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SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

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

Date of Report (Date of earliest event reported): December 6, 2018

**SYNTHETIC BIOLOGICS, INC.**  
(Exact name of registrant as specified in its charter)

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Nevada	001-12584	13-3808303
(State or other jurisdiction of incorporation)	(Commission File No.)	(IRS Employer Identification No.)

9605 Medical Center Drive, Suite 270  
Rockville, MD 20850  
(Address of principal executive offices and zip code)

Registrant's telephone number, including area code: (301) 417-4364

N/A  
(Former name or former address, if changed since last report)

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

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 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 in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

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

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### **Item 1.02 Termination of a Material Definitive Agreement**

On November 30, 2018, the Company received written notice from Intrexon Corporation (“Intrexon”) stating that Intrexon and the Company had terminated by mutual agreement the Exclusive Channel Collaboration Agreement (the “ECC”) executed by and between the Company and Intrexon on August 10, 2015 that governed a “channel collaboration” arrangement in which the Company intended to use Intrexon’s technology for the treatment of Phenylketonuria (“PKU”), such termination to be effective immediately. The ECC had granted the Company a worldwide exclusive license to use the patents and other intellectual property of Intrexon in connection with the research, development, use, importing, manufacture, sale, and offer for sale of biotherapeutic products (a “Collaboration Product”) for the treatment of PKU in humans by direct administration of a viral construct containing a gene to alter genetic expression of phenylalanine hydroxylase and/or administration of genetically modified bacteria that express an effector directed to the metabolic conversion of phenylalanine (the “Field”). The license was exclusive to both parties within the Field. As a result of the mutually agreed upon November 30, 2018 termination, each party retains its own respective confidential information and intellectual property and all licenses between the parties granted under the ECC are terminated. The Company had also entered into the Exclusive Channel Collaboration Agreement, dated August 6, 2012 with Intrexon that governs a “channel collaboration” arrangement in which the Company intends to use Intrexon’s technology relating to the identification, design and production of human antibodies and DNA vectors for the development and commercialization of a series of monoclonal antibody therapies for the treatment of Pertussis, remains in effect

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

On December 6, 2018, Synthetic Biologics, Inc. (the “Company”) entered into a three-year employment agreement with Steven A. Shallcross (the “Employment Agreement”), the interim Chief Executive Officer who has served as the Company’s Chief Financial Officer since June 1, 2015 to serve as the Chief Executive Officer and to continue to serve as the Chief Financial Officer of the Company. The Employment Agreement replaced the prior employment agreement with the Company that Mr. Shallcross entered into on April 28, 2015. In addition, Mr. Shallcross was appointed as a director of the Company. Mr. Shallcross will not receive additional compensation for service as a director of the Company and will not serve on any committees of the Board of Directors (the “Board”). The material terms of the Employment Agreement are set forth below.

Pursuant to the Employment Agreement, Mr. Shallcross is entitled to an annual base salary of \$550,000 and an annual performance bonus of up to seventy five percent (75%) of his annual base salary. The annual bonus will be based upon the assessment of the Board of Mr. Shallcross’s performance. The Employment Agreement also includes confidentiality obligations and inventions assignments by Mr. Shallcross and non-solicitation and non-competition provisions.

The Employment Agreement has a stated term of three years but may be terminated earlier pursuant to its terms. If Mr. Shallcross’s employment is terminated for any reason, he or his estate as the case may be, will be entitled to receive the accrued base salary, vacation pay, expense reimbursement and any other entitlements accrued by him to the extent not previously paid (the “Accrued Obligations”); provided, however, that if his employment is terminated (i) by the Company without Cause or by Mr. Shallcross for Good Reason (as each is defined in the Employment Agreement) then in addition to paying the Accrued Obligations, (a) the Company will continue to pay his then current base salary and continue to provide benefits at least equal to those that were provided at the time of termination for a period of twelve (12) months and (b) he shall have the right to exercise any vested equity awards until the earlier of six (6) months after termination or the remaining term of the awards; or (ii) by reason of his death or Disability (as defined in the Employment Agreement), then in addition to paying the Accrued Obligations, Mr. Shallcross would have the right to exercise any vested options until the earlier of six (6) months after termination or the remaining term of the awards. In such event, if Mr. Shallcross commenced employment with another employer and becomes eligible to receive medical or other welfare benefits under another employer-provided plan, the medical and other welfare benefits to be provided by the Company as described herein would terminate.

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The Employment Agreement provides that upon the closing of a “Change in Control” (as defined in the Employment Agreement), all unvested options shall immediately vest and the time period that Mr. Shallcross will have to exercise all vested stock options and other awards that Mr. Shallcross may have will be equal to the shorter of: (i) six (6) months after termination, or (ii) the remaining term of the award(s). If within one (1) year after the occurrence of a Change in Control, Mr. Shallcross terminates his employment for “Good Reason” or the Company terminates Mr. Shallcross’s employment for any reason other than death, disability or Cause, Mr. Shallcross will be entitled to receive: (i) the portion of his base salary for periods prior to the effective date of termination accrued but unpaid (if any); (ii) all unreimbursed expenses (if any); (iii) an aggregate amount (the “Change in Control Severance Amount”) equal to two (2) times the sum of his base salary plus an amount equal to the bonus that would be payable if the “target” level performance were achieved under the Company’s annual bonus plan (if any) in respect of the fiscal year during which the termination occurs (or the prior fiscal year if bonus levels have not yet been established for the year of termination); and (iv) the payment or provision of any other benefits. If within two (2) years after the occurrence of a Change in Control, Mr. Shallcross terminates his employment for “Good Reason” or the Company terminates Mr. Shallcross’s employment for any reason other than death, disability or Cause, Mr. Shallcross will be entitled to also receive for the period of two (2) consecutive years commencing on the date of such termination of his employment, medical, dental, life and disability insurance coverage for him and the members of his family that are not less favorable to him than the group medical, dental, life and disability insurance coverage carried by the Company for him. The Change in Control Severance Amount is to be paid in a lump sum if the Change in Control event constitutes a “change in the ownership” or a “change in the effective control” of the Company or a “change in the ownership of a substantial portion of a corporation’s assets” (each within the meaning of Section 409A of the Internal Revenue Code (“Rule 409A”)), or in 48 substantially equal payments, if the Change in Control event does not so comply with Section 409A.

The information contained in this Item 5.02 regarding the Employment Agreement is qualified in its entirety by a copy of the Employment Agreement attached to this Current Report on Form 8-K as Exhibit 10.1 and is incorporated herein by reference.

Mr. Shallcross, age 57, Mr. Shallcross was appointed as the Company’s Interim Chief Executive Officer on December 5, 2017 and has served as the Company’s Chief Financial Officer, Treasurer and Secretary since joining the Company in June 2015. Mr. Shallcross brings to the Company operational, financial and international biotech industry experience, as well as an established track record at leading the financial development and strategy for several publicly traded biotech companies. From May 2013 through May 2015, Mr. Shallcross served as Executive Vice President and Chief Financial Officer of Nuo Therapeutics, Inc. (formerly Cytomedix, Inc.). In January 2016, Nuo Therapeutics, Inc. filed a voluntary petition for relief under Chapter 11 of the U.S. Bankruptcy Code in the United States Bankruptcy Court for the District of Delaware and on April 25, 2016, the Bankruptcy Court entered an order granting approval of Nuo’s plan of reorganization. From July 2012 to May 2013, Mr. Shallcross held the offices of Executive Vice President, Chief Financial Officer and Treasurer of Empire Petroleum Partners, LLC, a motor fuel distribution company. From July 2011 to March 2012, Mr. Shallcross was Acting Chief Financial Officer of Senseonics, a privately-held medical device company located in Germantown, MD. From January 2009 to March 2011, he served as Executive Vice President and Chief Financial Officer of Innocoll AG (formerly privately held Innocoll Holdings, Inc.), a global, commercial-stage biopharmaceutical company specializing in the development and commercialization of collagen-based products. He also served for four years as the Chief Financial Officer and Treasurer of Vanda Pharmaceuticals, Inc., leading the company through its successful IPO and follow-on offering and previously served as the Senior Vice President and Chief Financial Officer of Middlebrook Pharmaceuticals, Inc. (formerly Advancis Pharmaceutical Corporation). In addition, Mr. Shallcross also served as the Chief Financial Officer of Bering Truck Corporation. He holds an MBA from the University of Chicago’s Booth School of Business, a Bachelor of Science degree in Accounting from the University of Illinois, Chicago, and is a Certified Public Accountant in the State of Illinois.

There are no family relationships between Mr. Shallcross and any director, executive officer or person nominated or chosen by the Company to become as director or executive officer of the Company. Additionally, there have been no transactions involving Mr. Shallcross that would require disclosure under Item 404(a) of Regulation S-K.

On December 6, 2018, the Board of Directors of the Company awarded Mr. Shallcross, a cash bonus equal to his full target bonus of 75% of his prior base salary and an option to purchase 200,000 shares of the Company’s common stock (the “Common Stock”). The stock option granted to Mr. Shallcross has an exercise price of \$0.6895 per share, which is the closing price of the Common Stock on the date of the grant (December 6, 2017), vests pro rata, on a monthly basis, over 36 consecutive months and expires in seven (7) years from the date of the grant, unless terminated earlier. The stock option was granted pursuant to the Company’s 2010 Stock Incentive Plan and the Company’s existing registration statement on Form S-8 for the 2010 Stock Incentive Plan.

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On December 6, 2018, the Board of Directors also granted to each non-executive member of the Board an option to purchase 79,500 shares of Common Stock at an exercise price of \$0.6895 per share, vest pro rata, on a monthly basis, over 36 consecutive months and expires in seven (7) years from the date of the grant, unless terminated earlier.

**Item 9.01 Financial Statements and Exhibits**

Exhibit

Description

10.1

Employment Agreement with Steven A. Shallcross dated December 6, 2018.

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

Date: December 6, 2018

SYNTHETC BIOLOGICS, INC.  
(Registrant)

By: /s/ Steven A. Shallcross  
Steven A. Shallcross  
*Chief Executive Officer and  
Chief Financial Officer*

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**EMPLOYMENT AGREEMENT**

This EMPLOYMENT AGREEMENT (the “*Agreement*”) between Synthetic Biologics, Inc., a Nevada corporation, (the “*Company*”), and Steven A. Shallcross (the “*Executive*”) is effective as of December 6, 2018 (the “*Effective Date*”).

WITNESSETH:

**WHEREAS**, the Executive has been employed by the Company as its Interim Chief Executive Officer and Chief Financial Officer pursuant to the terms of an Employment Agreement dated April 28, 2015, as amended December 1, 2016, May 31, 2017 and December 20, 2017 (the “*Prior Employment Agreement*”);

**WHEREAS**, the Company desires to employ the Executive as its President and Chief Executive Officer and continue to employ Executive as its Chief Financial Officer and the Executive desires to accept such employment, on the terms and conditions set forth in this Agreement; and

**WHEREAS**, the Company and the Executive have mutually agreed that, as of the Effective Date, this Agreement shall replace the Prior Employment Agreement in its entirety.

**NOW, THEREFORE**, in consideration of the promises and the mutual covenants and agreements contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto, intending to be legally bound hereby, agree as follows:

1. **EMPLOYMENT.**

(a) **TERMINATION OF PRIOR EMPLOYMENT AGREEMENT.** Effective as of 11:59 p.m. on the day immediately prior to the Effective Date, the Prior Employment Agreement shall automatically terminate and be of no further force and effect.

(b) **EMPLOYMENT TERM.** The Company hereby offers to continue to employ the Executive, and the Executive hereby accepts continued employment by the Company, upon the terms and conditions set forth in this Agreement, until the termination of the Executive’s employment in accordance with Section 10 below, as applicable (the “*Employment Term*”). The Executive shall be employed for three years unless there is an earlier termination in accordance with Section 10 below.

2 . **POSITION & DUTIES.** During the Employment Term, the Executive shall serve as the Company’s President, Chief Executive Officer and Chief Financial Officer. As President, Chief Executive Officer and Chief Financial Officer, the Executive shall have such duties, authorities and responsibilities commensurate with the duties, authorities and responsibilities of persons in similar capacities in similarly sized companies and such other duties and responsibilities as the Company’s Board of Directors (the “*Board*”) shall designate that are consistent with the Executive’s position as President, Chief Executive Officer and Chief Financial Officer, including directing, supervising and having responsibility for all aspects of the operations and general affairs of the Company as directed by the Board. The Executive shall report to, and be subject to, the lawful direction of the Board. During the Employment Term, the Executive shall use his best efforts to perform faithfully and efficiently the duties and responsibilities assigned to the Executive hereunder and devote all of the Executive’s business time (excluding periods of vacation and other approved leaves of absence) to the performance of the Executive’s duties with the Company. During the Term, the Executive shall also serve, without additional compensation, as a member of the Board and the board of directors of the Company’s subsidiaries and in such other executive-level positions or capacities as may, from time to time, be reasonably requested by the Board.

3 . **LOCATION.** Unless the parties otherwise agree in writing, at all times during the Employment Term, the Executive's principal place of business for performance of the services under this Agreement shall be in Rockville, Maryland.

4 . **BASE SALARY.** The Company agrees to pay the Executive a base salary (the "**Base Salary**") at an annual rate of \$550,000, payable semi-monthly in accordance with the regular payroll practices of the Company. The Executive's Base Salary shall be subject to review and adjustment from time to time by the Board (or a committee thereof) in its sole discretion, but may not be decreased. The base salary as determined herein from time to time shall constitute "Base Salary" for purposes of this Agreement.

5 . **ANNUAL BONUS.** With respect to each calendar year during the Employment Term (beginning in the year of the Effective Date), the Executive will be eligible to earn an annual performance bonus (the "**Annual Bonus**"). Beginning in the 2019 calendar year and for each full calendar year thereafter, the Executive will be eligible for an Annual Bonus of up to seventy five percent (75%) of the Base Salary. The Annual Bonus will be based upon the Board's assessment of the Executive's performance and set by the Board in its sole discretion. The Annual Bonus, if any, will be subject to applicable payroll deductions and withholdings. Following the close of each calendar year, the Board will determine whether the Executive has earned the Annual Bonus, and the amount of any Annual Bonus, based on the set criteria. No amount of the Annual Bonus is guaranteed, and the Executive must be an employee in good standing through the end of the applicable calendar year to be eligible to receive an Annual Bonus; no partial or prorated bonuses will be provided. The Annual Bonus, if earned, will be paid on or about December 1, but no later than December 31, of the applicable calendar year for which the Annual Bonus is being measured. The Executive's eligibility for an Annual Bonus is subject to change in the discretion of the Board (or any authorized committee thereof).

6. **EQUITY.** In accordance with the terms of the various Option Grant Agreements entered into between the Executive and the Company prior to December 6, 2018 (collectively, the "**Grant Agreements**"), the Executive has been granted options to purchase an aggregate of Fifty Eight Thousand Five Hundred Seventy Five (58,575) post reverse stock split shares of the Company's publicly traded common stock (the "**Grant**") subject to the terms of the Company's 2007 and 2010 Stock Incentive Plan (as amended) (the "**Plans**") and the related Grant Agreements between the parties. Except as specifically provided herein, the provisions of the Grant Agreements and the Executive's rights with respect to the grants thereunder shall continue.

7. **EMPLOYEE BENEFITS.**

( a ) **BENEFIT PLANS.** The Executive shall, in accordance with Company policy and the terms of the applicable Company benefit plan documents, be eligible to participate in any benefit plan or arrangement, including health, life and disability insurance, retirement plans and the like, that may be in effect from time to time and made available to the Company's senior management. All matters of eligibility for coverage or benefits under any benefit plan shall be determined in accordance with the provisions of such plan. The Company reserves the right to change, alter, or terminate any benefit plan in its sole discretion. Notwithstanding the foregoing, in the event that the terms of this Agreement differ from or are in conflict with the Company's general employment policies or practices, this Agreement shall control.

( b ) **VACATION.** The Executive shall be entitled to twenty-two (22) days paid vacation and sick leave per year in accordance with the Company's policies and shall be entitled to accrue ten (10) days of vacation time during the Employment Term in accordance with the Company's vacation policy. Vacation is to be taken at such intervals as shall be appropriate and consistent with the proper performance of the Executive's duties hereunder. The existing vacation accrued for the past four (4) years to date not to exceed sixty (60) days will rollover into this Agreement.

( c ) **SUPPLEMENTAL DISABILITY BENEFITS.** During the Employment Term, the Company will pay for the applicable premiums for the Executive's coverage under its existing supplemental disability policy.

( d ) **GENERAL EXPENSE REIMBURSEMENTS.** The Company will reimburse the Executive for all reasonable business expenses, including travel, computer and cellular phone costs that the Executive incurs in performing the services hereunder pursuant to the Company's usual expense reimbursement policies and practices, following submission by the Executive of reasonable documentation thereof. All reimbursements provided under this Agreement shall be made in accordance with the requirements of Section 409A (as defined below) to the extent that such reimbursements are subject to Section 409A, including, as applicable, the requirements that (i) any reimbursement is for expenses incurred during the Employment Term, (ii) the amount of expenses eligible for reimbursement during a calendar year may not affect the expenses eligible for reimbursement in any other calendar year, (iii) the reimbursement of an eligible expense shall be made on or before the last day of the calendar year following the calendar year in which the expense was incurred, and (iv) the right to reimbursement is not subject to liquidation or exchange for any other benefit.

( e ) **INDEMNIFICATION.** The Company shall provide the Executive with full advance indemnification to the extent permitted by Nevada law, including indemnification for activities at all subsidiaries.

8. **CONFIDENTIALITY AND POST-EMPLOYMENT OBLIGATIONS.** Executive agrees that the Company's form of Proprietary Information, Inventions, Non-Solicitation and Non-Competition Agreement dated February 27, 2017 (the "***Confidentiality Agreement***"), which Executive had executed remains in full force and effect. The Confidentiality Agreement may be amended by the parties from time to time without regard to this Agreement. The Confidentiality Agreement contains provisions that are intended by the parties to survive and do survive termination of this Agreement.

9. **OUTSIDE ACTIVITIES DURING EMPLOYMENT.**

(a) **NO ADVERSE INTERESTS.** The Executive agrees not to acquire, assume or participate in, directly or indirectly, any position, investment or interest known by him to be adverse or antagonistic to the Company, its business or prospects, financial or otherwise during the Employment Term without the consent of the Board. Except with the prior written consent of the Board, during the Employment Term the Executive will not undertake or engage in any other employment, occupation or business enterprise. Notwithstanding the foregoing, nothing shall prevent the Executive from participating in charitable, civic, educational, professional, community or industry affairs or, with prior approval of the Board, serving on the board of directors or advisory boards of other companies; *provided that* such activities or services do not (i) create a conflict with his employment hereunder; (ii) materially interfere with the performance of his duties; or (iii) violate the terms of the Confidentiality Agreement.

(b) **NONCOMPETITION.** Other than as permitted by Section 9(a), during the Employment Term and for the one year period thereafter (the “*Non-Competition Period*”), except on behalf of the Company, the Executive will not directly or indirectly, whether as an officer, director, stockholder, partner, proprietor, associate, representative, consultant, or in any capacity whatsoever engage in, become financially interested in, participate in, be employed by or have any business connection with any other person, corporation, firm, partnership or other entity whatsoever which competes with the Company, anywhere throughout the world, in any line of business engaged in (or planned to be engaged in) by the Company other than *de minimis* stock holdings in public companies; *provided, however,* that anything above to the contrary notwithstanding, he may own, as a passive investor, securities of any competitor corporation, so long as his direct holdings in any one such corporation shall not in the aggregate constitute more than one percent (1%) of the voting stock of such corporation, and *provided that* the Executive promptly discloses to the Board any such participation, other than such *de minimis* stock holdings.

(c) **NONSOLICITATION.** During the Non-Competition Period, Executive shall not, directly or indirectly, (i) induce or attempt to induce or aid others in inducing anyone working at or for the Company to cease working at or for the Company, or in any way interfere with the relationship between the Company and anyone working at or for the Company except in the proper exercise of Executive’s authority or (ii) in any way interfere with the relationship between the Company and any customer, supplier, licensee or other business relation of the Company.

(d) **SCOPE.** If, at the time of enforcement of this Section 9, a court shall hold that the duration, scope, area or other restrictions stated herein are unreasonable under circumstances then existing, the parties agree that the maximum duration, scope, area or other restrictions reasonable under such circumstances shall be substituted for the stated duration, scope, area or other restrictions.

(e) **INDEPENDENT AGREEMENT.** The covenants made in this Section 9 shall be construed as an agreement independent of any other provisions of this Agreement, and shall survive the termination of this Agreement. Moreover, the existence of any claim or cause of action of Executive against the Company or any of its affiliates, whether or not predicated upon the terms of this Agreement, shall not constitute a defense to the enforcement of these covenants.

10. **TERMINATION.** The Executive's employment and the Employment Term shall terminate on the first of the following to occur:

(a) **DISABILITY.** Upon the 30<sup>th</sup> day following the Executive's receipt of notice of the Company's termination due to Disability (as defined in this Section); *provided that*, the Executive has not returned to full-time performance of his duties within thirty (30) days after receipt of such notice. If the Company determines in good faith that the Executive's Disability has occurred during the term of this Agreement, it will give the Executive written notice of its intention to terminate his employment. For purposes of this Agreement, "***Disability***" shall occur when the Board determines that the Executive has become physically or mentally incapable of performing the essential functions of his job duties under this Agreement with or without reasonable accommodation, for ninety (90) consecutive days or one hundred twenty (120) nonconsecutive days in any twelve (12) month period, subject to any applicable law. For purposes of this Section, at the Company's request, the Executive agrees to make himself available and to cooperate in a reasonable examination by an independent qualified physician selected by the Board.

(b) **DEATH.** Automatically on the date of death of the Executive.

( c ) **CAUSE.** Immediately upon written notice by the Company to the Executive of a termination for Cause. For purposes of this Agreement, "***Cause***" shall mean the occurrence of any of the following events, as determined by the Board in its sole and absolute discretion: (i) gross insubordination, acts of embezzlement or misappropriation of funds, fraud, dereliction of fiduciary obligations; (ii) conviction of a felony or other crime involving moral turpitude, dishonesty or theft (including entry of a *nolo contendere* plea); (iii) willful unauthorized disclosure of confidential information belonging to the Company or entrusted to the Company by a client; (iv) material violation of any provision of this Agreement, of any Company policy, and/or of the Confidentiality Agreement, which, to the extent it is curable by the Executive, is not cured by the Executive within thirty (30) days of receiving written notice of such violation by the Company; (v) being under the influence of drugs (other than prescription medicine or other medically-related drugs to the extent that they are taken in accordance with their directions) during the performance of the Executive's duties under this Agreement; (vi) engages in conduct that violates the Company's non-discrimination/harassment policy and warrants termination; (vii) willful failure to perform his written assigned tasks, where such failure is attributable to the fault of the Executive which, to the extent it is curable by the Executive, is not cured by Executive within thirty (30) days of receiving written notice of such violation by the Company.

(d) **WITHOUT CAUSE.** Upon written notice by the Company to the Executive of an involuntary termination without Cause and other than due to death or Disability.

( e ) WITH GOOD REASON. Upon the Executive's notice following the end of the Cure Period (as defined in this Section). For purposes of this Agreement, "**Good Reason**" for the Executive to terminate his employment hereunder shall mean the occurrence of any of the following events without the Executive's consent: (i) a material reduction in the Executive's Base Salary (other than an across-the-board decrease in base salary applicable to all executive officers of the Company); (ii) a material breach of this Agreement by the Company; (iii) a material reduction in the Executive's duties, authority and responsibilities relative to the Executive's duties, authority, and responsibilities in effect immediately prior to such reduction; or (iv) the relocation of the Executive's principal place of employment, without the Executive's consent, in a manner that lengthens his one-way commute distance by fifty (50) or more miles from his then-current principal place of employment immediately prior to such relocation; *provided, however,* that, any such termination by the Executive shall only be deemed for Good Reason pursuant to this definition if: (1) the Executive gives the Company written notice of his intent to terminate for Good Reason within thirty (30) days following the first occurrence of the condition(s) that he believes constitute(s) Good Reason, which notice shall describe such condition(s); (2) the Company fails to remedy such condition(s) within thirty (30) days following receipt of the written notice (the "**Cure Period**"); and (3) the Executive voluntarily terminates his employment within thirty (30) days following the end of the Cure Period.

( f ) WITHOUT GOOD REASON. Upon the expiration of the Transition Period (as defined in this Section) unless otherwise provided by the Company as provided herein, the Executive shall provide thirty (30) days' prior written notice (the "**Transition Period**") to the Company of the Executive's intended termination of employment without Good Reason ("**Voluntary Termination**"). During the Transition Period, the Executive shall assist and advise the Company in any transition of business, customers, prospects, projects and strategic planning, and the Company shall continue to pay Executive's Base Salary and benefits through the end of the Transition Period. The Company may, in its sole discretion, upon five (5) days prior written notice to the Executive, make such termination of employment effective earlier than the expiration of the Transition Period ("**Early Termination Right**"), but it shall pay the Executive's Base Salary and benefits through the earlier of: the end of the Transition Period, or the date that the Executive accepts full-time employment or a full-time consulting engagement from a third party.

1 1 . CONSEQUENCES OF TERMINATION. Any termination payments made and benefits provided under this Agreement to the Executive shall be in lieu of any termination or severance payments or benefits for which the Executive may be eligible under any of the plans, policies or programs of the Company or its affiliates as may be in effect from time to time. Subject to satisfaction of each of the conditions set forth in Section 12, the following amounts and benefits shall be due to the Executive. Any Accrued Amounts (as defined in Section 11(a)) shall be payable on the next regularly scheduled Company payroll date following the date of termination or earlier if required by applicable law.

( a ) DISABILITY. Upon employment termination due to Disability, the Company shall pay or provide the Executive: (i) any unpaid Base Salary through the date of termination and any accrued vacation; (ii) any unpaid Annual Bonus earned with respect to any calendar year ending on or preceding the date of termination; (iii) reimbursement for any unreimbursed expenses incurred through the date of termination; and (iv) all other payments and benefits to which the Executive may be entitled under the terms of any applicable compensation arrangement or benefit, equity or perquisite plan or program or grant or this Agreement, including but not limited to any applicable insurance benefits (collectively, "**Accrued Amounts**"). In addition, upon the Executive's termination due to Disability, the Executive shall be entitled to exercise any vested equity award(s) granted to the Executive for a period equal to the shorter of: (i) six (6) months after termination, or (ii) the remaining term of the award(s).

(b) DEATH. In the event the Employment Term ends on account of the Executive's death, the Executive's estate (or to the extent a beneficiary has been designated in accordance with a program, the beneficiary under such program) shall be entitled to any Accrued Amounts, including but not limited to proceeds from any Company sponsored life insurance programs. In addition, upon the Executive's death, the Company will extend the time period that the Executive's estate (or to the extent a beneficiary has been designated in accordance with a program, the beneficiary under such program) shall be entitled to exercise any vested equity award(s) granted to the Executive for a period equal to the shorter of: (i) six (6) months after termination, or (ii) the remaining term of the award(s).

(c) TERMINATION FOR CAUSE OR WITHOUT GOOD REASON. If the Executive's employment should be terminated (i) by the Company for Cause, or (ii) by the Executive without Good Reason, the Company shall pay to the Executive any Accrued Amounts only, and shall not be obligated to make any additional payments to the Executive. In addition, upon the Executive's termination by the Company for Cause, or by the Executive for Good Reason, all options not exercised shall terminate.

(d) TERMINATION WITHOUT CAUSE OR FOR GOOD REASON. If the Executive's employment by the Company is terminated by the Company without Cause (and not due to Disability or death) or by the Executive for Good Reason, then the Company shall pay or provide the Executive with the Accrued Amounts and subject to compliance with Section 12:

i. continue payment of the Executive's Base Salary as in effect immediately preceding the last day of the Employment Term (ignoring any decrease in Base Salary that forms the basis for Good Reason), for a period of twelve (12) months following the termination date (the "**Severance Period**") on the Company's regular payroll dates; *provided, however*, that any payments otherwise scheduled to be made prior to the effective date of the General Release (namely, the date it can no longer be revoked) shall accrue and be paid in the first payroll date that follows such effective date with subsequent payments occurring on each subsequent Company payroll date;

ii. if the Executive timely elects continued coverage under COBRA for himself and his covered dependents under the Company's group health plans following such termination, then the Company shall pay the COBRA premiums necessary to continue the Executive's and his covered dependents' health insurance coverage in effect for himself (and his covered dependents) on the termination date until the earliest of (i) twelve (12) months following the termination date; (ii) the date when the Executive becomes eligible for substantially equivalent health insurance coverage in connection with new employment or self-employment; or (iii) the date the Executive ceases to be eligible for COBRA continuation coverage for any reason, including plan termination (such period from the termination date through the earlier of (i)-(iii), the "**COBRA Payment Period**"). Notwithstanding the foregoing, if at any time the Company determines that its payment of COBRA premiums on the Executive's behalf would result in a violation of applicable law (including but not limited to the 2010 Patient Protection and Affordable Care Act, as amended by the 2010 Health Care and Education Reconciliation Act), then in lieu of paying COBRA premiums pursuant to this Section, the Company shall pay the Executive on the last day of each remaining month of the COBRA Payment Period, a fully taxable cash payment equal to the COBRA premium for such month, subject to applicable tax withholding (such amount, the "**Special Severance Payment**"), such Special Severance Payment to be made without regard to the Executive's payment of COBRA premiums and without regard to the expiration of the COBRA period prior to the end of the COBRA Payment Period. Nothing in this Agreement shall deprive the Executive of his rights under COBRA or ERISA for benefits under plans and policies arising under his employment by the Company; and

iii. Executive shall be entitled to exercise any vested equity award(s) granted to the Executive for a period equal to the shorter of: (i) six (6) months after termination, or (ii) the remaining term of the award(s).

If the Executive's employment by the Company is terminated by the Company without Cause (and not due to Disability or death) or by the Executive for Good Reason, then the Executive will be eligible to receive additional severance benefits including, but not limited to, a pro-rata portion of the Executive's Annual Bonus, as determined by the Board of Directors, for the performance year in which the Executive's termination occur.

12. **CONDITIONS.** Any payments or benefits made or provided pursuant to Section 11 (other than Accrued Amounts) are subject to the Executive's (or, in the event of the Executive's death, the beneficiary's or estate's, or in the event of the Executive's Disability, the guardian's):

(a) compliance with the provisions of Section 8 hereof;

(b) delivery to the Company of an executed waiver and general release of any and all known and unknown claims, and other provisions and covenants, in the form acceptable to the Company (which shall be delivered to the Executive within five (5) business days following the termination date) (the "**General Release**") within 21 days of presentation thereof by the Company to the Executive (or a longer period of time if required by law), and permitting the General Release to become effective in accordance with its terms; and

(c) delivery to the Company of a resignation from all offices, directorships and fiduciary positions with the Company, its affiliates and employee benefit plans effective as of the termination date.

Notwithstanding the due date of any post-employment payments, any amounts due following a termination under this Agreement (other than Accrued Amounts) shall not be due until after the expiration of any revocation period applicable to the General Release without the Executive having revoked such General Release, and any such amounts shall be paid or commence being paid to the Executive within fifteen (15) days of the expiration of such revocation period without the occurrence of a revocation by the Executive (or such later date as may be required under Section 19 of this Agreement). Nevertheless (and regardless of whether the General Release has been executed by the Executive), upon any termination of the Executive's employment, the Executive shall be entitled to receive any Accrued Amounts, payable after the date of termination in accordance with the Company's applicable plan, program, policy or payroll procedures. Notwithstanding anything to the contrary in this Agreement, if any severance pay or benefits are deferred compensation under Section 409A (as defined below), and the period during which the Executive may sign the General Release begins in one calendar year and the first payroll date following the period during which the Executive may sign the General Release occurs in the following calendar year, then the severance pay or benefit shall not be paid or the first payment shall not occur until the later calendar year.

13. **CONSEQUENCES OF A CHANGE IN CONTROL.**

(a) Upon the closing of a Change in Control (as defined below), all unvested stock options shall immediately vest and the time period that the Executive shall have to exercise all vested stock options and other awards that the Executive may have under the Plan (including the Initial Grant) or any successor equity compensation plan as may be in place from time to time shall be equal to the shorter of: (i) six (6) months days after termination, or (ii) the remaining term of the award(s).

(b) If within one year after the occurrence of a Change in Control, the Executive terminates his employment with the Company for Good Reason or the Company terminates the Executive's employment for any reason other than death, Disability or Cause, the Company (or the then former Company subsidiary employing the Executive), or the consolidated, surviving or transferee person in the event of a Change in Control pursuant to a consolidation, merger or sale of assets, the Executive shall be entitled to receive from the Company (i) the portion of the Base Salary for periods prior to the effective date of termination accrued but unpaid (if any); (ii) all unreimbursed expenses (if any), subject to Section 7(b); (iii) an aggregate amount (the "Change in Control Severance Amount") equal to two times the sum of the Base Salary plus an amount equal to the bonus that would be payable if the "target" level performance were achieved under the Company's annual bonus plan (if any) in respect of the fiscal year during which the termination occurs (or the prior fiscal year if bonus levels have not yet been established for the year of termination); and (iv) the payment or provision of any Other Benefits. The Change in Control Severance Amount shall be paid in a lump sum, if the Change in Control event constitutes a "change in the ownership" or a "change in the effective control" of the Company or a "change in the ownership of a substantial portion of a corporation's assets" (each within the meaning of Section 409A), or in 48 substantially equal payments, if the Change in Control event does not so comply with Section 409A. The lump sum amount shall be paid, or the installment payments shall commence, as applicable, on the first scheduled payroll date (in accordance with the Company's payroll schedule in effect for the Executive immediately prior to such termination) that occurs on or following the date that is 30 days after the Executive's termination of employment; *provided, however*, that the payment of such severance amount is subject to the Executive's compliance with the requirement to deliver the General Release contemplated pursuant to Section 12(b). Any such installment payment shall be treated as a separate payment as defined under Treasury Regulation §1.409A-2 (b)(2). If the Executive is a "specified employee" (as determined under the Company's policy for identifying specified employees) on the date of his "separation from service" (within the meaning of Section 409A) and if any portion of the severance amount described in clause (iii) would be considered "deferred compensation" under Section 409A, such severance amount shall not be paid or commence to be paid on any date prior to the first business day after the date that is six months following the Executive's separation from service (unless any such payment(s) shall satisfy the short-term deferral rule, as defined in Treasury Regulation §1.409A-1(b)(4), or shall be treated as separation pay under Treasury Regulation §1.409A-1(b)(9)(iii) or §1.409A-1(b)(9)(v)). If paid in installments, the first payment that can be made shall include the cumulative amount of any amounts that could not be paid during such six-month period. In addition, interest will accrue at the 10-year T-bill rate (as in effect as of the first business day of the calendar year in which the separation from service occurs) on such lump sum amount or installment payments, as applicable, not paid to the Executive prior to the first business day after the sixth month anniversary of his separation from service that otherwise would have been paid during such six-month period had this delay provision not applied to the Executive and shall be paid at the same time at which the lump sum payment or the first installment payment, as applicable, is made after such six-month period. Notwithstanding the foregoing, a payment delayed pursuant to the preceding three sentences shall commence earlier in the event of the Executive's death prior to the end of the six-month period. Upon the termination of employment with the Company for Good Reason by the Executive or upon the involuntary termination of employment with the Company of the Executive for any reason other than death, Disability or Cause, in either case within two years after the occurrence of a Change in Control, the Company (or the then former Company subsidiary employing the Executive), or the consolidated, surviving or transferee person in the event of a Change in Control pursuant to a consolidation, merger or sale of assets, shall also provide, for the period of two consecutive years commencing on the date of such termination of employment, medical, dental, life and disability insurance coverage for the Executive and the members of his family which is not less favorable to the Executive than the group medical, dental, life and disability insurance coverage carried by the Company for the Executive and the members of his family at the time of termination.

(c) For purposes of this Agreement, "Change in Control" means:

(i) any person or entity becoming the beneficial owner, directly or indirectly, of securities of the Company representing fifty percent (50%) of the total voting power of all its then outstanding voting securities;

(ii) a merger or consolidation of the Company in which its voting securities immediately prior to the merger or consolidation do not represent, or are not converted into securities that represent, a majority of the voting power of all voting securities of the surviving entity immediately after the merger or consolidation; or

(iii) a sale of substantially all of the assets of the Company or a liquidation or dissolution of the Company.

14. **ASSIGNMENT.** This Agreement shall be binding upon and inure to the benefit of the Executive and the Executive's heirs, executors, personal representatives, assigns, administrators and legal representatives. Because of the unique and personal nature of the Executive's duties under this Agreement, neither this Agreement nor any rights or obligations under this Agreement shall be assignable by the Executive. This Agreement shall be binding upon and inure to the benefit of the Company and its successors, assigns and legal representatives. Any such successor or assign of the Company will be deemed substituted for the Company under the terms of this Agreement for all purposes. For this purpose, "successor" means any person, firm, corporation or other business entity which at any time, whether by purchase, merger or otherwise, directly or indirectly acquires all or substantially all of the assets or business of the Company.

15. **NOTICE.** For the purpose of this Agreement, notices and all other communications provided for in this Agreement shall be in writing and shall be deemed to have been duly given (a) on the date of delivery if delivered by hand, (b) on the date of transmission, if delivered by confirmed facsimile, (c) on the first business day following the date of deposit if delivered by guaranteed overnight delivery service, or (d) on the fourth business day following the date delivered or mailed by United States registered or certified mail, return receipt requested, postage prepaid, addressed as follows:

If to the Company:

Synthetic Biologics, Inc.  
9605 Medical Center Drive, Suite 270  
Rockville, Maryland 20850  
Attention: Board of Directors  
Facsimile: (734) 332-7878

and a copy (which shall not constitute notice) shall also be sent to:

Gracin & Marlow, LLP  
405 Lexington Avenue, 26<sup>th</sup> Floor  
New York, New York 10174  
Attention: Leslie Marlow, Esq.  
Facsimile: (212) 208-4657

If to the Executive:

To the most recent address of the Executive set forth in the personnel records of the Company.

or to such other address as either party may have furnished to the other in writing in accordance herewith, except that notices of change of address shall be effective only upon receipt.

16. **SECTION HEADINGS; INCONSISTENCY.** The section headings used in this Agreement are included solely for convenience and shall not affect, or be used in connection with, the interpretation of this Agreement. If there is any inconsistency between this Agreement and any other agreement (including but not limited to any option, stock, long-term incentive or other equity award agreement), plan, program, policy or practice (collectively, "**Other Provision**") of the Company the terms of this Agreement shall control over such Other Provision.

17. **SEVERABILITY.** The provisions of this Agreement shall be deemed severable and the invalidity of unenforceability of any provision shall not affect the validity or enforceability of the other provisions hereof.

18. **COUNTERPARTS.** This Agreement may be executed in counterparts, each of which shall be deemed to be an original but all of which together will constitute one and the same instruments. One or more counterparts of this Agreement may be delivered by facsimile, with the intention that delivery by such means shall have the same effect as delivery of an original counterpart thereof.

19. **SECTION 409A.**

(a) Notwithstanding anything to the contrary herein, the following provisions apply to the extent severance benefits provided herein are subject to Section 409A of the Internal Revenue Code (the “**Code**”) and the regulations and other guidance thereunder and any state law of similar effect (collectively “**Section 409A**”). Severance benefits shall not commence until the Executive has a “separation from service” (as defined under Treasury Regulation Section 1.409A-1(h), without regard to any alternative definition thereunder, a “separation from service”). Each installment of severance benefits is a separate “payment” for purposes of Treas. Reg. Section 1.409A-2(b)(2)(i), and the severance benefits are intended to satisfy the exemptions from application of Section 409A provided under Treasury Regulations Sections 1.409A-1(b)(4) and 1.409A-1(b)(9). However, if such exemptions are not available and the Executive is, upon separation from service, a “specified employee” for purposes of Section 409A, then, solely to the extent necessary to avoid adverse personal tax consequences under Section 409A, the timing of the severance benefits payments shall be delayed until the earlier of (i) six (6) months and one day after the Executive’s separation from service, or (ii) the Executive’s death. The parties acknowledge that the exemptions from application of Section 409A to severance benefits are fact specific, and any later amendment of this Agreement to alter the timing, amount or conditions that will trigger payment of severance benefits may preclude the ability of severance benefits provided under this Agreement to qualify for an exemption.

(b) It is intended that this Agreement shall comply with the requirements of Section 409A, and any ambiguity contained herein shall be interpreted in such manner so as to avoid adverse personal tax consequences under Section 409A. Notwithstanding the foregoing, the Company shall in no event be obligated to indemnify the Executive for any taxes or interest that may be assessed by the Internal Revenue Service pursuant to Section 409A of the Code to payments made pursuant to this Agreement.

20. **SECTION 4999 EXCISE TAX.**

(a) If any payments, rights or benefits (whether pursuant to the terms of this Agreement or any other plan, arrangement or agreement of the Executive with the Company or any person affiliated with the Company) (the “**Payments**”) received or to be received by the Executive will be subject to the tax (the “**Excise Tax**”) imposed by Section 4999 of the Code (or any similar tax that may hereafter be imposed), then, except as set forth in Section 20(b) below, the Company shall pay to the Executive an amount in addition to the Payments (the “**Gross-Up Payment**”) as calculated below. The Gross Up Payment shall be in an amount such that, after deduction of any Excise Tax on the Payments and any federal, state and local income and employment tax and Excise Tax on the Gross Up Payment, but before deduction for any federal, state or local income and employment tax on the Payments, the net amount retained by the Executive shall be equal to the Payments.

(b) The process for calculating the Excise Tax, determining the amount of any Gross-Up Payment and other procedures relating to this Section 20, including the time period for making the Gross-Up Payment, are set forth in *Appendix A* attached hereto. For purposes of making the determinations and calculations required herein, the Accounting Firm (as defined in *Appendix A*) may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code, *provided that* the Accounting Firm shall make such determinations and calculations on the basis of “substantial authority” (within the meaning of Section 6662 of the Code) and the Company shall use reasonable efforts to cause the Accounting Firm to provide opinions to that effect to both the Company and Executive.

21. **REPRESENTATIONS.** The Executive represents and warrants to the Company that the Executive has the legal right to enter into this Agreement and to perform all of the obligations on the Executive’s part to be performed hereunder in accordance with its terms and that the Executive is not a party to any agreement or understanding, written or oral, which could prevent the Executive from entering into this Agreement or performing all of the Executive’s obligations hereunder. The Executive further represents and warrants that he has been advised to consult with an attorney and that he has been represented by the attorney of his choosing during the negotiation of this Agreement, that he has consulted with his attorney before executing this Agreement, that he has carefully read and fully understand all of the provisions of this Agreement and that he is voluntarily entering into this Agreement.

22. **WITHHOLDING.** The Company may withhold from any and all amounts payable under this Agreement such federal, state and local taxes as may be required to be withheld pursuant to any applicable law or regulation.

23. **SURVIVAL.** The respective obligations of, and benefits afforded to, the Company and the Executive which by their express terms or clear intent survive termination of the Executive’s employment with the Company, including, without limitation, the provisions of Section 8 and Sections 10 through 29, inclusive of this Agreement, will survive termination of the Executive’s employment with the Company, and will remain in full force and effect according to their terms.

24. **AGREEMENT OF THE PARTIES.** The language used in this Agreement will be deemed to be the language chosen by the parties hereto to express their mutual intent, and no rule of strict construction will be applied against any party hereto. No agreements or representations, oral or otherwise, express or implied, with respect to the subject matter hereof have been made by either party which are not expressly set forth in this Agreement. Neither the Executive nor the Company shall be entitled to any presumption in connection with any determination made hereunder in connection with any arbitration, judicial or administrative proceeding relating to or arising under this Agreement.

25. **INTEGRATION.** This Agreement, together with the Confidentiality Agreement and the Grant Agreements, contains the complete, final and exclusive agreement of the parties relating to the terms and conditions of the Executive's employment and the termination of the Executive's employment, and supersedes all prior and contemporaneous oral and written employment agreements or arrangements between the parties, including but not limited to the Prior Employment Agreement. The Executive acknowledges and agrees that the Company has fully satisfied, and has no further obligations to the Executive arising under, or relating to, the Prior Employment Agreement or any other employment or consulting arrangement or understanding or otherwise.

26. **AMENDMENT.** This Agreement cannot be amended or modified except by a written agreement signed by the Executive and a duly authorized officer of the Company.

27. **WAIVER.** No term, covenant or condition of this Agreement or any breach thereof shall be deemed waived, except with the written consent of the party against whom the waiver is claimed, and any waiver or any such term, covenant, condition or breach shall not be deemed to be a waiver of any preceding or succeeding breach of the same or any other term, covenant, condition or breach.

28. **CHOICE OF LAW.** This Agreement shall be construed and interpreted in accordance with the internal laws of the State of Delaware without regard to its conflict of laws principles.

29. **DISPUTE RESOLUTION.** To ensure the rapid and economical resolution of disputes that may arise in connection with the Executive's employment with the Company, the Executive and the Company both agree that any and all disputes, claims, or causes of action, in law or equity, including but not limited to statutory claims, arising from or relating to the enforcement, breach, performance, or interpretation of this Agreement, the Executive's employment with the Company, or the termination of the Executive's employment from the Company, will be resolved pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16, and to the fullest extent permitted by law, by final, binding and confidential arbitration conducted in Delaware by JAMS, Inc. ("**JAMS**") or its successors. **Both the Executive and the Company acknowledge that by agreeing to this arbitration procedure, each waives the right to resolve any such dispute through a trial by jury or judge or administrative proceeding.** Any such arbitration proceeding will be governed by JAMS' then applicable rules and procedures for employment disputes, which can be found at <http://www.jamsadr.com/rules-clauses/>, and which will be provided to the Executive upon request. In any such proceeding, the arbitrator shall: (i) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; and (ii) issue a written arbitration decision including the arbitrator's essential findings and conclusions and a statement of the award. The Executive and the Company each shall be entitled to all rights and remedies that either would be entitled to pursue in a court of law; *provided, however*, that in no event shall the arbitrator be empowered to hear or determine any class or collective claim of any type. Nothing in this Agreement is intended to prevent either the Company or the Executive from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration pursuant to applicable law. The Company shall pay all filing fees in excess of those which would be required if the dispute were decided in a court of law, and shall pay the arbitrator's fees and any other fees or costs unique to arbitration. Notwithstanding the foregoing, nothing in this Section 29 shall prevent the Company from seeking and obtaining a judicial junction in a court of competent jurisdiction to enforce a violation of Section 8 (and the Agreement referenced in Section 8) or 9 of this Agreement. Executive hereby agrees to waive a jury and filing of a bond for any such action by the Company.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, effective as of the date first written above.

SYNTHETIC BIOLOGICS, INC.

By: /s/ Jeffrey Kraws

Name: Jeffrey Kraws

Title: Chairman of the Board

Date: December 6, 2018

/s/ Steven A. Shallcross

Steven A. Shallcross

Date: December 6, 2018

## APPENDIX A

### TAX GROSS-UP PAYMENT RULES AND PROCEDURES

1. Subject to Paragraph 3 below, all determinations required to be made under Section 20 of this Agreement, including whether a Gross-Up Payment is required and the amount of such Gross-Up Payment, shall be made by an accounting firm (the "**Accounting Firm**") selected in accordance with Paragraph 2 below. The Company shall use reasonable efforts to cause the Accounting Firm to provide detailed supporting calculations both to the Company and Executive within 15 business days before the event that results in the potential for an excise tax liability for the Executive, which could include but is not limited to a Change in Control and the subsequent vesting of any cash payments or awards, or the Executive's termination of employment, or such earlier time as is required by the Company. The initial Gross-Up Payment, if any, as determined pursuant to this Paragraph 1, shall be paid on the Executive's behalf to the applicable taxing authorities by no later than the date the Executive is required to remit the taxes to such taxing authority. If the Accounting Firm determines that no Excise Tax is payable to the Executive, the Company shall use reasonable efforts to cause the Accounting Firm to furnish the Executive with a written report indicating that he has substantial authority not to report any Excise Tax on his federal income tax return. Any determination by the Accounting Firm shall be binding upon the Company and Executive. As a result of the uncertainty in the application of Section 4999 of the Code at the time of the initial determination by the Accounting Firm hereunder, it is possible that Gross-Up Payments which will not have been made by the Company should have been made ("**Underpayment**"), consistent with the calculations required to be made hereunder. In the event that the Company exhausts its remedies pursuant to Paragraph 3 below and the Executive thereafter is required to make a payment or additional payment of any Excise Tax, the Accounting Firm shall determine the amount of the Underpayment that has occurred and any such Underpayment, increased by all applicable interest and penalties associated with the Underpayment, shall be promptly paid by the Company to or for the benefit of the Executive. For purposes of determining the amount of the Gross-Up Payment, the Executive shall be deemed to pay federal income tax at the highest marginal rate of federal income taxation in the calendar year in which the Gross-Up Payment is to be made and state and local income taxes on earned income at the highest marginal rate of taxation in the state and locality of the Executive's residence on the Effective Date of Termination, net of the maximum reduction in federal income taxes which could be obtained from deduction of such state and local taxes.

2. The Accounting Firm shall be a public accounting firm proposed by the Company and agreed upon by the Executive. If the Executive and the Company cannot agree on the firm to serve as the Accounting Firm within ten (10) days after the date on which the Company proposed to the Executive a public accounting firm to serve in such capacity, then the Executive and the Company shall each select one accounting firm and those two firms shall jointly select the accounting firm to serve as the Accounting Firm within ten (10) days after being requested by the Company and the Executive to make such selection. The Company shall pay the fees of the Accounting Firm.

3. The Executive shall notify the Company in writing of any claim by the Internal Revenue Service that, if successful, would require the payment by the Company of the Gross-Up Payment. Such notification shall be given as soon as practicable but no later than fifteen (15) business days after the Executive knows of such claim and shall apprise the Company of the nature of such claim and the date on which such claim is requested to be paid. The Executive shall not pay such claim prior to the expiration of the period ending on the date that any payment of taxes with respect to such claim is due or the thirty (30) day period following the date on which the Executive gives such notice to the Company, whichever period is shorter. If the Company notifies the Executive in writing prior to the expiration of such period that it desires to contest such claim, the Executive shall (i) give the Company any information reasonably requested by the Company relating to such claim, (ii) take such action in connection with contesting such claim as the Company shall reasonably request in writing from time to time, including, without limitation, accepting legal representation with respect to such claim by an attorney reasonably selected by the Company, (iii) cooperate with the Company in good faith in order effectively to contest such claim, and (iv) permit the Company to participate in any proceedings relating to such claim; *provided, however*, that the Company shall bear and pay directly all costs and expenses (including attorneys' fees and any additional interest and penalties) incurred in connection with such contest and shall indemnify and hold the Executive harmless, on an after-tax basis, for any Excise Tax or income tax, including interest and penalties with respect thereto, imposed as a result of such representation and payment of costs and expenses. Without limitation of the foregoing provisions of this Paragraph 3, the Company shall control all proceedings taken in connection with such contest and, at its sole option, may pursue or forego any and all administrative appeals, proceedings, hearings and conferences with the taxing authority in respect to such claim and may, at its sole option, either direct the Executive to pay the tax claimed and sue for a refund or contest the claim in any permissible manner, and the Executive agrees to prosecute such contest to a determination before any administrative tribunal, in a court of initial jurisdiction and in one or more appellate courts, as the Company shall determine; *provided, however*, that if the Company directs the Executive to pay such claim and sue for a refund, the Company shall advance the amount of such payment to Executive, on an interest-free basis and shall indemnify and hold the Executive harmless, on an after-tax basis, from any Excise Tax and income tax, including interest or penalties with respect thereto, imposed with respect to such advance or with respect to any imputed income with respect to such advance; and further *provided that* any extension of the statute of limitations relating to payment of taxes for the taxable year of the Executive with respect to which such contested amount is claimed to be due is limited solely to such contested amount. Furthermore, the Company's control of the contest shall be limited to issues with respect to which a Gross-Up Payment would be payable hereunder and the Executive shall be entitled to settle or contest, as the case may be, any other issue raised by the Internal Revenue Service or any other authority.

4. If, after the receipt by the Executive of an amount advanced by the Company pursuant to Paragraph 3 above, the Executive becomes entitled to receive any refund with respect to such claim, the Executive shall (subject to the Company's complying with the requirements of Paragraph 3), promptly pay to the Company the amount of such refund (together with any interest paid or credited thereon after taxes applicable thereto).