

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT4306835

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
DAVID FRENDEWEY	10/14/2016
KA-MAN VENUS LAI	08/03/2016
WOJTEK AUERBACH	02/21/2017
GUSTAVO DROGUETT	08/03/2016
ANTHONY GAGLIARDI	08/15/2016
DAVID M. VALENZUELA	10/20/2016
VERA VORONINA	08/12/2016
LYNN MACDONALD	09/14/2016
ANDREW J. MURPHY	10/18/2016
GEORGE D. YANCOPOULOS	10/19/2016
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	REGENERON PHARMACEUTICALS, INC.
<b>Street Address:</b>	777 OLD SAW MILL RIVER ROAD
<b>City:</b>	TARRYTOWN
<b>State/Country:</b>	NEW YORK
<b>Postal Code:</b>	10591
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	14948221
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Email:</b>	steve.schilling@ALSTON.COM
<b>Correspondent Name:</b>	STEPHEN H. SCHILLING
<b>Address Line 1:</b>	4721 EMPEROR BLVD, SUITE 400
<b>Address Line 4:</b>	DURHAM, NORTH CAROLINA 27703
<b>ATTORNEY DOCKET NUMBER:</b>	057766/468262
<b>NAME OF SUBMITTER:</b>	STEPHEN H. SCHILLING

<b>SIGNATURE:</b>	/Stephen H. Schilling/
<b>DATE SIGNED:</b>	03/07/2017
	This document serves as an Oath/Declaration (37 CFR 1.63).
<b>Total Attachments: 40</b> source=T0044US01_468262_AssignmentEx#page1.tif source=T0044US01_468262_AssignmentEx#page2.tif source=T0044US01_468262_AssignmentEx#page3.tif source=T0044US01_468262_AssignmentEx#page4.tif source=T0044US01_468262_AssignmentEx#page5.tif source=T0044US01_468262_AssignmentEx#page6.tif source=T0044US01_468262_AssignmentEx#page7.tif source=T0044US01_468262_AssignmentEx#page8.tif source=T0044US01_468262_AssignmentEx#page9.tif source=T0044US01_468262_AssignmentEx#page10.tif source=T0044US01_468262_AssignmentEx#page11.tif source=T0044US01_468262_AssignmentEx#page12.tif source=T0044US01_468262_AssignmentEx#page13.tif source=T0044US01_468262_AssignmentEx#page14.tif source=T0044US01_468262_AssignmentEx#page15.tif source=T0044US01_468262_AssignmentEx#page16.tif source=T0044US01_468262_AssignmentEx#page17.tif source=T0044US01_468262_AssignmentEx#page18.tif source=T0044US01_468262_AssignmentEx#page19.tif source=T0044US01_468262_AssignmentEx#page20.tif source=T0044US01_468262_AssignmentEx#page21.tif source=T0044US01_468262_AssignmentEx#page22.tif source=T0044US01_468262_AssignmentEx#page23.tif source=T0044US01_468262_AssignmentEx#page24.tif source=T0044US01_468262_AssignmentEx#page25.tif source=T0044US01_468262_AssignmentEx#page26.tif source=T0044US01_468262_AssignmentEx#page27.tif source=T0044US01_468262_AssignmentEx#page28.tif source=T0044US01_468262_AssignmentEx#page29.tif source=T0044US01_468262_AssignmentEx#page30.tif source=T0044US01_468262_AssignmentEx#page31.tif source=T0044US01_468262_AssignmentEx#page32.tif source=T0044US01_468262_AssignmentEx#page33.tif source=T0044US01_468262_AssignmentEx#page34.tif source=T0044US01_468262_AssignmentEx#page35.tif source=T0044US01_468262_AssignmentEx#page36.tif source=T0044US01_468262_AssignmentEx#page37.tif source=T0044US01_468262_AssignmentEx#page38.tif source=T0044US01_468262_AssignmentEx#page39.tif source=T0044US01_468262_AssignmentEx#page40.tif	

## **ASSIGNMENT**

**WHEREAS, WE, David FRENDEWEY**, residing at 330 E. 38<sup>th</sup> Street, Apt. 53A, New York, New York 10016, a citizen of the United States of America, **Ka-Man Venus LAI**, residing at 127 West Main Street, Unit 201, Tarrytown, New York 10591, a citizen of Canada, **Wojtek AUERBACH**, residing at 833 Linwood Avenue, Ridgewood, New Jersey 07450, a citizen of Canada, **Gustavo DROGUETT**, residing at 4 Virginia Street, New City, New York 10956, a citizen of the United States of America, **Anthony GAGLIARDI**, residing at 156 Heather Drive, Hopewell Junction, New York 12533, a citizen of Canada, **David M. VALENZUELA**, residing at 529 Giordano Drive, Yorktown Heights, New York 10598, a citizen of the United States of America, **Vera VORONINA**, residing at 37 ½ Amos Street, Sleepy Hollow, New York 10591, a citizen of Russia and the United States of America, **Lynn MACDONALD**, residing at 16 Franklin Lane, Harrison, New York 10528, a citizen of the United States of America, **Andrew J. MURPHY**, residing at 10 Newton Court, Croton-on-Hudson, New York 10520, a citizen of the United States of America, and **George D. YANCOPOULOS**, residing at 1519 Baptist Church Road, Yorktown Heights, New York 10598, a citizen of the United States of America (HEREINAFTER CALLED "ASSIGNORS"), are inventors of the invention(s) disclosed and/or claimed in the following patent application:

### **"Methods and Compositions for Targeted Genetic Modification Using Paired Guide RNAs"**

U.S. Serial No. 14/948,221; filed November 20, 2015

**WHEREAS, REGENERON PHARMACEUTICALS, INC.**, a corporation organized and existing under the laws of the State of New York, with offices at 777 Old Saw Mill River Road, Tarrytown, New York 10591-6707, U.S.A. (HEREINAFTER called "ASSIGNEE") is desirous of acquiring our entire right, title and interest in, to, and under said application;

**NOW, THEREFORE**, in consideration of the sum of One Dollar (\$1.00) to us in hand paid, and other good and valuable consideration, the receipt of which is hereby acknowledged, **WE**, said ASSIGNORS, have sold, assigned, transferred and set over, and do hereby sell, assign, transfer and set over unto said ASSIGNEE, its successors, legal representatives, and

assigns, our entire right, title and interest for all countries in and to any and all inventions which are disclosed and claimed, and any and all inventions which are disclosed but not claimed, in the above-described patent application, and in and to said patent application and all divisions, renewals, continuations, and continuations-in-part thereof, and all Patents which may be granted thereon and all reexamination certificates, amendments, and reissues and extensions thereof; and all applications for industrial property protection, including, without limitation, all applications for patents utility models, and designs which may hereafter be filed for said inventions in any country or countries foreign to the United States, together with the right to file such applications and the right to claim for the same the priority rights derived from said patent application under the Patent Laws of the United States or any other country or countries foreign to the United States, the International Convention of 1883 and later modifications thereof, under the Patent Cooperation Treaty, under the European Patent Convention, or under any other applicable international agreement or under the domestic laws of the country in which any such patent application is filed, as may be applicable; and all forms of industrial property protection, including, without limitation, patents, utility models, inventors' certificates and designs which may be granted for said inventions in any country or countries foreign to the United States and all extensions, renewals, reexamination certificates, amendments, and reissues thereof;

**AND WE HEREBY** authorize and request the Commissioner of Patents and Trademarks of the United States and any Official of any country or countries foreign to the United States whose duty it is to issue patents or other evidence or forms of industrial property protection on application as aforesaid, to issue the same to the said ASSIGNEE, their successors, legal representatives and assigns, in accordance with this instrument;

**AND WE HEREBY** covenant and agree that WE have full right to convey the entire interest hereinafter assigned, and that WE have not executed, and will not execute, any agreement in conflict herewith;

**AND WE HEREBY** further covenant and agree that WE will communicate to said ASSIGNEE, its successors, legal representatives and assigns, any facts known to us respecting said inventions, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing, continuation-in-part, reissue, reexamination, and foreign applications, make all rightful oaths, and generally do everything possible to aid said ASSIGNEE, its successors, legal

representatives and assigns, to obtain and enforce proper protection for said inventions in all countries.

IN TESTIMONY WHEREOF, WE hereunto set OUR hands and seal the day and year set opposite our signatures.

Date: 14-Oct-2016

  
David FRENDEWEY

Date: \_\_\_\_\_

\_\_\_\_\_  
Ka-Man Venus LAI

Date: \_\_\_\_\_

\_\_\_\_\_  
Wojtek AUERBACH

Date: \_\_\_\_\_

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Gustavo DROGUETT

Date: \_\_\_\_\_

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Anthony GAGLIARDI

Date: \_\_\_\_\_

\_\_\_\_\_  
David M. VALENZUELA

Date: \_\_\_\_\_

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Vera VORONINA

Date: \_\_\_\_\_

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Lynn MACDONALD

Date: \_\_\_\_\_

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Andrew J. MURPHY

Date: \_\_\_\_\_

\_\_\_\_\_  
George D. YANCOPOULOS

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**"Methods and Compositions for Targeted Genetic Modification Using Paired Guide RNAs"**

U.S. Serial No. 14/948,221; filed November 20, 2015

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representatives and assigns, to obtain and enforce proper protection for said inventions in all countries.

**IN TESTIMONY WHEREOF**, WE hereunto set OUR hands and seal the day and year set opposite our signatures.

Date: \_\_\_\_\_

Date: 8/3/2016

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_


Date: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_  
David FRENDEWEY

  
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Ka-Man Venus LAI

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Wojtek AUERBACH

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Gustavo DROGUETT

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Vera VORONINA

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George D. YANCOPOULOS

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Date: \_\_\_\_\_

\_\_\_\_\_  
David FRENDEWEY

Date: \_\_\_\_\_

\_\_\_\_\_  
Ka-Man Venus LAI

Date: 2/21/2017

  
\_\_\_\_\_  
Wojtek AUERBACH

Date: \_\_\_\_\_

\_\_\_\_\_  
Gustavo DROGUETT

Date: \_\_\_\_\_

\_\_\_\_\_  
Anthony GAGLIARDI

Date: \_\_\_\_\_

\_\_\_\_\_  
David M. VALENZUELA

Date: \_\_\_\_\_

\_\_\_\_\_  
Vera VORONINA

Date: \_\_\_\_\_

\_\_\_\_\_  
Lynn MACDONALD

Date: \_\_\_\_\_

\_\_\_\_\_  
Andrew J. MURPHY

Date: \_\_\_\_\_

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George D. YANCOPOULOS

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\_\_\_\_\_  
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Date: \_\_\_\_\_

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Ka-Man Venus LAI

Date: \_\_\_\_\_

\_\_\_\_\_  
Wojtek AUERBACH

Date: 8/3/2016

  
\_\_\_\_\_  
Gustavo DROGUETT

Date: \_\_\_\_\_

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Anthony GAGLIARDI

Date: \_\_\_\_\_

\_\_\_\_\_  
David M. VALENZUELA

Date: \_\_\_\_\_

\_\_\_\_\_  
Vera VORONINA

Date: \_\_\_\_\_

\_\_\_\_\_  
Lynn MACDONALD

Date: \_\_\_\_\_

\_\_\_\_\_  
Andrew J. MURPHY

Date: \_\_\_\_\_

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George D. YANCOPOULOS

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Date: \_\_\_\_\_

\_\_\_\_\_  
David FRENDEWEY

Date: \_\_\_\_\_

\_\_\_\_\_  
Ka-Man Venus LAI

Date: \_\_\_\_\_

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Wojtek AUERBACH

Date: \_\_\_\_\_

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Gustavo DROGUETT

Date: 8/15/16

Anthony Gagliardi  
Anthony GAGLIARDI

Date: \_\_\_\_\_

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David M. VALENZUELA

Date: \_\_\_\_\_

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Vera VORONINA

Date: \_\_\_\_\_

\_\_\_\_\_  
Lynn MACDONALD

Date: \_\_\_\_\_

\_\_\_\_\_  
Andrew J. MURPHY

Date: \_\_\_\_\_

\_\_\_\_\_  
George D. YANCOPOULOS

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U.S. Serial No. 14/948,221; filed November 20, 2015

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Wojtek AUERBACH

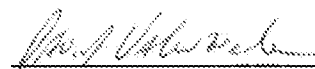
Date: \_\_\_\_\_

\_\_\_\_\_  
Gustavo DROGUETT

Date: \_\_\_\_\_

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Anthony GAGLIARDI

Date: October 20, 2016

  
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David M. VALENZUELA

Date: \_\_\_\_\_

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Vera VORONINA

Date: \_\_\_\_\_

\_\_\_\_\_  
Lynn MACDONALD

Date: \_\_\_\_\_

\_\_\_\_\_  
Andrew J. MURPHY

Date: \_\_\_\_\_

\_\_\_\_\_  
George D. YANCOPOULOS

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Date: \_\_\_\_\_

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\_\_\_\_\_  
Wojtek AUERBACH

Date: \_\_\_\_\_

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Gustavo DROGUETT

Date: \_\_\_\_\_

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Anthony GAGLIARDI

Date: \_\_\_\_\_

\_\_\_\_\_  
David M. VALENZUELA

Date: 8/12/2016

  
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Vera VORONINA

Date: \_\_\_\_\_

\_\_\_\_\_  
Lynn MACDONALD

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Wojtek AUERBACH

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Date: \_\_\_\_\_

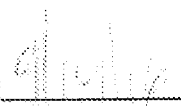
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Anthony GAGLIARDI

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**AND WE HEREBY** authorize and request the Commissioner of Patents and Trademarks of the United States and any Official of any country or countries foreign to the United States whose duty it is to issue patents or other evidence or forms of industrial property protection on application as aforesaid, to issue the same to the said ASSIGNEE, their successors, legal representatives and assigns, in accordance with this instrument;

**AND WE HEREBY** covenant and agree that WE have full right to convey the entire interest hereinafter assigned, and that WE have not executed, and will not execute, any agreement in conflict herewith;

**AND WE HEREBY** further covenant and agree that WE will communicate to said ASSIGNEE, its successors, legal representatives and assigns, any facts known to us respecting said inventions, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing, continuation-in-part, reissue, reexamination, and foreign applications, make all rightful oaths, and generally do everything possible to aid said ASSIGNEE, its successors, legal



representatives and assigns, to obtain and enforce proper protection for said inventions in all countries.

IN TESTIMONY WHEREOF, WE hereunto set OUR hands and seal the day and year set opposite our signatures.

Date: \_\_\_\_\_

\_\_\_\_\_  
David FRENDEWEY

Date: \_\_\_\_\_

\_\_\_\_\_  
Ka-Man Venus LAI

Date: \_\_\_\_\_

\_\_\_\_\_  
Wojtek AUERBACH

Date: \_\_\_\_\_

\_\_\_\_\_  
Gustavo DROGUETT

Date: \_\_\_\_\_

\_\_\_\_\_  
Anthony GAGLIARDI

Date: \_\_\_\_\_

\_\_\_\_\_  
David M. VALENZUELA

Date: \_\_\_\_\_

\_\_\_\_\_  
Vera VORONINA

Date: \_\_\_\_\_

\_\_\_\_\_  
Lynn MACDONALD

Date: \_\_\_\_\_

\_\_\_\_\_  
Andrew J. MURPHY

Date: 10/19/16

  
\_\_\_\_\_  
George D. YANCOPOULOS