCES, INC.

By /s/ William R. Ringo, Jr.

Name: William R. Ringo, Jr.

Title: Chairman of the Board

/s/ Derek Small

Derek Small

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## AMENDMENT NO. 1 TO EMPLOYMENT AGREEMENT

Amendment No. 1 to Employment AGREEMENT (this "**Amendment No. 1**"), is entered into on October 10, 2018 (the "**Amendment No. 1 Effective Date**"), by and between Assembly Biosciences, Inc., a Delaware corporation with principal executive offices at 11711 N. Meridian Street, Suite 310, Carmel, IN 46032 (the "**Company**"), and Richard Colonno, Ph.D. (the "**Executive**").

## WITNESSETH:

WHEREAS, the Company and Executive have entered into the Employment Agreement dated as of December 17, 2015 and effective as of January 5, 2016 (the "**Existing Agreement**").

WHEREAS, the Company and Executive desire to amend the Existing Agreement as provided in this Amendment No. 1 to, among other things, (i) provide for "at will" employment without a specified term after the Initial Term, (ii) increase the protected period following a Change of Control in which Executive would be entitled to receive the Change of Control Separation Benefits in connection with a termination from six months to twelve months, and (iii) add a modified economic cutback provision to provide the Executive with a better after tax result under 280G of the Code, to the extent applicable.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, the parties hereto hereby agree to amend the Existing Agreement as follows:

1. Definitions. Capitalized terms used and not defined in this Amendment No.1, including the recitals, have the respective meanings assigned to them in the Existing Agreement.

2. Amendments to the Existing Agreement. As of the Amendment No. 1 Effective Date, the Existing Agreement is hereby amended or modified as follows:

(a) Section 2 of the Existing Agreement is hereby amended and restated in its entirety as follows:

"2. Term. The Executive's employment under this Agreement shall be deemed to commence on the Effective Date and shall continue for a term of five (5) years from the Effective Date (the "**Initial Term**"), unless sooner terminated pursuant to Section 8 of this Agreement, and shall continue thereafter on an "at-will" basis until terminated pursuant to Section 8 of this Agreement (together with the Initial Term, the "**Term**")."

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(b) Section 9(b) of the Existing Agreement is hereby amended and restated as follows:

“(b) Change of Control Severance. If Executive’s employment is terminated by the Company due to Disability pursuant to Section 8(b), by the Company without Cause pursuant to Section 8(e) or by the Executive for Good Reason pursuant to Section 8(d) and such termination occurs during the period beginning on the Change of Control and ending twelve (12) months immediately following such Change of Control (the “**COC Period**”), *provided* that the Executive signs and does not revoke a general release of claims against the Company within the time period specified therein (which time period shall not exceed sixty (60) days), in form and substance satisfactory to the Company (the “**Release**”), then the Company shall provide the following benefits to the Executive, referred to herein as the “**Change of Control Separation Benefits**”: (i) a lump sum payment equal to eighteen (18) months of the Executive’s then-current Base Salary (less applicable taxes and withholdings); (ii) the full Annual Milestone Bonus (items (i) and (ii) being the “**Change of Control Separation Pay**”); (iii) immediate vesting in full of all Equity Awards; (iv) extension of the exercise period for all vested Stock Options to the end of their term; and (v) if the Executive properly and timely elects to continue his health insurance benefits under COBRA or applicable state continuation coverage after the date of termination, reimbursement for the Executive’s applicable health continuation coverage premiums for the lesser of (A) the eighteen (18) month period following the month in which the Executive’s termination date occurs, or (B) the maximum period permitted by applicable law, *provided* that the Company’s obligation to pay a portion of the Executive’s health continuation coverage premiums will terminate if he becomes eligible for health insurance benefits from another employer during the reimbursement period. The Change of Control Separation Pay will be paid within sixty (60) days after the termination date; *provided*, however, that if the 60-day period begins in one calendar year and ends in a second calendar year, such payments, to the extent they qualify as “non-qualified deferred compensation” within the meaning of Section 409A of the Code, shall be paid no earlier than the first Company payroll date in the second calendar year and, in any case, by the last day of such 60-day period.”

(c) Section 11(a) and (b) of the Existing Agreement is hereby amended and restated as follows:

“(a) This Agreement shall be governed by, and construed and interpreted in accordance with, the laws of the State of California, without giving effect to its principles of conflicts of laws.

(b) In the event of any dispute arising out of, or relating to, this Agreement or the breach thereof (other than Sections 5 or 6 hereof), or regarding the interpretation thereof, the parties agree to submit any differences to nonbinding mediation prior to pursuing resolution through the courts. The parties hereby submit to the exclusive jurisdiction of the state and federal courts situated in San Francisco County, California, and agree that service of process in such court proceedings shall be satisfactorily made upon each other if sent by registered mail addressed to the recipient at the address referred to in Section 11(g) below.”

(d) Immediately following Section 11 of the Existing Agreement, a new Section 12 as provided below is added:

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“12. Section 280G.

(a) Notwithstanding any other provision of this Agreement or any other plan, arrangement or agreement to the contrary, if any of the payments or benefits provided or to be provided by the Company or its affiliates to the Executive or for the Executive's benefit pursuant to the terms of this Agreement or otherwise (“**Covered Payments**”) constitute parachute payments (“**Parachute Payments**”) within the meaning of Section 280G of the Code and would, but for this Section 12 be subject to the excise tax imposed under Section 4999 of the Code (or any successor provision thereto) or any similar tax imposed by state or local law or any interest or penalties with respect to such taxes (collectively, the “**Excise Tax**”), then prior to making the Covered Payments, a calculation shall be made comparing (i) the Net Benefit (as defined below) to the Executive of the Covered Payments after payment of the Excise Tax to (ii) the Net Benefit to the Executive if the Covered Payments are limited to the extent necessary to avoid being subject to the Excise Tax. Only if the amount calculated under (i) above is less than the amount under (ii) above will the Covered Payments be reduced to the minimum extent necessary to ensure that no portion of the Covered Payments is subject to the Excise Tax (that amount, the “**Reduced Amount**”). “**Net Benefit**” shall mean the present value of the Covered Payments net of all federal, state, local, foreign income, employment and excise taxes.

(b) Any such reduction shall be made in accordance with Section 409A of the Code and the following: (i) the Covered Payments which do not constitute nonqualified deferred compensation subject to Section 409A of the Code shall be reduced first; and (ii) all other Covered Payments shall then be reduced as follows: (A) cash payments shall be reduced before non-cash payments; and (B) payments to be made on a later payment date shall be reduced before payments to be made on an earlier payment date.

(c) Any determination required under this Section 12 shall be made in writing in good faith by the accounting firm that was the Company's independent auditor immediately before the Change of Control (the “**Accounting Firm**”). The Accounting Firm shall provide detailed supporting calculations to the Company and the Executive as requested by the Company or the Executive. The Company and the Executive shall provide the Accounting Firm with such information and documents as the Accounting Firm may reasonably request in order to make a determination under this Section 12. For purposes of making the calculations and determinations required by this Section 12, the Accounting Firm may rely on reasonable, good faith assumptions and approximations concerning the application of Section 280G and Section 4999 of the Code. The Accounting Firm's determinations shall be final and binding on the Company and the Executive. The Company shall be responsible for all fees and expenses incurred by the Accounting Firm in connection with the calculations required by this Section 12.

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(d) It is possible that after the determinations and selections made pursuant to this Section 12 the Executive will receive Covered Payments that are in the aggregate more than the amount provided under this Section 12 (“**Overpayment**”) or less than the amount provided under this Section 12 (“**Underpayment**”).

(i) In the event that: (A) the Accounting Firm determines, based upon the assertion of a deficiency by the Internal Revenue Service against either the Company or the Executive which the Accounting Firm believes has a high probability of success, that an Overpayment has been made or (B) it is established pursuant to a final determination of a court or an Internal Revenue Service proceeding that has been finally and conclusively resolved that an Overpayment has been made, then the Executive shall pay any such Overpayment to the Company.

(ii) In the event that: (A) the Accounting Firm, based upon controlling precedent or substantial authority, determine that an Underpayment has occurred or (B) a court of competent jurisdiction determines that an Underpayment has occurred, any such Underpayment will be paid promptly by the Company to or for the benefit of the Executive.

3. Date of Effectiveness; Limited Effect. This Amendment No.1 will become effective as of the Amendment No.1 Effective Date. Except as expressly provided in this Amendment No.1, all of the terms and provisions of the Existing Agreement are and will remain in full force and effect and are hereby ratified and confirmed by the Parties. Without limiting the generality of the foregoing, the amendments contained herein will not be construed as an amendment to or waiver of any other provision of the Existing Agreement or as a waiver of or consent to any further or future action on the part of either Party that would require the waiver or consent of the other Party. On and after the Amendment No.1 Effective Date, each reference in the Existing Agreement to "this Agreement," "the Agreement," "hereunder," "hereof," "herein," or words of like import shall mean the Existing Agreement as amended by this Amendment No.1.

4. Miscellaneous.

(a) This Amendment No.1 is governed by and construed in accordance with, the laws of the State of California, without regard to the conflict of laws provisions of such State.

(b) This Amendment No.1 shall inure to the benefit of and be binding upon each of the Parties and each of their respective permitted successors and permitted assigns.

(c) The headings in this Amendment No.1 are for reference only and do not affect the interpretation of this Amendment No.1.

(d) This Amendment No.1 may be executed in counterparts, each of which is deemed an original, but all of which constitute one and the same agreement. Delivery of an executed counterpart of this Amendment No.1 electronically or by facsimile shall be effective as delivery of an original executed counterpart of this Amendment No.1.

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(e) This Amendment No.1 constitutes the sole and entire agreement between the Parties with respect to the subject matter contained herein, and supersedes all prior and contemporaneous understandings, agreements, representations, and warranties, both written and oral, with respect to such subject matter.

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IN WITNESS WHEREOF, the Parties have executed this Amendment No.1 as of the date first written above.

ASSEMBLY BIOSCIENCES, INC.

By /s/ Derek A. Small

Name: Derek A. Small

Title: Chief Executive Officer and President

/s/ Richard Colonno, Ph.D.

Richard Colonno, Ph.D.

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## AMENDED AND RESTATED EMPLOYMENT AGREEMENT

This AMENDED AND RESTATED EMPLOYMENT AGREEMENT (the “**Agreement**”), is entered into on October 10, 2018 (the “**Effective Date**”), by and between Assembly Biosciences, Inc., a Delaware corporation with principal executive offices at 11711 N. Meridian Street, Suite 310, Carmel, IN 46032 (the “**Company**”), and Uri A. Lopatin, MD (the “**Executive**”).

## WITNESSETH:

WHEREAS, the Company and the Executive entered into an Employment Agreement dated July 11, 2014 (the “**Prior Agreement**”).

WHEREAS, the Company desires to continue to employ the Executive in the role of Chief Medical Officer as of the Effective Date, and the Executive desires to continue employment with the Company as of the Effective Date; and

WHEREAS, the parties desire to enter into this Agreement, setting forth the terms and conditions of the Executive’s continued employment with the Company.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, the parties hereto hereby agree as follows:

1. Employment.

(a) Services. As of the Effective Date, the Executive will be employed by the Company initially as its Chief Medical Officer, reporting initially to the Company’s Chief Scientific Officer – Virology Operations, and shall perform such duties as are consistent with a position of Chief Medical Officer, and other duties assigned by the Chief Executive Officer from time to time, including overseeing the clinical research and clinical trial programs, clinical research and development and support for the Company’s business development and investor relations activities (the “**Services**”). The Executive agrees to perform such Services faithfully, to devote substantially all of his working time, attention and energies to the business of the Company (except as otherwise permitted herein) and use his best efforts to advance the best interests of the Company. While Executive remains employed and subject to the terms of this Agreement, he will not engage in any other business activity that is in conflict with his duties and obligations to the Company; provided, however, that, with the written consent of the Chief Executive Officer, which consent shall not be unreasonably withheld, the Executive may engage in consulting and board activities (whether or not for any compensation or other pecuniary gain or advantage) for businesses that are not competitive with the Company so long as such activities do not prevent him from carrying out his duties and obligations to the Company and otherwise comply with the Company’s Code of Conduct and Employee Handbook.

(b) Acceptance. Executive hereby accepts such employment and agrees to render the Services.

2. Term. The Executive’s employment under this Agreement shall commence as of the Effective Date and shall continue on an “at-will” basis until terminated pursuant to Section 7 of this Agreement (the “**Term**”).

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3. **Best Efforts.** The Executive shall devote substantially all of his business time, attention and energies (recognizing the exception described in 1(a) above for consulting and board work that is approved by the Chief Executive Officer) to the business and affairs of the Company and shall use his best efforts to advance the best interests of the Company and during the Term shall not be actively engaged in any other business activity, whether or not such business activity is pursued for gain, profit or other pecuniary advantage, that will interfere with the performance by the Executive of his duties hereunder or the Executive's availability to perform such duties or that will adversely affect, or negatively reflect upon, the Company.

4. **Compensation.** During the Term, as full compensation for the performance by the Executive of his duties under this Agreement, the Company shall pay the Executive as follows:

(a) **Base Salary.** The Company shall pay Executive an annualized base salary (the "**Base Salary**") initially equal to three hundred ninety thousand dollars (\$390,000). Payment shall be made in accordance with the Company's normal payroll practices, as they may be changed from time to time. The Base Salary will be reviewed by the Chief Executive Officer and the Board of Directors (the "Board"), or a committee thereof, no less frequently than annually.

(b) **Annual Performance Bonus.** At the sole discretion of the Board (or a committee thereof), the Executive shall be eligible to receive an annual performance-based bonus during the Term (the "**Annual Performance Bonus**") targeted at thirty-five percent (35%) of his then current Base Salary based on the attainment by the Company and the Executive of certain financial, clinical development and business objectives as established annually by the Chief Executive Officer (or a committee of the Board) with input from the Executive. The Annual Performance Bonus shall be payable as a lump-sum payment as determined by the Board (or a committee thereof) in its sole discretion. Except as otherwise provided in this Agreement, to earn any particular Annual Performance Bonus, the Executive must, in addition to satisfying the performance objectives, remain employed on the date the Annual Performance Bonus is paid; *provided, further*, that the Annual Performance Bonus will be paid no later than two and one half (2.5) months after the end of the calendar year to which the Annual Performance Bonus pertains.

(c) **Withholding.** The Company shall withhold all applicable federal, state and local taxes, social security and such other amounts as may be required by law from all amounts payable to the Executive under this Agreement, including Section 4 and Section 9.

(d) **Equity.** All equity awards the Company granted to the Executive prior to the Effective Date shall remain in full force and effect, according to the existing terms thereof and no modification is intended by execution of this Agreement. From time to time, subject to and upon the approval by the Board (or a committee thereof), the Company may grant to the Executive additional equity awards to purchase or receive shares of common stock of the Company (the "**Equity Awards**"). The Equity Awards will contain such terms and conditions as may be approved by the Board (or a committee thereof).

(e) **Expenses.** The Company shall provide the Executive with a corporate credit card for business use, and shall reimburse the Executive for all normal, usual and necessary expenses incurred by the Executive in furtherance of the business and affairs of the Company, including reasonable travel and entertainment, upon timely receipt by the Company of appropriate vouchers or other proof of the Executive's expenditures and otherwise in accordance with any travel or expense reimbursement policy as may from time to time be adopted by the Company.

(f) Other Benefits. The Executive shall be entitled to all rights and benefits for which he shall be eligible under any benefit or other plans (including, without limitation, dental, medical, medical reimbursement and hospital plans, pension plans, employee stock purchase plans, profit sharing plans, bonus plans and other so-called “**Fringe Benefits**”) as the Company shall make available to its senior executives from time to time, subject to the terms of such plans. In addition, if applicable, the Company shall reimburse the Executive for his reasonable licensing fees, continuing professional education, and other professional dues upon timely receipt by the Company of appropriate vouchers or other proof of the Executive’s expenditures and otherwise in accordance with any expense reimbursement policy as may from time to time be adopted by the Company. The Company shall also name the Executive as a covered person under its Directors & Officers insurance policies and shall maintain, at its sole expense, such coverage for Executive both for the period of his service as an officer and/or director of the Company or any of its affiliates and for so long thereafter as he may reasonably be subject to any claim, covering any acts or omissions in his capacity as an officer and/or director of the Company or any of its affiliates.

(g) Vacation. The Executive will be entitled to paid vacation in accordance with the Company’s vacation policy, as in effect from time to time.

(h) Indemnification. The Executive is entitled to indemnification under Article VI of the Company’s Amended and Restated Bylaws.

5. Confidential Information and Inventions.

(a) The Executive recognizes and acknowledges that in the course of his duties he is likely to receive confidential or proprietary information owned by the Company or third parties with whom the Company has an obligation of confidentiality, relating to and used in the Company’s business (collectively, “**Confidential and Proprietary Information**”). Confidential and Proprietary Information shall include, but shall not be limited to, confidential or proprietary scientific or technical information, data, study results, study design, formulas and related concepts, business plans (both current and under development), client lists, promotion and marketing programs, trade secrets, or any other confidential or proprietary business information relating to development programs, costs, revenues, marketing, investments, sales activities, promotions, credit and financial data, manufacturing processes, financing methods, plans or the business and affairs of the Company or of any affiliate, client or service provider of the Company, and any and all information relating to the operation of the Company’s business which the Company may from time to time designate as confidential or proprietary or that the Executive reasonably knows should be, or has been, treated by the Company as confidential or proprietary. The Executive expressly acknowledges that the Confidential and Proprietary Information constitutes a protectable business interest of the Company. The Executive further agrees that if any information that the Company deems to be a trade secret is found by a court of competent jurisdiction not to be a trade secret, such information will, nevertheless, be considered Confidential and Proprietary Information for purposes of this Agreement. Confidential and Proprietary Information does not include any information that: (i) at the time of disclosure is generally known to, or readily ascertainable by, the public; (ii) becomes known to the public through no fault of the Executive or other violation of this Agreement; (iii) is independently developed or lawfully disclosed to Executive by a third party that is unrelated to the Company and is not bound by obligations of confidentiality to the Company with respect thereto; or (iv) is disclosed to the Executive by a third party under no obligation to maintain the confidentiality of the information. The Executive agrees, during and after the Term, except as reasonably necessary for the fulfillment of his duties under this Agreement: (i) not to use any such Confidential and Proprietary Information for himself or others; and (ii) to keep confidential and not disclose or make accessible to any other person or entity any Confidential and Proprietary Information. The Executive agrees to return immediately all Confidential and Proprietary Information and Company material and reproductions (including but not limited, to writings, correspondence, notes, drafts, records, invoices, technical and business policies, computer programs or disks) thereof in his possession to the Company upon termination of employment, or at any time upon the Company’s request.

(b) Except with prior written authorization by the Company or as reasonably necessary for the fulfillment of his duties under this Agreement, the Executive agrees not to disclose or publish any of the Confidential and Proprietary Information, or any confidential, scientific, technical or business information of any other party to whom the Company owes an obligation of confidence, at any time during or after his employment with the Company. The restrictions in this Section 5(b) and in Section 5(a) above will not apply to any information that the Executive is required to disclose by law, legal process or court order, *provided* that the Executive (i) notifies the Company of the existence and terms of such obligation, (ii) gives the Company a reasonable opportunity to seek a protective or similar order to prevent or limit such disclosure, and (iii) only discloses that information actually required to be disclosed.

(c) The Executive agrees that any and all inventions (whether or not patentable), discoveries, improvements, know-how, ideas, information and patentable or copyrightable works ("**Inventions**") initiated, conceived or made by him, either alone or in conjunction with others, during the course of his employment by the Company or that result from work performed by the Executive for the Company, shall be the sole property of the Company to the maximum extent permitted by applicable law and, to the extent permitted by law, shall be "works made for hire" as that term is defined in the United States Copyright Act (17 U.S.C.A., Section 101). The Company shall be the sole owner of all patents, copyrights, trade secret rights, and other intellectual property or other rights in connection therewith. The Executive hereby assigns to the Company all right, title and interest he may have or acquire in all such Inventions. The Executive further agrees to assist the Company in every proper way (but at the Company's expense) to obtain and from time to time enforce patents, copyrights or other rights on such Inventions in any and all countries, and to that end the Executive will execute all documents necessary:

(i) to apply for, obtain and vest in the name of the Company alone (unless the Company otherwise directs) letters patent, copyrights or other analogous protection in any country throughout the world and when so obtained or vested to renew and restore the same; and

(ii) to defend any opposition proceedings in respect of such applications and any opposition proceedings or petitions or applications for revocation of such letters patent, copyright or other analogous protection.

To the extent this Agreement is required to be construed in accordance with the laws of any state which precludes a requirement to assign certain classes of inventions made by an employee, this Section 5 will be interpreted not to apply to any invention which a court rules and/or the Company agrees falls within such classes. As required pursuant to Section 2872 of the California Labor Code, the Executive acknowledges that the Company has notified the Executive that the provisions of this Section 5 do not apply to an invention that qualified fully under the provisions of Section 2870 of the California Labor Code (attached hereto as Exhibit A).

(d) The Executive acknowledges that, while performing the services under this Agreement the Executive may locate, identify and/or evaluate patented or patentable inventions having commercial potential in the fields of pharmacy, pharmaceutical, biotechnology, healthcare, technology and other fields that are related to the Company's business (the "**Third-Party Inventions**"). The Executive understands, acknowledges and agrees that all rights to, interests in or opportunities regarding, all Third-Party Inventions identified by the Company or its affiliates or either of the foregoing Persons' officers, directors, employees (including the Executive), agents or consultants during the Term shall be and remain the sole and exclusive property of the Company or such affiliate and the Executive shall have no rights whatsoever to such Third-Party Inventions and will not pursue for himself or for others any transaction relating to the Third-Party Inventions which is not on behalf of the Company.

(e) Except to the extent modified in any respect in this Agreement, Executive's covenants set forth in the Section 5 are in addition and supplement Executive's additional covenants set forth in his Proprietary Information and Inventions Agreement dated June 12, 2015 (the "PIIA"). Notwithstanding any other provision herein, the PIIA or any other agreement between the parties, following termination of his employment, Executive may retain, in hardcopy and/or electronic format, and use the Microsoft Outlook Contacts and similar contact information maintained by him as of his last day of employment with the Company, and may also continue to maintain and use any personal or professional profile, accounts or contacts contained on any LinkedIn, Facebook or other social media site or system existing as of Executive's last day of employment with the Company.

(f) The provisions of this Section 5 shall survive any termination or expiration of this Agreement.

6. Non-Solicitation. The Executive understands and recognizes that his services to the Company are special and unique and that in the course of performing such services the Executive will have access to and knowledge of Confidential and Proprietary Information (as defined in Section 5) and will become knowledgeable of and familiar with the Company's clinical sites and service providers as well as the Company's business. The Executive acknowledges that, due to the unique nature of the Company's business, the loss of any of its clinical sites, service providers or business flow or the improper use of its Confidential and Proprietary Information could create significant instability and cause substantial damage to the Company and therefore the Company has a strong legitimate business interest in protecting the continuity of its business interests and the restrictions herein agreed to by the Executive narrowly and fairly serve such an important and critical business interest of the Company. Therefore, the Executive covenants and agrees as follows:

(a) Definitions. As used in this Agreement, the following terms have the meanings given to such terms below:

(i) "**Company Employee**" means (A) any person who is an employee of the Company at the time of the date of the Executive's termination of employment, and (B) any person who was an employee of the Company at any point during the six (6) month period prior to, the termination of the Executive's employment.

(ii) "**Person**" means any person, firm, partnership, joint venture, corporation or other business entity.

(iii) "**Restricted Period**" means the period commencing on the date of the Executive's termination of employment and ending twelve (12) months thereafter; *provided, however*, that this period will be tolled and will not run during any time Executive is in violation of this Section 6, it being the intent of the parties that the Restricted Period will be extended for any period of time in which the Executive is in violation of this Section 6.

(b) Non-Solicitation. During his employment with the Company and during the Restricted Period (other than for the benefit of the Company), the Executive will not, directly or indirectly, on the Executive's own behalf or on behalf of any other Person, solicit, induce, or attempt to solicit or induce any Company Employee or any independent contractor (who is then engaged by the Company or was engaged by the Company in the prior six (6) months) to terminate his or her employment or engagement with the Company or to accept employment or engagement with any Person. Nothing herein, the PIIA or any other agreement between the parties prohibits use of general recruiting advertisements that are not targeted at any specific employee, consultant or independent contractor of the Company.

(c) Enforcement. In the event that the Executive breaches or threatens to breach any provisions of Section 5 or this Section 6, then the Company will suffer irreparable harm and monetary damages would be inadequate to compensate the Company. Accordingly, in addition to any other rights which the Company may have, the Company shall (i) be entitled, without the posting of bond or other security, to seek injunctive relief to enforce the restrictions contained in such Sections and (ii) have the right to require the Executive to account for and seek payment to the Company of all compensation, profits, monies, accruals, increments and other benefits derived or received by the Executive as a result of any transaction constituting a breach of any of the provisions of Sections 5 or 6, to the maximum extent permitted by law.

(d) Reasonableness and Severability. Each of the rights and remedies enumerated in Section 6(c) shall be independent of the others and shall be in addition to and not in lieu of any other rights and remedies available to the Company at law or in equity. The Executive hereby acknowledges and agrees that the covenants provided for pursuant to Section 6 are essential elements of Executive's employment by the Company and are reasonable with respect to their duration, geographic area and scope and in all other respects. If, at the time of enforcement of this Section 6, a court of competent jurisdiction holds that the restrictions stated herein are unreasonable under the circumstances then existing, the parties hereto agree that the maximum duration, scope or geographic area legally permissible under such circumstances will be substituted for the duration, scope or area stated herein. If any of the covenants contained in this Section 6, or any part of any of them, is hereafter construed or adjudicated to be invalid or unenforceable, the same shall not affect the remainder of the covenant or covenants or rights or remedies which shall be given full effect without regard to the invalid portions. No such holding of invalidity or unenforceability in one jurisdiction shall bar or in any way affect the Company's right to the relief provided in this Section 6 or otherwise in the courts of any other state or jurisdiction within the geographical scope of such covenants as to breaches of such covenants in such other respective states or jurisdictions, such covenants being, for this purpose, severable into diverse and independent covenants.

(e) Defend Trade Secrets Act of 2016. The Executive understands that pursuant to the federal Defend Trade Secrets Act of 2016, the Executive shall not be held criminally or civilly liable under any federal or state trade secret law for the disclosure of a trade secret that (i) is made (x) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney; and (y) solely for the purpose of reporting or investigating a suspected violation of law; or (ii) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal.

(f) Protected Disclosures. The Executive understands that nothing contained in this Agreement or Executive's PIIA limits the Executive's ability to communicate with any federal, state or local governmental agency or commission, including to provide documents or other information, without notice to the Company or, subject to the qualifications set forth in clauses (i) through (iii) of the proviso in Section 5(b), make any statements or disclose any Confidential Information as reasonably necessary in any legal dispute between the Executive and the Company. The Executive also understands that nothing in this Agreement limits the Executive's ability to share compensation information concerning the Executive or others or information regarding other terms and conditions of Executive's employment, except that this does not permit the Executive to disclose compensation information concerning others that the Executive obtains because the Executive's job responsibilities require or allow access to such information.

(g) Remedies. In the event that an actual proceeding is brought in equity to enforce the provisions of Section 5 or this Section 6, the Executive shall not urge as a defense that there is an adequate remedy at law nor shall the Company be prevented from seeking any other remedies which may be available. The Executive agrees that he shall not raise in any proceeding brought to enforce the provisions of Section 5 or this Section 6 that the covenants contained in such Sections limit his ability to earn a living.

(h) Survival. The provisions of Section 6 shall survive any termination of this Agreement.

7. Representations and Warranties.

(a) The Executive hereby represents and warrants to the Company as follows:

(i) Neither the execution or delivery of this Agreement nor the performance by the Executive of his duties and other obligations hereunder violate or will violate any statute, law, determination or award, or conflict with or constitute a default or breach of any covenant or obligation under (whether immediately, upon the giving of notice or lapse of time or both) any prior employment agreement, contract, or other instrument to which the Executive is a party or by which he is bound.

(ii) The Executive has the full right, power and legal capacity to enter and deliver this Agreement and to perform his duties and other obligations hereunder. This Agreement constitutes the legal, valid and binding obligation of the Executive enforceable against him in accordance with its terms. No approvals or consents of any persons or entities are required for the Executive to execute and deliver this Agreement or perform his duties and other obligations hereunder.

(b) The Company hereby represents and warrants to the Executive that this Agreement and the employment of the Executive hereunder have been duly authorized by and on behalf of the Company, including, without limitation, by all required action by the Board (or committee thereof).

8. Termination. The Executive's employment hereunder shall be terminated immediately upon the Executive's death and may be otherwise terminated as follows:

(a) The Executive's employment hereunder may be terminated by the Company for Cause as determined by the Board. Any of the following actions by the Executive shall constitute "**Cause**":

- (i) The willful failure or continuing refusal by the Executive to perform his duties hereunder;
- (ii) Any act of willful or intentional misconduct, or a grossly negligent act by the Executive having the effect of injuring, in a material way (as determined in good-faith by the Company), the business or reputation of the Company, including but not limited to, any officer, director, or executive of the Company;
- (iii) Willful misconduct by the Executive in carrying out his duties or obligations under this Agreement, including, without limitation, insubordination with respect to lawful directions received by the Executive from the Chief Executive Officer or from the Board;
- (iv) The Executive's indictment of any felony or a misdemeanor involving moral turpitude (including entry of a nolo contendere plea);
- (v) The determination by the Company, based upon clear and convincing evidence, after a reasonable and good-faith investigation by the Company following a written allegation by another employee of the Company, that the Executive engaged in some form of harassment prohibited by law (including, without limitation, age, sex or race discrimination);
- (vi) Any intentional misappropriation of the property of the Company, or embezzlement of its funds or assets (whether or not a misdemeanor or felony);
- (vii) Breach by the Executive of any of the provisions of Sections 5, 6, or 7 of this Agreement or any of the provisions of the PIIA; and
- (viii) Breach by the Executive of any provision of this Agreement other than those contained in Sections 5, 6, or 7 which is not cured by the Executive within thirty (30) business days after notice thereof is given to the Executive by the Company.

Except for a failure, misconduct, breach, or refusal which, by its nature, cannot reasonably be expected to be cured, the Executive shall have fifteen business days from the delivery of written notice by the Company within which to cure any acts constituting Cause, unless a longer cure period is provided in the act constituting Cause described above or by the nature of the breach a longer cure period is necessary and all reasonable measures to cure such breach have been commenced within such fifteen business days; provided however, that, if the Company reasonably expects irreparable injury from a delay of fifteen business days, the Company may give the Executive notice of such shorter period within which to cure as is reasonable under the circumstances, which may include the termination of the Executive's employment for Cause without notice and with immediate effect.

(b) The Executive's employment hereunder may be terminated by the Chief Executive Officer due to the Executive's Disability. For purposes of this Agreement, a termination for "**Disability**" shall occur (i) when the Chief Executive Officer has provided a written termination notice to the Executive supported by a written statement from a reputable independent physician mutually selected by the Company and the Executive, or the Executive's legal representatives in the event he is unable to make such selection due to mental incapacity, to the effect that the Executive shall have become so physically or mentally incapacitated as to be unable to resume, even with reasonable accommodation as may be required under the Americans With Disabilities Act, within the ensuing twelve (12) months, his employment hereunder by reason of physical or mental illness or injury, or (ii) upon rendering of a written termination notice by the Company after the Executive has been unable to substantially perform his duties hereunder, even with reasonable accommodation as may be required under the Americans With Disabilities Act, for one hundred twenty (120) or more consecutive days, or more than one hundred eighty (180) days in any consecutive twelve (12) month period, by reason of any physical or mental illness or injury. For purposes of this Section 8(b), the Executive agrees to make himself available and to cooperate in any reasonable examination by a reputable independent physician mutually selected by the Company and the Executive, and paid for by the Company. Notwithstanding the foregoing, nothing herein shall give the Company the right to terminate the Executive prior to discharging its obligations to the Executive, if any, under the Family and Medical Leave Act, the Americans With Disabilities Act, or any other applicable law. The Company shall reimburse the Executive for his actual cost of maintaining a supplementary long-term disability insurance policy during the Term up to a maximum reimbursement of \$10,000 per year.

(c) The Executive's employment hereunder may be terminated by the Company (or its successor) by written notice to the Executive upon the occurrence of a Change of Control. For purposes of this Agreement, "**Change of Control**" means (i) the acquisition, directly or indirectly, following the Effective Date by any person (as such term is defined in Section 13(d) and 14(d)(2) of the Securities Exchange Act of 1934, as amended), in one transaction or a series of related transactions, of securities of the Company representing in excess of fifty percent (50%) of the combined voting power of the Company's then outstanding securities if such person or his or its affiliate(s) do not own in excess of fifty percent (50%) of such voting power on the Effective Date of this Agreement, (ii) the future disposition by the Company (whether direct or indirect, by sale of assets or stock, merger, consolidation or otherwise) of all or substantially all of its business and/or assets in one transaction or series of related transactions other than a merger effected exclusively for the purpose of changing the domicile of the Company, or (iii) a "corporate transaction" as defined in the Company equity incentive plans under which the Executive has been granted Equity Awards. Notwithstanding the foregoing, if the Change of Control does not constitute a change in the ownership or effective control of the Company, or in the ownership of a substantial portion of the assets of the Company, within the meaning of Section 409A of the Internal Revenue Code of 1986, as amended (the "**Code**"), the amount of cash severance payable pursuant to Section 9(b), if any, shall be paid in equal installments in accordance with the Company's then payroll practice over a 12-month period. Solely for purposes of Section 409A of the Code, each installment payment is considered a separate payment.

(d) The Executive's employment hereunder may be voluntarily terminated by the Executive for Good Reason. For purposes of this Agreement, "**Good Reason**" shall mean any of the following which occurs without Executive's prior written consent: (i) any material reduction by the Company of the Executive's duties, or responsibilities or authority that, taken as a whole, results in a material diminution of position; provided, however that, except as specified in subsection 8(d)(iii), herein, a change in the Executive's title or reporting relationship shall not by itself constitute a termination by Executive for Good Reason under this clause (i); (ii) any material reduction (meaning 10% or more) by the Company of the Executive's Base Salary and/or target Annual Performance Bonus payable hereunder (it being understood that an across-the-board reduction, applicable to all senior management personnel of the Company, including the Executive, shall not be deemed a reduction for purposes of this definition); (iii) the Executive no longer reports directly to the Chief Scientific Officer - Virology, Chief Executive Officer or President of the Company or its successor; (iv) any requirement by the Company, without the Executive's prior written consent, that the Executive locate the Executive's residence or primary place of employment to a location outside a 50-mile radius of such location applicable as of the Effective Date, or from such other location that the Company and the Executive may mutually agree upon and designate from time to time during the Term; or (v) a material breach by the Company of Section 7(b) of this Agreement which is not cured by the Company within thirty (30) days after written notice thereof is given to the Company by the Executive. However, notwithstanding the above, Good Reason shall not exist unless: (x) the Executive notifies the Board or the Chief Executive Officer in writing within thirty (30) days of the initial existence of one of the adverse events described above, and (y) the Company fails to correct the adverse event within thirty (30) days of such notice, and (z) the Executive's voluntary termination because of the existence of one or more of the adverse events described above occurs within ninety (90) days of the initial existence of the event.

(e) The Executive's employment may be terminated by the Company without Cause by delivery of written notice to the Executive effective the date of delivery of such notice. For the avoidance of doubt, termination of the Executive's employment due to his death or Disability does not constitute a termination for Cause.

(f) The Executive's employment may be terminated by the Executive in the absence of Good Reason by delivery of written notice to the Company effective fifteen (15) days after the date of delivery of such notice.

9. Compensation upon Termination.

(a) Accrued Benefits. Upon termination of the Executive's employment by either party regardless of the cause or reason, the Executive shall be entitled to the following, referred to herein as the "**Accrued Benefits**": (i) payment for any accrued, unpaid Base Salary through the termination date; (ii) if provided for under the Company's vacation plan or policy or required by applicable law, payment for any accrued, unused vacation days through the termination date; and (iii) reimbursement for any approved business expenses that the Executive has timely submitted for reimbursement in accordance with the Company's business expense reimbursement policy or practice. Except as otherwise expressly provided by this Agreement, the Company shall have no further payment obligations to the Executive and all Equity Awards that have not vested as of the termination date shall be forfeited to the Company as of such date. Subject to this Section 9, the vested portion of any stock options held by the Executive as of the Executive's termination date shall remain exercisable for ninety (90) days following such termination.

(b) Change of Control Separation Benefits. If the Executive's employment is terminated by the Company due to Disability pursuant to Section 8(b), by the Company without Cause pursuant to Section 8(e), or by the Executive for Good Reason pursuant to Section 8(d) and such termination occurs during the period beginning on the Change of Control and ending twelve (12) months immediately following such Change of Control (the "**COC Period**"), *provided* that the Executive signs and does not revoke a general release of claims against the Company within the time period specified therein (which time period shall not exceed sixty (60) days), in form and substance satisfactory to the Company (the "**Release**"), then the Company shall provide the following benefits to the Executive, referred to herein as the "**Change of Control Separation Benefits**": (i) a lump sum payment equal to twelve (12) months of the Executive's then-current Base Salary; (ii) the full target Annual Performance Bonus for the year in which such termination occurs, less any installments paid in advance (items (i) and (ii) being the "**Change of Control Separation Pay**"); (iii) immediate vesting in full of all Equity Awards subject to time based vesting; (iv) extension of the exercise period for all vested stock options held by the Executive as of the termination date until the end of their term; and (v) if the Executive properly and timely elects to continue his health insurance benefits under COBRA or applicable state continuation coverage after the termination date, reimbursement for Executive's health continuation coverage premiums that the Company would have paid had the Executive remained employed by the Company until the earlier of (A) the twelve (12) month period following the month in which the Executive's termination date occurs, or (B) the maximum period permitted by applicable law, provided that the Company's obligation to pay the Executive's health continuation coverage premiums will terminate if he becomes eligible for health insurance benefits from another employer during the reimbursement period. Subject to the Release being effective, the Change of Control Separation Pay will be paid within sixty (60) days after the termination date; provided, however, that if the 60-day period begins in one calendar year and ends in a second calendar year, such payments, to the extent they qualify as "non-qualified deferred compensation" within the meaning of Section 409A of the Code, shall be paid no earlier than the first Company payroll date in the second calendar year and, in any case, by the last day of such 60-day period.

(c) **Base Separation Benefits.** If the Executive's employment is terminated during the Term and outside of the COC Period as a result of the Executive's Disability pursuant to Section 8(b), by the Company without Cause pursuant to Section 8(e), or by the Executive for Good Reason pursuant to Section 8(d)(ii) –(v), *provided* that the Executive signs and does not revoke the Release within the time period specified therein (which time period shall not exceed sixty (60) days), then the Company shall provide the following benefits to the Executive, referred to herein as the "**Base Separation Benefits**": (i) the continued payment in installments of the Executive's then-current Base Salary for a period of twelve (12) months following the termination date (the "**Base Separation Pay**"); (ii) all Equity Awards which would have time vested during the six (6) months following the termination date shall accelerate and vest; (iii) with respect to those vested stock options granted prior to 2018, the extension of the exercise period for all vested stock options until term and with respect to those vested stock options granted after January 2018, the extension of the exercise period for all vested stock options until the first anniversary of the termination date; and (iv) if the Executive properly and timely elects to continue his health insurance benefits under COBRA or applicable state continuation coverage after the termination date, reimbursement for Executive's health continuation coverage premiums that the Company would have paid had the Executive remained employed by the Company until the earlier of (A) the twelve (12) month period following the month in which the Executive's termination date occurs, or (B) the maximum period permitted by applicable law, provided that the Company's obligation to pay Executive's health continuation coverage premiums will terminate if he becomes eligible for health insurance benefits from another employer during the reimbursement period. The first installment of the Base Separation Pay will be paid on the Company's first regular payday occurring following the effective date of the Release in an amount equal to the sum of payments of Base Salary that would have been paid if he had remained in employment for the period from the termination date through the payment date. The remaining installments will be paid until the end of the 12-month period at the same rate as the Base Salary in accordance with the Company's normal payroll practices for its employees. Notwithstanding the foregoing, if the 60-day period for the execution and non-revocation of the Release begins in one calendar year and ends in a second calendar year, the Base Separation Pay, to the extent it qualifies as "non-qualified deferred compensation" within the meaning of Section 409A of the Code, shall begin to be paid no earlier than the first Company payroll date in the second calendar year and, in any case, by the last day of such 60-day period; provided, however, that the initial payment shall include a catch-up payment to cover amounts retroactive to the day immediately following the termination date. The Executive understands that if he is eligible to receive the Base Separation Benefits, such Base Separation Benefits shall be in lieu of and not in addition to the Change of Control Separation Benefits described in Section 9(b) of this Agreement. Notwithstanding the foregoing, if the Executive is entitled to receive the Base Separation Benefits but violates any provisions of this Agreement or any other agreement entered into by the Executive and the Company after termination of employment, the Company will be entitled to immediately stop paying any further installments of the Base Separation Benefits. If the Executive's employment is terminated during the Term as a result of the Executive's death, then the Company shall provide to the Executive's estate the continued payment of Executive's then-current Base Salary for a period of twelve (12) months following the termination date, beginning on the Company's first regular payday following the such termination date.

(d) This Section 9 sets forth the only obligations of the Company with respect to the termination of the Executive's employment with the Company, except as otherwise required by law, and the Executive acknowledges that, upon the termination of his employment, he shall not be entitled to any payments or benefits which are not explicitly provided in Section 9.

(e) Upon termination of the Executive's employment hereunder for any reason, the Executive shall be deemed to have resigned as director and/or officer of the Company and each subsidiary, to the extent applicable, effective as of the date of such termination, unless otherwise requested by the Board.

(f) The Release will not waive any of Executive's rights, or obligations of the Company, regarding: (1) any right to indemnification and/or contribution, advancement or payment of related expenses that Executive may have pursuant to the Company's Bylaws, Articles of Incorporation or other organizing documents, under any written indemnification or other agreement between the parties, and/or under applicable law; (2) any rights that Executive may have to insurance coverage under any directors and officers liability insurance, other insurance policies of the Company, COBRA or any similar state law; (3) any claims for worker's compensation, state disability or unemployment insurance benefits, or any other claims that cannot be released as a matter of applicable law; (4) rights to any vested benefits under any equity, compensation or other employee benefit plan or agreement with the Company; (5) rights to any applicable severance benefits; (6) Executive's rights as a shareholder of the Company, if applicable, and (7) any claims arising after the date Executive signs the Release.

(g) The provisions of this Section 9 shall survive any termination of this Agreement.

10. Section 409A. The intent of the parties to this Agreement is that the payments, compensation and benefits under this Agreement be exempt from or comply with Section 409A of the Code and the regulations and guidance promulgated thereunder (collectively, "**Section 409A**") and, in this connection, the following shall be applicable:

(a) To the greatest extent possible, this Agreement shall be interpreted to be exempt from or in compliance with Section 409A.

(b) If any severance, compensation, or benefit required by this Agreement is to be paid in a series of installment payments, each individual payment in the series shall be considered a separate payment for purposes of Section 409A.

(c) If any severance, compensation, or benefit required by this Agreement that constitutes "nonqualified deferred compensation" within the meaning of Section 409A is considered to be paid on account of "separation from service" within the meaning of Section 409A, and the Executive is a "specified employee" within the meaning of Section 409A, no payments of any of such severance, compensation, or benefit shall be made until the earlier of six (6) months plus one (1) day after such separation from service or the Executive's death (the "**New Payment Date**"). The aggregate amount of any such payments that would have otherwise been paid during the period between the date of separation from service and the New Payment Date shall be paid to the Executive or his estate in a lump sum payment on the New Payment Date. Thereafter, any severance, compensation, or benefit required by this Agreement that remains outstanding as of the day immediately following the New Payment Date shall be paid without delay over the time period originally scheduled, in accordance with the terms of this Agreement.

(d) - If either the Company or Executive reasonably determines that any payment or benefit provided to Executive will violate Section 409A, the Company and Executive will use best efforts to restructure the payment in a manner that is either exempt from or compliant with Section 409A. The Company and Executive will execute any and all amendments to this Agreement as may be necessary to ensure compliance with the distribution provisions of Section 409A in an effort to avoid or minimize, to the extent allowable by law, the tax (and any interest or penalties thereon) associated with Section 409A. If it is determined that a payment under this Agreement was (or may be) made in violation of Section 409A, the Company will cooperate reasonably with any effort by Executive to mitigate the tax consequences of such violation, including cooperation with Executive's participation in any IRS voluntary compliance program or other correction procedure under Section 409A that may be available to Executive.

(e) The provisions of this Section 10 shall survive any termination of this Agreement.

11. Section 280G.

(a) Notwithstanding any other provision of this Agreement or any other plan, arrangement or agreement to the contrary, if any of the payments or benefits provided or to be provided by the Company or its affiliates to the Executive or for the Executive's benefit pursuant to the terms of this Agreement or otherwise ("**Covered Payments**") constitute parachute payments ("**Parachute Payments**") within the meaning of Section 280G of the Code and would, but for this Section 11 be subject to the excise tax imposed under Section 4999 of the Code (or any successor provision thereto) or any similar tax imposed by state or local law or any interest or penalties with respect to such taxes (collectively, the "**Excise Tax**"), then prior to making the Covered Payments, a calculation shall be made comparing (i) the Net Benefit (as defined below) to the Executive of the Covered Payments after payment of the Excise Tax to (ii) the Net Benefit to the Executive if the Covered Payments are limited to the extent necessary to avoid being subject to the Excise Tax. Only if the amount calculated under (i) above is less than the amount under (ii) above will the Covered Payments be reduced to the minimum extent necessary to ensure that no portion of the Covered Payments is subject to the Excise Tax (that amount, the "**Reduced Amount**"). "**Net Benefit**" shall mean the present value of the Covered Payments net of all federal, state, local, foreign income, employment and excise taxes.

(b) Any such reduction shall be made in accordance with Section 409A of the Code and the following: (i) the Covered Payments which do not constitute nonqualified deferred compensation subject to Section 409A of the Code shall be reduced first; and (ii) all other Covered Payments shall then be reduced as follows: (A) cash payments shall be reduced before non-cash payments; and (B) payments to be made on a later payment date shall be reduced before payments to be made on an earlier payment date.

(c) Any determination required under this Section 11 shall be made in writing in good faith by the accounting firm that was the Company's independent auditor immediately before the Change of Control (the "**Accounting Firm**"). The Accounting Firm shall provide detailed supporting calculations to the Company and the Executive as requested by the Company or the Executive. The Company and the Executive shall provide the Accounting Firm with such information and documents as the Accounting Firm may reasonably request in order to make a determination under this Section 11. For purposes of making the calculations and determinations required by this Section 11, the Accounting Firm may rely on reasonable, good faith assumptions and approximations concerning the application of Section 280G and Section 4999 of the Code. The Accounting Firm's determinations shall be final and binding on the Company and the Executive. The Company shall be responsible for all fees and expenses incurred by the Accounting Firm in connection with the calculations required by this Section 11.

(d) It is possible that after the determinations and selections made pursuant to this Section 11 the Executive will receive Covered Payments that are in the aggregate more than the amount provided under this Section 11 ("**Overpayment**") or less than the amount provided under this Section 11 ("**Underpayment**").

(i) In the event that: (A) the Accounting Firm determines, based upon the assertion of a deficiency by the Internal Revenue Service against either the Company or the Executive which the Accounting Firm believes has a high probability of success, that an Overpayment has been made or (B) it is established pursuant to a final determination of a court or an Internal Revenue Service proceeding that has been finally and conclusively resolved that an Overpayment has been made, then the Executive shall pay any such Overpayment to the Company.

(ii) In the event that: (A) the Accounting Firm, based upon controlling precedent or substantial authority, determine that an Underpayment has occurred or (B) a court of competent jurisdiction determines that an Underpayment has occurred, any such Underpayment will be paid promptly by the Company to or for the benefit of the Executive.

12. Miscellaneous.

(a) This Agreement shall be governed by, and construed and interpreted in accordance with, the laws of the State of California, without giving effect to its principles of conflicts of laws.

(b) In the event of any dispute arising out of, or relating to, this Agreement or the breach thereof (other than Sections 5 or 6 hereof), or regarding the interpretation thereof, the parties agree to submit any differences to nonbinding mediation prior to pursuing resolution through the courts. The parties hereby submit to the exclusive jurisdiction of the state and federal courts situated in San Francisco County, California, and agree that service of process in such court proceedings shall be satisfactorily made upon each other if sent by registered mail addressed to the recipient at the address referred to in Section 12(g) below.

(c) This Agreement shall be binding upon, inure to the benefit of and be enforceable by the parties hereto, and their respective heirs, legal representatives, successors and permitted assigns.

(d) This Agreement, and the Executive's rights and obligations hereunder, may not be assigned by the Executive. The rights and obligations of the Company under this Agreement shall inure to the benefit of and shall be binding upon the successors and assigns of the Company, including any successors or assigns in connection with any sale, transfer or other disposition of all or substantially all of its business or assets.

(e) This Agreement cannot be amended orally, or by any course of conduct or dealing, but only by a written agreement signed by the parties hereto.

(f) The failure of either party to insist upon the strict performance of any of the terms, conditions and provisions of this Agreement shall not be construed as a waiver or relinquishment of future compliance therewith, and such terms, conditions and provisions shall remain in full force and effect. No waiver of any term or condition of this Agreement on the part of either party shall be effective for any purpose whatsoever unless such waiver is in writing and signed by such party.

(g) All notices, requests, consents and other communications, required or permitted to be given hereunder, shall be in writing and shall, in addition to being provided by electronic mail, be delivered personally or by an overnight courier service or sent by registered or certified mail, postage prepaid, return receipt requested, to the parties at the addresses set forth on the first page of this Agreement and the electronic mail addresses set forth on the signature page, and shall be deemed given when so delivered personally or by overnight courier, or, if mailed, five days after the date of deposit in the United States mail. Either party may designate another address, for receipt of notices hereunder by giving notice to the other party in accordance with this Section 11(g).

(h) This Agreement sets forth the entire agreement and understanding of the parties relating to the subject matter hereof, and supersedes all prior agreements, arrangements and understandings, written or oral, relating to the subject matter hereof, including, without limitation that the Prior Agreement. For avoidance of doubt, the execution and delivery of this Agreement shall not constitute "Good Reason" under the Prior Agreement. No representation, promise or inducement has been made by either party that is not embodied in this Agreement, and neither party shall be bound by or liable for any alleged representation, promise or inducement not so set forth.

(i) As used in this Agreement, "affiliate" of a specified person or entity shall mean and include any person or entity controlling, controlled by or under common control with the specified person or entity.

(j) The section headings contained herein are for reference purposes only and shall not in any way affect the meaning or interpretation of this Agreement.

(k) This Agreement may be executed in any number of counterparts, and by facsimile, .pdf or other electronic means, each of which shall constitute an original, but all of which together shall constitute one and the same instrument.

*[Remainder of Page Intentionally Left Blank – Signature Page Follows]*



**EXHIBIT A**

**California Labor Code Section 2870. Application of provision providing that employee shall assign or offer to assign rights in invention to employer.**

(a) Any provision in an employment agreement which provides that an employee shall assign, or offer to assign, any of his or her rights in an invention to his or her employer shall not apply to an invention that the employee developed entirely on his or her own time without using the employer's equipment, supplies, facilities, or trade secret information except for those inventions that either:

- (1) Relate at the time of conception or reduction to practice of the invention to the employer's business, or actual or demonstrably anticipated research or development of the employer; or
- (2) Result from any work performed by the employee for his employer.

(b) To the extent a provision in an employment agreement purports to require an employee to assign an invention otherwise excluded from being required to be assigned under subdivision (a), the provision is against the public policy of this state and is unenforceable.

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**Incremental (Aggregate Number)  
of SARs Exercisable**

**Exercisability Date**

[25% (25%)  
25% (50%)  
25% (75%)  
25% (100%)

First Anniversary of Grant Date  
Second Anniversary of Grant Date  
Third Anniversary of Grant Date  
Fourth Anniversary of Grant Date]

Once exercisable, these SARs shall continue to be exercisable at any time or times prior to the close of business (being 5 p.m. U.S. ET) on the Expiration Date, subject to the provisions hereof and of the Plan. The number of SARs that become exercisable on any exercisability date shall be rounded down to nearest whole number. Each installments shall take into effect prior rounding so that each annual installment including the last installment is approximately the same. Upon the termination of the Grantee's Continuous Service for any reason other than for Cause within 6 months following the occurrence of a Corporate Transaction, all unvested SARs shall immediately vest.

2. **Forfeiture of Stock Appreciation Rights.** In the event the Grantee's Continuous Service terminates for any reason, the Grantee's right to vest in the SARs will cease as of the date of termination of the Grantee's Continuous Service, and any SARs that were not already exercisable on the date of such termination shall be forfeited on that date. Furthermore, the Grantee's Post-Termination Exercise Period will be measured by reference to the date of such termination in accordance with the Plan, provided, however, that in case the Grantee's Continuous Service terminates for Cause, the Grantee's right to exercise the SARs shall terminate immediately upon the date of the Grantee's termination of Continuous Service.

3. **Certain Tax Matters.** Regardless of any action taken by the Company or, if different, the Related Entity employing the Grantee or to which the Grantee is otherwise providing services (the "Service Recipient"), the ultimate liability for all income tax, social insurance, payroll tax, fringe benefits tax, payment on account or other tax-related items related to the Grantee's participation in the Plan and legally applicable to the Grantee or deemed by the Company or the Service Recipient, in their discretion, to be an appropriate charge to the Grantee even if legally applicable to the Company or the Service Recipient ("Tax-Related Items") is and remains the Grantee's responsibility and may exceed the amount actually withheld, if any, by the Company or the Service Recipient. The Grantee further acknowledges that the Company and/or the Service Recipient (i) make no representations or undertakings regarding the treatment of any Tax-Related Items in connection with any aspect of the SARs, including, but not limited to, the grant, vesting or exercise of the SARs and the receipt of any cash payment in settlement of the SARs; and (ii) do not commit to and are under no obligation to structure the terms of the grant or any aspect of the SARs to reduce or eliminate the Grantee's liability for Tax-Related Items or achieve any particular tax result. Further, if the Grantee is subject to Tax-Related Items in more than one jurisdiction, the Company and/or the Service Recipient (or former service recipient, as applicable) may be required to withhold or account for Tax-Related Items in more than one jurisdiction.

The Grantee agrees to make adequate arrangements satisfactory to the Company and/or the Service Recipient, as applicable, prior to any relevant tax withholding event, to satisfy all Tax-Related Items. In this regard, the Grantee authorizes the Company and/or the Service Recipient, or their respective agents, at their discretion, to satisfy any applicable withholding obligations with regard to all Tax-Related Items by one or a combination of the following:

- Recipient; or
- (a) withholding from the Grantee's wages or other cash compensation paid to the Grantee by the Company and/or the Service
  - (b) withholding from the cash payment due to the Grantee upon exercise of the SARs.

The Company or Service Recipient may withhold or account for Tax-Related Items by considering applicable minimum statutory withholding rates or other applicable withholding rates, including maximum applicable rates in the Grantee's jurisdiction(s), in which case the Grantee may receive a refund of any over-withheld amount in cash.

Finally, the Grantee agrees to pay to the Company or the Service Recipient any amount of Tax-Related Items that the Company or the Service Recipient may be required to withhold as a result of the Grantee's participation in the Plan that cannot be satisfied by the means previously described. The Company may refuse to deliver the cash payment at exercise if the Grantee fails to comply with his or her obligations in connection with the Tax-Related Items as described in this Section 3.

4. Rights Prior to Exercisability. The SARs represent a right to payment in cash from the Company upon exercise if the conditions of this Agreement are met and do not give the Grantee ownership of any Common Stock. The Grantee shall not have any rights of a stockholder with respect to the shares of Common Stock underlying the SARs (including, without limitation, any voting rights or any right to dividends paid with respect to the shares of Common Stock underlying the SARs). No assets have been set aside by the Company or otherwise to pay the amounts promised by this Agreement, the right to payment is unsecured, and the Grantee is a general creditor of the Company for payment under this Agreement.

5. Nature of Grant: In accepting the SARs, the Grantee understands, acknowledges and agrees that:

- (a) the Plan is established voluntarily by the Company, it is discretionary in nature and it may be modified, amended, suspended or terminated by the Company at any time, to the extent permitted in the Plan;
- (b) the grant of the SARs is exceptional, voluntary and occasional and does not create any contractual or other right to receive future grants of SARs, benefits in lieu of SARs or other Awards, even if SARs have been awarded in the past;
- (c) all decisions with respect to future awards of SARs or other Awards, if any, will be at the sole discretion of the Company;
- (d) the Grantee is voluntarily participating in the Plan;

- (e) the grant of the SARs, and the income from and value of same, are not intended to replace any pension rights or compensation;
- (f) unless otherwise agreed with the Company, the SARs, and the income from and value of same, are not granted as consideration for, or in connection with, the service the Grantee may provide as a director of a Related Entity;
- (g) the SARs, and the income from and value of same, are not part of normal or expected compensation or salary for any purpose, including for purposes of calculating any severance, resignation, termination, redundancy, dismissal, end of service payments, bonuses, holiday pay, long-service awards, pension or retirement or welfare benefits or similar mandatory payments;
- (h) no claim or entitlement to compensation or damages shall arise from forfeiture of the SARs resulting from the termination of the Grantee's Continuous Service (for any reason whatsoever, whether or not later found to be invalid or in breach of employment laws in the jurisdiction where the Grantee is employed or otherwise providing services or the terms of the Grantee's employment or service agreement, if any);
- (i) the future value of the shares of Common Stock underlying the SARs is unknown and cannot be predicted with certainty;
- (j) if the underlying shares of Common Stock do not increase in value, the SARs will have no value; and
- (k) neither the Company, the Service Recipient nor any other Related Entity will be liable for any foreign exchange rate fluctuation between the Grantee's local currency and the United States Dollar that may affect the value of the SARs or of any amounts due to the Grantee pursuant to the exercise of the SARs

6. Data Privacy.

*The Grantee hereby explicitly and unambiguously consents to the collection, use and transfer, in electronic or other form, of his or her personal data as described in this Agreement and any other SARs grant materials by and among, as applicable, the Service Recipient, the Company, and any other subsidiaries and affiliates of the Company for the exclusive purpose of implementing, administering and managing the Plan.*

*The Grantee understands that the Company and the Service Recipient may hold certain personal information about the Grantee, including, but not limited to, the Grantee's name, home address and telephone number, e-mail address, date of birth, social insurance number (to the extent permitted under applicable local law), passport or other identification number (e.g., resident registration number), salary, nationality, job title, any shares of Company common stock or directorships held in the Company, details of all SARs or equivalent benefits awarded, cancelled, purchased, exercised, vested, unvested or outstanding in the Grantee's favor ("Data"), for the exclusive purpose of implementing, administering and managing the Plan.*

*The Grantee understands that Data will be transferred to such service provider(s) as may be selected by the Company to assist with the implementation, administration and management of the Plan. The recipients of Data may be located in the United States or elsewhere, and each recipient's country may have different data privacy laws and protections than the Grantee's country. The Grantee may request a list with the names and addresses of any potential recipients of Data by contacting the Grantee's local human resources representative.*

*The Grantee authorizes the Company and any other possible recipients which may assist the Company (presently or in the future) with implementing, administering and managing the Plan to receive, possess, use, retain and transfer Data, in electronic or other form, for the sole purpose of implementing, administering and managing the Grantee's SARs, including any requisite transfer of such Data as may be required to a broker, escrow agent or other third party with whom Grantee may elect to deposit any payment received upon exercise of the SARs. The Grantee understands that Data will be held only as long as is necessary to implement, administer and manage the Grantee's participation in the Plan. The Grantee may, at any time, view Data, request information about the storage and processing of Data, require any necessary amendments to Data or refuse or withdraw the consents herein, without cost, by contacting the Grantee's local human resources representative. Further, the Grantee is providing the consents herein on a purely voluntary basis. If the Grantee does not consent, or if the Grantee later seeks to revoke consent, the Grantee's employment or service with the Service Recipient will not be affected; the only consequence of refusing or withdrawing consent is that the Company would not be able to grant SARs or other awards under the Plan to the Grantee or administer or maintain such awards. Therefore, the Grantee understand that refusing or withdrawing consent may affect the Grantee's ability to participate in the Plan. For more information on the consequences of refusal to consent or withdrawal of consent, the Grantee may contact his or her local human resources representative.*

7. Investment Representation. The Grantee represents and warrants to the Company that the Grantee has read this Agreement carefully, and to the extent the Grantee believes it necessary, has discussed this Agreement and its impact and limitations upon the Grantee with counsel.

8. No Advice Regarding Grant. The Company is not providing any tax, legal or financial advice, nor is the Company making any recommendations regarding the Grantee's participation in the Plan or the Grantee's exercise of the SARs. The Grantee understands and acknowledges that he or she should consult with his or her own personal tax, legal and financial advisors regarding the Grantee's participation in the Plan before taking any action related to the Plan.

9. Transferability. The right to the SARs granted under this Agreement may not be sold, exchanged, transferred, pledged, hypothecated, encumbered or otherwise disposed of except as provided in the Plan. The Company shall have the right to assign to any of its affiliates any of its rights, or to delegate to any of its affiliates any of its obligations under this Agreement.

10. Binding Effect. This Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective heirs, executors, administrators, successors and assigns.

11. Gender and Number. All terms used in this Agreement shall be deemed to refer to the masculine, feminine, neuter, singular or plural as the context may require.

12. Terms and Conditions of Plan. The terms and conditions included in the Plan are incorporated by reference herein, and to the extent that any conflict may exist between any term or provision of this Agreement and any term or provision of the Plan as in effect from time to time, such term or provision of the Plan shall control.

13. Appendix. Notwithstanding any terms or conditions in this SAR Agreement, the SARs shall be subject to any special terms and conditions set forth in any Appendix for the Grantee's country. Moreover, if the Grantee relocates to one of the countries included in the Appendix, the special terms and conditions for such country will apply to the Grantee, to the extent the Company determines that the application of such terms and conditions is necessary or advisable for legal or administrative reasons. The Appendix constitutes part of this SAR Agreement.

14. Imposition of Other Requirements. The Company reserves the right to impose other requirements on the Grantee's participation in the Plan and the SARs to the extent the Company determines it is necessary or advisable for legal or administrative reasons, and to require the Grantee to sign any additional agreements or undertakings that may be necessary to accomplish the foregoing.

15. Certain Remedies. Without intending to limit the remedies available to the Company, the Grantee agrees that damages at law will be an insufficient remedy in the event the Grantee violates the terms of this Agreement. The Grantee agrees that the Company may apply for and have injunctive or other equitable relief in any court of competent jurisdiction to restrain the breach or threatened breach of, or otherwise specifically to enforce, any of the provisions hereof.

16. Waiver. The waiver by either party of compliance with any provision of this Agreement by the other party shall not operate or be construed as a waiver of any other provision of this Agreement, or of any subsequent breach by such party of a provision of this Agreement.

17. No Restriction on Right of Company to Effect Corporate Changes. Neither the Plan nor this Agreement shall affect in any way the right or power of the Company or its stockholders to make or authorize any or all adjustments, recapitalizations, reorganizations or other changes in the capital structure or business of the Company, or any merger or consolidation of the Company, or any issue of stock or of options, warrants or rights to purchase stock or of bonds, debentures, preferred or prior preference stocks whose rights are superior to or affect the Common Stock or the rights thereof or which are convertible into or exchangeable for Common Stock, or the dissolution or liquidation of the Company, or any sale or transfer of all or any part of the assets or business of the Company, or any other corporate act or proceeding, whether of a similar character or otherwise.

18. Entire Agreement. This Agreement (including the Plan, which is incorporated herein by reference and all additional riders incorporated herein) sets forth all of the promises, agreements, conditions and understandings between the parties hereto with respect to the Award, and there are no promises, agreements, conditions, understandings, warranties or representations, oral or written, express or implied, between them with respect to the SARs other than as set forth therein or herein. This Agreement supersedes and replaces any and all prior agreements between the parties hereto with respect to SARs. This Agreement is, and is intended by the parties to be, an integration of any and all prior agreements or understandings, oral or written, with respect to the SARs. Subject to Section 14, no modification, amendment or waiver of any of the provisions of this Agreement shall be effective unless approved in writing by both parties.

19. Invalid or Unenforceable Provision. The invalidity or unenforceability of any particular provision of this Agreement shall not affect the other provisions hereof, and this Agreement shall be construed in all respects as if such invalid or unenforceable provision was omitted.

20. Governing Law and Venue. This Agreement shall be construed and enforced in accordance with the laws of Delaware, without giving effect to principles of conflicts of laws. Any and all disputes relating to, concerning or arising from this Agreement, or relating to, concerning or arising from the relationship between the parties evidenced by the SARs or this Agreement, shall be brought and heard exclusively in the United States District Court for the District of Delaware or the Delaware Superior Court, New Castle County. Each of the parties hereby represents and agrees that such party is subject to the personal jurisdiction of said courts; hereby irrevocably consents to the jurisdiction of such courts in any legal or equitable proceedings related to, concerning or arising from such dispute, and waives, to the fullest extent permitted by law, any objection which such party may now or hereafter have that the laying of the venue of any legal or equitable proceedings related to, concerning or arising from such dispute which is brought in such courts is improper or that such proceedings have been brought in an inconvenient forum.

21. No Right to Continued Service. Neither the Plan, nor this Agreement nor the granting or exercisability of the SARs shall confer upon the Grantee any right to be retained in Continuous Service, nor be interpreted as forming any employment or service contract with the Company. Further, nothing in the Plan or this Agreement shall be construed to limit the discretion of the Service Recipient to terminate the Grantee's Continuous Service at any time.

22. Language. The Grantee acknowledges and represents that he or she is proficient in the English language and understands the terms of this Agreement and any other document related to the Plan. If the Grantee has received this Agreement and/or any other document related to the Plan translated into a language other than English and if the meaning of the translated version is different than the English version in any way, the English version will control.

23. Foreign Asset/Account Reporting Requirements and Exchange Controls. Certain foreign asset and/or foreign account reporting requirements and exchange controls may affect the Grantee's ability to acquire or hold cash received upon exercise of the SARs in a brokerage or bank account outside the Grantee's country. The Grantee may be required to report such accounts, assets or transactions to the tax or other authorities in the Grantee's country and/or to repatriate funds received as a result of participation in the Plan to the Grantee's country through a designated bank or broker within a certain time after receipt. It is the Grantee's responsibility to comply with such regulations, and the Grantee is advised to consult a personal legal advisor for any details.

24. Miscellaneous.

(a) All decisions of the Board (or the Committee) with respect to the interpretation, construction and application of the Plan and/or this Agreement shall be conclusive and binding upon the Grantee and all other persons.

(b) This Agreement has been drafted with the intent that payments (and the right to payments) under it are exempt from or comply with the requirements of Section 409A of the U.S. Internal Revenue Code of 1986, as amended, and the regulations thereunder applicable to nonqualified deferred compensation. This Agreement shall be interpreted in a manner consistent with such intent.

(c) The Company may, in its sole discretion, decide to deliver any documents related to the SARs awarded under, and participation in, the Plan or future SARs that may be awarded under the Plan by electronic means or to request the Grantee's consent to participate in the Plan by electronic means. The Grantee hereby consents to receive such documents by electronic delivery and, if requested, to agree to participate in the Plan through an online or electronic system established and maintained by the Company or a third party designated by the Company.

(d) This Agreement may be executed (including by electronic acceptance) in counterparts, each of which shall be deemed an original but all of which together will constitute one and the same instrument. Counterpart signature pages to this Agreement transmitted by facsimile transmission, by electronic mail in portable document format (.pdf), or by any other electronic means intended to preserve the original graphic and pictorial appearance of a document, will have the same effect as physical delivery of the paper document bearing an original signature.

(e) By accepting this Agreement, the Grantee hereby acknowledges receipt of a copy of the Plan and this Agreement. The Grantee has read and understands the terms and provisions thereof, and accepts the SARs subject to all of the terms and conditions of the Plan and this Agreement.

**APPENDIX  
TO  
STOCK APPRECIATION RIGHT AWARD AGREEMENT  
FOR NON-U.S. GRANTEES  
UNDER THE ASSEMBLY BIOSCIENCES, INC.  
2018 STOCK INCENTIVE PLAN**

Capitalized terms used but not defined herein shall have the meanings ascribed to them in the Plan and/or the SAR Agreement to which this Appendix is attached.

***Terms and Conditions***

This Appendix includes additional terms and conditions that govern the SARs granted to the Grantee under the Plan if the Grantee resides and/or works in one of the countries listed below.

If the Grantee is a citizen or resident of a country other than the one in which he or she is currently working and/or residing, transfers to another country after the Grant Date or is considered a resident of another country for local law purposes, the Company shall, in its discretion, determine the extent to which the special terms and conditions contained herein shall be applicable to the Grantee.

***Notifications***

This Appendix also includes information regarding exchange controls and certain other issues of which the Grantee should be aware with respect to the Grantee's participation in the Plan. The information is based on the securities, exchange control and other laws in effect in the respective countries as of July 2018. Such laws are often complex and change frequently. As a result, the Company strongly recommends that the Grantee not rely on the information noted herein as the only source of information relating to the consequences of the Grantee's participation in the Plan because the information may be out of date by the time the Grantee exercises the SARs.

In addition, the information contained in this Appendix is general in nature and may not apply to the Grantee's particular situation, and the Company is not in a position to assure the Grantee of any particular result. Accordingly, the Grantee is advised to seek appropriate professional advice as to how the applicable laws in his or her country may apply to his or her situation.

Finally, the Grantee understands that if he or she is a citizen or resident of a country other than the one in which he or she is currently residing and/or working, transfers to another country after the Grant Date, or is considered a resident of another country for local law purposes, the notifications contained herein may not be applicable to the Grantee in the same manner.

## CHINA

### ***Terms and Conditions***

*The following provision shall apply to the Grantee if the Grantee is subject to exchange control restrictions in the People's Republic of China (the "PRC"), as determined by the Company in its sole discretion.*

Payment of Cash Proceeds. Notwithstanding any terms and conditions of the SAR Agreement or the Plan, any cash payment made upon exercise of the SARs will be delivered to the Grantee by the Service Recipient through local payroll in the PRC, subject to any withholding obligation related to Tax-Related Items. In no event will payments be made to the Grantee into an account outside of the PRC.